ARABIC

NIZAM COLLEGE: DEPARTMENT OF ARABIC

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester II)

Class: BA, BSc and B.Com **Section:**

Course/Paper: Classical prose, Grammar and Translation

Unit: I Classical prose **No. of Hours Allotted**: 12

Topics to be covered	No. of Hours
AL QARIAH (explanation, reference, translation)	3
AL TAKASUR (explanation, reference, translation)	3
AL ASR (explanation, reference, translation)	3
AL HUMAZA (explanation, reference, translation)	3
Total hours	**12**

Dr. Syed Misbahuddin Hussaini

Name of the Teacher:

Signature:

Dr. Syed Misbahuddin Hussaini

I/C Head, Department of Arabic

Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester II)

Class: BA, BSc and B.Com **Section:**

Course/Paper: Classical prose, Grammar and Translation

Unit: II Grammar **No. of Hours Allotted**: 12

Topics to be covered	No. of Hours
NASABUL FEILIL MUDHARI (usage and practice with examples)	2
JAZMUL FEILIL MUDHARI (usage and practice with examples)	1
RAFUL FEILIL MUDHARI (usage and practice with examples)	2
KANA WA AKHAWATUHU (usage and practice with examples)	2
INNA WA AKHAWATUHU (usage and practice with examples)	1
JARRUL ISM (usage and practice with examples)	2
AL NAATU (Al sifatu) (usage and practice with examples)	2
Total hours	**12**

Dr. Syed Misbahuddin Hussaini

Name of the Teacher:

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I/C Head, Department of Arabic

Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester II)

Class: BA, BSc and B.Com **Section:**

Course/Paper: Classical prose, Grammar and Translation

Unit: III Translation (lesson no 13 to 16) **No. of Hours Allotted**: 12

Topics to be covered	No. of Hours
(Duroosullughatil Arabiyyah Part I (by Dr V Abdul Raheem) Lesson no 13 (reading, writing, speaking and translation from Arabic to English and vise verse)	3
(Duroosullughatil Arabiyyah Part I (by Dr V Abdul Raheem) Lesson no 14 (reading, writing, speaking and translation from Arabic to English and vise verse)	3
(Duroosullughatil Arabiyyah Part I (by Dr V Abdul Raheem) Lesson no 15 (reading, writing, speaking and translation from Arabic to English and vise verse)	3
(Duroosullughatil Arabiyyah Part I (by Dr V Abdul Raheem) Lesson no 16 (reading, writing, speaking and translation from Arabic to English and vise verse)	3
Total hours	**12**

Dr. Syed Misbahuddin Hussaini

Name of the Teacher:

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Dr. Syed Misbahuddin Hussaini

I/C Head, Department of Arabic

Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester II)

Class: BA, BSc and B.Com **Section:**

Course/Paper: Classical prose, Grammar and Translation

Unit: IV Translation (lesson no 17 to 20) **No. of Hours Allotted**: 12

Topics to be covered	No. of Hours
(Duroosullughatil Arabiyyah Part I (by Dr V Abdul Raheem) Lesson no 17 (reading, writing, speaking and translation from Arabic to English and vise verse)	3
(Duroosullughatil Arabiyyah Part I (by Dr V Abdul Raheem) Lesson no 18 (reading, writing, speaking and translation from Arabic to English and vise verse)	3
(Duroosullughatil Arabiyyah Part I (by Dr V Abdul Raheem) Lesson no 19 (reading, writing, speaking and translation from Arabic to English and vise verse)	3
(Duroosullughatil Arabiyyah Part I (by Dr V Abdul Raheem) Lesson no 20 (reading, writing, speaking and translation from Arabic to English and vise verse)	3
Total hours	**12**

Dr. Syed Misbahuddin Hussaini
Name of the Teacher:
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Dr. Syed Misbahuddin Hussaini
I/C Head, Department of Arabic
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LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester II)

Class: BA, BSc and B.Com **Section:**

Course/Paper: Classical prose, Grammar and Translation

Unit: V Translation (lesson no 21 to 23) **No. of Hours Allotted**: 12

Topics to be covered	No. of Hours
(Duroosullughatil Arabiyyah Part I (by Dr V Abdul Raheem) Lesson no 21 (reading, writing, speaking and translation from Arabic to English and vise verse)	4
(Duroosullughatil Arabiyyah Part I (by Dr V Abdul Raheem) Lesson no 22 (reading, writing, speaking and translation from Arabic to English and vise verse)	4
(Duroosullughatil Arabiyyah Part I (by Dr V Abdul Raheem) Lesson no 23 (reading, writing, speaking and translation from Arabic to English and vise verse)	4
Total hours	**12**

Dr. Syed Misbahuddin Hussaini
Name of the Teacher:
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Dr. Syed Misbahuddin Hussain
I/Head, Department of Arabic
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LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester I)

Class: BA, BSc and B.Com **Section:**

Course/Paper: Classical prose, Grammar and Translation

Unit: I Classical prose **No. of Hours Allotted**: 12

Topics to be covered	No. of Hours
Al Qadar (explanation, reference, translation)	3
Al Bayyina (explanation, reference, translation)	3
Al Zilzal (explanation, reference, translation)	3
Al Aadiyat (explanation, reference, translation)	3
Total hours	**12**

Dr. Syed Misbahuddin Hussaini

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I/C Head, Department of

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LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester I)

Class: BA, BSc and B.Com **Section:**

Course/Paper: Classical prose, Grammar and Translation

Unit: II Grammar **No. of Hours Allotted**: 12

Topics to be covered	No. of Hours
Al Jumlatul Mufeeda (usage and practice with examples)	1
Al Ism Wal Feil Wal Harf (usage and practice with examples)	1
Al Feilul Madhi (usage and practice with examples)	2
Al Feilul Mudhari (usage and practice with examples)	2
Feilul Amr (usage and practice with examples)	1
Al Fail Wal Mafool (usage and practice with examples)	2
Al Mubtada Wal Khabar (usage and practice with examples)	2
Al Jumlatul Ismiyyah WalJumlatul (usage and practice with examples)	1
Total hours	**12**

Dr. Syed Misbahuddin Hussaini

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I/C Head, Department of Arabic

Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester I)

Class: BA, BSc and B.Com **Section:**

Course/Paper: Classical prose, Grammar and Translation

Unit: III Translation (lesson no 1 to 4) **No. of Hours Allotted**: 12

Topics to be covered	No. of Hours
(Duroosullughatil Arabiyyah Part I (by Dr V Abdul Raheem) Lesson no 1 (reading, writing, speaking and translation from Arabic to English and vise verse)	3
(Duroosullughatil Arabiyyah Part I (by Dr V Abdul Raheem) Lesson no 2 (reading, writing, speaking and translation from Arabic to English and vise verse)	3
(Duroosullughatil Arabiyyah Part I (by Dr V Abdul Raheem) Lesson no 3 (reading, writing, speaking and translation from Arabic to English and vise verse)	3
(Duroosullughatil Arabiyyah Part I (by Dr V Abdul Raheem) Lesson no 1 (reading, writing, speaking and translation from Arabic to English and vise verse)	3
Total hours	**12**

Dr. Syed Misbahuddin Hussaini

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I/C Head, Department of Arabic

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LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester I)

Class: BA, BSc and B.Com **Section:**

Course/Paper: Classical prose, Grammar and Translation

Unit: IV Translation (lesson no 5 to 8) **No. of Hours Allotted**: 12

Topics to be covered	No. of Hours
(Duroosullughatil Arabiyyah Part I (by Dr V Abdul Raheem) Lesson no 5 (reading, writing, speaking and translation from Arabic to English and vise verse)	3
(Duroosullughatil Arabiyyah Part I (by Dr V Abdul Raheem) Lesson no 6 (reading, writing, speaking and translation from Arabic to English and vise verse)	3
(Duroosullughatil Arabiyyah Part I (by Dr V Abdul Raheem) Lesson no 7 (reading, writing, speaking and translation from Arabic to English and vise verse)	3
(Duroosullughatil Arabiyyah Part I (by Dr V Abdul Raheem) Lesson no 8 (reading, writing, speaking and translation from Arabic to English and vise verse)	3
Total hours	**12**

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LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester I)

Class: BA, BSc and B.Com **Section:**

Course/Paper: Classical prose, Grammar and Translation

Unit: V Translation (lesson no 9 to 12) **No. of Hours Allotted**: 12

Topics to be covered	No. of Hours
(Duroosullughatil Arabiyyah Part I (by Dr V Abdul Raheem) Lesson no 9 (reading, writing, speaking and translation from Arabic to English and vise verse)	3
(Duroosullughatil Arabiyyah Part I (by Dr V Abdul Raheem) Lesson no 10 (reading, writing, speaking and translation from Arabic to English and vise verse)	3
(Duroosullughatil Arabiyyah Part I (by Dr V Abdul Raheem) Lesson no 11 (reading, writing, speaking and translation from Arabic to English and vise verse)	3
(Duroosullughatil Arabiyyah Part I (by Dr V Abdul Raheem) Lesson no 12 (reading, writing, speaking and translation from Arabic to English and vise verse)	3
Total hours	**12**

Dr. Syed Misbahuddin Hussaini

Name of the Teacher:

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I/C Head, Department of Arabic

Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester III)

Class: BA, BSc and B.Com **Section:**

Course/Paper: Modern Prose (Translation), Modern Poetry and History of Arabic Literature

Unit: I **Modern Prose (Translation)** (lesson no 1 to 4) **No. of Hours Allotted**: 12

Topics to be covered	No. of Hours
(Duroosullughatil Arabiyyah Part II (by Dr V Abdul Raheem) Lesson no 1 (reading, writing, speaking and translation from Arabic to English and vise verse)	3
(Duroosullughatil Arabiyyah Part II (by Dr V Abdul Raheem) Lesson no 2 (reading, writing, speaking and translation from Arabic to English and vise verse)	3
(Duroosullughatil Arabiyyah Part II (by Dr V Abdul Raheem) Lesson no 3 (reading, writing, speaking and translation from Arabic to English and vise verse)	3
(Duroosullughatil Arabiyyah Part II (by Dr V Abdul Raheem) Lesson no 4 (reading, writing, speaking and translation from Arabic to English and vise verse)	3
Total hours	**12**

Dr. Syed Misbahuddin Hussaini

Name of the Teacher:

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LESSON PLAN FOR THE ACADEMIC YEAR 2018-2019 (Semester III)

Class: BA, BSc and B.Com **Section:**

Course/Paper: Modern Prose (Translation), Modern Poetry and History of Arabic Literature

Unit: II **Modern Prose (Translation)** (lesson no 5 to 7) **No. of Hours Allotted**: 12

Topics to be covered	No. of Hours
(Duroosullughatil Arabiyyah Part II (by Dr V Abdul Raheem) Lesson no 5 (reading, writing, speaking and translation from Arabic to English and vise verse)	4
(Duroosullughatil Arabiyyah Part II (by Dr V Abdul Raheem) Lesson no 6 (reading, writing, speaking and translation from Arabic to English and vise verse)	4
(Duroosullughatil Arabiyyah Part II (by Dr V Abdul Raheem) Lesson no 7 (reading, writing, speaking and translation from Arabic to English and vise verse)	4
Total hours	**12**

Dr. Syed Misbahuddin Hussaini

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I/C Head, Department of Arabic

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LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester III)

Class: BA, BSc and B.Com **Section:**

Course/Paper: Modern Prose (Translation), Modern Poetry and History of Arabic Literature

Unit: III **Modern Prose (Translation)** (lesson no 8 to 10) **No. of Hours Allotted**: 12

Topics to be covered	No. of Hours
(Duroosullughatil Arabiyyah Part II (by Dr V Abdul Raheem) Lesson no 8 (reading, writing, speaking and translation from Arabic to English and vise verse)	4
(Duroosullughatil Arabiyyah Part II (by Dr V Abdul Raheem) Lesson no 9 (reading, writing, speaking and translation from Arabic to English and vise verse)	4
(Duroosullughatil Arabiyyah Part II (by Dr V Abdul Raheem) Lesson no 10 (reading, writing, speaking and translation from Arabic to English and vise verse)	4
Total hours	**12**

Dr. Syed Misbahuddin Hussaini

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I/C Head, Department of Arabic

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LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester III)

Class: BA, BSc and B.Com **Section:**

Course/Paper: Modern Prose (Translation), Modern Poetry and History of Arabic Literature

Unit: IV **Modern Poetry** **No. of Hours Allotted**: 12

Topics to be covered	No. of Hours
Ifriqia by Shouqi (explanation, reference, translation)	1
Qalbi liljami by Hirawi (explanation, reference, translation)	1
Tahiyatul liqa by Hirawi (explanation, reference, translation)	1
Akhaka wa ibn Ammaka by Miskin Al Darmi (explanation, reference, translation)	2
Athratul lisan by Jafar bin Mohammed (explanation, reference, translation)	1
Fazlul lughat by Safiuddin Al Hilli (explanation, reference, translation)	2
Al Tair by Hirawi (explanation, reference, translation)	1
Al Nasheed Al Madrasi by Hirawi (explanation, reference, translation)	1
Al Kitab by a writer (explanation, reference, translation)	1
Unshudatul ied by a writer(explanation, reference, translation)	1
Total hours	**12**

Dr. Syed Misbahuddin Hussaini

Name of the Teacher:

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I/C Head, Department of Arabic

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LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester III)

Class: BA, BSc and B.Com **Section:**

Course/Paper: Modern Prose (Translation), Modern Poetry and History of Arabic Literature

Unit: V **History of Arabic Literature** **No. of Hours Allotted**: 12

Topics to be covered	No. of Hours
Importance of Arabic language, the properties of Arabic language, its grammar, totalitarianism of meaning, melody, synonyms and antonyms, similarity of forms and rhymes of words and vastness and ability for adoption	2
Literature, prose, proverbs, Oratory and good advices	1
Poetry, different forms of Arabic poetry, importance of poetry and narration of poetry	1
Main features of pre Islamic poetry	1
Literary gathering and fairs	1
Grouping of poets, Jahili, Mukhazarami, Islamic and Muwallideen or Muhadditeen	1
Mu'allaqat, the composers of Mu'allaqat	1
Imra'ul Qais, poetry of Imra'ul Qais	1
Zuhair bin Abi Salma, Tarfah bi Al Abd	1
Labid bin Rabia, Hatim Al Tai	1
Shanfari and Ta'abbata Sharra	1
Total hours	**12**

Dr. Syed Misbahuddin Hussaini

Name of the Teacher:

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I/C Head, Department of Arabic

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LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester IV)

Class: BA, BSc and B.Com **Section:**

Course/Paper: Modern Prose (Translation), Modern Poetry and History of Arabic Literature

Unit: I **Modern Prose (Translation)** (lesson no 11 to 14) **No. of Hours Allotted**: 12

Topics to be covered	No. of Hours
(Duroosullughatil Arabiyyah Part II (by Dr V Abdul Raheem) Lesson no 11 (reading, writing, speaking and translation from Arabic to English and vise verse)	3
(Duroosullughatil Arabiyyah Part II (by Dr V Abdul Raheem) Lesson no 12 (reading, writing, speaking and translation from Arabic to English and vise verse)	3
(Duroosullughatil Arabiyyah Part II (by Dr V Abdul Raheem) Lesson no 13 (reading, writing, speaking and translation from Arabic to English and vise verse)	3
(Duroosullughatil Arabiyyah Part II (by Dr V Abdul Raheem) Lesson no 14 (reading, writing, speaking and translation from Arabic to English and vise verse)	3
Total hours	**12**

Dr. Syed Misbahuddin Hussaini

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I/C Head, Department of Arabic

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LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester IV)

Class: BA, BSc and B.Com **Section:**

Course/Paper: Modern Prose (Translation), Modern Poetry and History of Arabic Literature

Unit: II **Modern Prose (Translation)** (lesson no 15 to 17) **No. of Hours Allotted**: 12

Topics to be covered	No. of Hours
(Duroosullughatil Arabiyyah Part II (by Dr V Abdul Raheem) Lesson no 15 (reading, writing, speaking and translation from Arabic to English and vise verse)	4
(Duroosullughatil Arabiyyah Part II (by Dr V Abdul Raheem) Lesson no 16 (reading, writing, speaking and translation from Arabic to English and vise verse)	4
(Duroosullughatil Arabiyyah Part II (by Dr V Abdul Raheem) Lesson no 17 (reading, writing, speaking and translation from Arabic to English and vise verse)	4
Total hours	**12**

Dr. Syed Misbahuddin Hussaini

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I/C Head, Department of Arabic

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LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester IV)

Class: BA, BSc and B.Com **Section:**

Course/Paper: Modern Prose (Translation), Modern Poetry and History of Arabic Literature

Unit: III **Modern Prose (Translation)** (lesson no 18 to 20) **No. of Hours Allotted**: 12

Topics to be covered	No. of Hours
(Duroosullughatil Arabiyyah Part II (by Dr V Abdul Raheem) Lesson no 18 (reading, writing, speaking and translation from Arabic to English and vise verse)	4
(Duroosullughatil Arabiyyah Part II (by Dr V Abdul Raheem) Lesson no 19 (reading, writing, speaking and translation from Arabic to English and vise verse)	4
(Duroosullughatil Arabiyyah Part II (by Dr V Abdul Raheem) Lesson no 20 (reading, writing, speaking and translation from Arabic to English and vise verse)	4
Total hours	**12**

Dr. Syed Misbahuddin Hussaini

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LESSON PLAN FOR THE ACADEMIC YEAR 2018-2019 (Semester IV)

Class: BA, BSc and B.Com **Section:**

Course/Paper: Modern Prose (Translation), Modern Poetry and History of Arabic Literature

Unit: IV **Modern Poetry** **No. of Hours Allotted**: 12

Topics to be covered	No. of Hours
Al Alam by a writer (explanation, reference, translation)	1
Unshudatu al Sabah by Hirawi (explanation, reference, translation)	1
Nasheedul Kashafa by Shouqi (explanation, reference, translation)	1
Al Zahia by Abdul Lateef Al Maghrabi (explanation, reference, translation)	1
Al Tabiatu by Ibn Saati (explanation, reference, translation)	1
Tahitul Matkat by Hirawi (explanation, reference, translation)	1
Al Ustaz wal Walid by a wiseman (explanation, reference, translation)	2
Al Najm by a writer(explanation, reference, translation)	2
Al Qamar by Hirawi (explanation, reference, translation)	1
Al Shams Tatahaddat an nafsiha by a writer (explanation, reference, translation)	1
Total hours	**12**

Dr. Syed Misbahuddin Hussaini
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LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester IV)

Class: BA, BSc and B.Com **Section:**

Course/Paper: Modern Prose (Translation), Modern Poetry and History of Arabic Literature

Unit: V **History of Arabic Literature** **No. of Hours Allotted**: 12

Topics to be covered	No. of Hours
Advent of Islam	3
Influence of Islam and Quran on literature	3
Oratory in Islamic period	2
Prose in the period of Rashideen	2
Compilation of Holy Quran	2
Total hours	**12**

Dr. Syed Misbahuddin Hussaini

Name of the Teacher:

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I/C Head, Department of Arabic

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NIZAM COLLEGE: DEPARTMENT OF BIOTECHNOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2018-2019(SEMESTER-I)

CLASS: BSC I YR **(CBCS)** SECTION: BIOTECHNOLOGY

COURSE/ PAPER: I (FUNDAMENTALS OF BIOTECHNOLOGY) NO OF HOURS ALLOTED: 15

UNIT: I	NO OF HOURS
Introduction to Biotechnology- History ,Nature, Scope and future prospectives	1
Cells as basic units of living organisms- Viruses, Bacteria, Fungi, Micro Algae, Plant and Animal cells	3
Ultra-Structure of prokaryotic cell (Cell membrane, Plasmids)	2
Ultra-structure of eukaryotic cell (Cell wall, Cell membrane, Mitochondria, Chloroplast, Endoplasmic reticulum, Golgi complex	4
Cell division and cell cycle	4
Significance of mitosis and meiosis	1

B.Deepika

NAME OF THE TEACHER HEAD, DEPARTMENT BIOTECHNOLOGY

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NIZAM COLLEGE: DEPARTMENT OF BIOTECHNOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2018-2019(SEMESTER-I)

CLASS: BSC I YR **(CBCS)** SECTION: BIOTECHNOLOGY

COURSE/ PAPER: I (FUNDAMENTALS OF BIOTECHNOLOGY) NO OF HOURS ALLOTED: 15

UNIT: II

TOPICS TO BE COVERED	NO OF HOURS
Outlines of classification microorganisms-five kingdom classification	2
Growth requirements of bacteria, reproduction, growth curve, growth kinetics (Batch and Continuous)	4
Microbial techniques- media preparation, types of media(selective and differential media, enriched media, enrichment media, natural and synthetic media), sterilization, isolation of pure cultures, preservation (Bacteria)	6
Genetics of Bacteria and viruses – Transformation, Conjugation, Transduction	3

B.Deepika

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LESSON PLAN FOR THE ACADEMIC YEAR 2018-2019(SEMESTER-I)

CLASS: BSC I YR **(CBCS)** SECTION: BIOTECHNOLOGY

COURSE/ PAPER: I (FUNDAMENTALS OF BIOTECHNOLOGY) NO OF HOURS ALLOTED: 15

UNIT: III

TOPICS TO BE COVERED	NO OF HOURS
DNA as the genetic material – Griffiths experiments on transformation in Streptococcus pneumoniae. Avery, Mc Leod and Mc Carty's experiments Hershey – Chase experiments with radio – labeled T2 bacteriophage	5
RNA as genetic material – Tobacco Mosaic Virus	1
Structure of DNA – Watson and Crick Model	2
Forms of DNA– A, B and Z forms of DNA, Super coiled and related DNA- Role of topoisomerases.	4
Types of RNA – mRNA, tRNA, rRNA	3

B.Deepika

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NIZAM COLLEGE: DEPARTMENT OF BIOTECHNOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2018-2019(SEMESTER-I)

CLASS: BSC I YR **(CBCS)** SECTION: BIOTECHNOLOGY

COURSE/ PAPER: I (FUNDAMENTALS OF BIOTECHNOLOGY) NO OF HOURS ALLOTED: 15

UNIT: IV

TOPICS TO BE COVERED	NO OF HOURS
Replication of DNA.	2
Modes of replication of DNA – Conservative, Semi conservative and Dispersive : Messelson and stahl experiment.	3
Models of DNA replication – Circular and linear DNA; Bi directional replication (leading and lagging strand synthesis).	2
Enzymes involved in DNA replication.	4
DNA damage and Repair mechanism.	4

B.Deepika

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NIZAM COLLEGE: DEPARTMENT OF BIOTECHNOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (SEMESTER-II)

CLASS: BSC I YR **(CBCS)** SECTION: BIOTECHNOLOGY

COURSE/ PAPER: II (FUNDAMENTALS OF BIOTECHNOLOGY)
NO OF HOURS ALLOTED: 15

UNIT: I

TOPICS TO BE COVERED	NO OF HOURS
Mendel's experiments – factors contributing to Mendel's experiments	1
Genotype, Phenotype, Dominance, Recessiveness, Homozygote, Heterozygote	1
Test cross, Back cross and Reciprocal crosses	1
Law of segregation – Monohybrid ratio	1
Law of Independent assortment- Dihybrid, Trihybrids	1
Deviation from Mendel Laws – partial or incomplete dominance, co-dominance Over dominance	1
Epistatic gene interaction- Modified dihybrid ratios (12:3:1, 9:7, 15:1, 9:3:4, 9:6:1, 13:3)	2
Penetrance and expressivity, pleiotropism, lethals and sublethals	1
Multiple alleles- ABO blood groups, coat color in Rabbit, Pseudo alleles- Rh factor	1
Genes and environment – Phenocopies	1
Pedigree analysis	1
Characteristics of Polygenes, Examples: skin colour in humans	1
Maternal inheritance- Chloroplasts (ex: variegation in four O clock plants), Mitochondria (ex: LHON)	2

B.Deepika

NAME OF THE TEACHER

SIGNATURE:

HEAD, DEPARTMENT BIOTECHNOLOGY

SIGNATURE:

NIZAM COLLEGE: DEPARTMENT OF BIOTECHNOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018(SEMESTER-I)

CLASS: BSC I YR **(CBCS)** SECTION: BIOTECHNOLOGY

COURSE/ PAPER: I (FUNDAMENTALS OF BIOTECHNOLOGY) NO OF HOURS ALLOTED: 15

UNIT: II

TOPICS TO BE COVERED	NO OF HOURS
Linkage, crossing over and recombination-Discovery of linkage, cytological proof of crossing over	3
Recombination frequency and map distance, Two-point test cross and Three-point test cross	4
Interference& coincidence	1
Mitotic crossing over in Drosophila	1
Mechanism of sex determination- Genic balance theory- Drosophila, Barr bodies	1
Homogametic and hetero gametic theory (Human, Mammals, Birds and Plants	1
Environmental control of sex determination- Bonellia	1
Sex linked inheritance- X- linkage, sex limited and sex influenced characters	2
Y- linkage – Holandric genes	1

B.Deepika

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LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018(SEMESTER-I)

CLASS: BSC I YR **(CBCS)** SECTION: BIOTECHNOLOGY

COURSE/ PAPER: I (FUNDAMENTALS OF BIOTECHNOLOGY) NO OF HOURS ALLOTED: 15

UNIT: III

TOPICS TO BE COVERED	NO OF HOURS
Measures of central values.	2
Measures of dispersion. . Kurtosis and skewness	2
Probability, basic laws and application to Mendelian segregation	2
Concepts of probability distributions. Binomial and poison distributions, Normal distribution and their application to biology	2
Concepts of sampling and sampling distribution.	1
Statistical inference: test of significance – null and alternative hypothesis, type I and type II errors, level of significance	3
Hypothesis testing: One sample inference – chi-square test, Two sample inference – paired t test, Multiple sample inference – one way ANOVA	2
Simple regression and Correlation.	1

B.Deepika

NAME OF THE TEACHER HEAD, DEPARTMENT BIOTECHNOLOGY

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NIZAM COLLEGE: DEPARTMENT OF BIOTECHNOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018(SEMESTER-I)

CLASS: BSC I YR **(CBCS)** SECTION: BIOTECHNOLOGY

COURSE/ PAPER: I (FUNDAMENTALS OF BIOTECHNOLOGY) NO OF HOURS ALLOTED: 15

UNIT: IV

TOPICS TO BE COVERED	NO OF HOURS
Biological databases – introduction to databases – sequence and structure databases, specialized databases.	3
Major bioinformatics resources – NCBI, EBI, ExPASy.	2
Sequence analysis and phyogeny: sequence alignment; introduction to scoring matrices PAM and BLOSSUM; similarity and database searching tools – FASTA, BLAST; introduction to phylogenetic trees.	6
Drug discovery-ligabd designing and optimization, docking, applications in drug discovery.	4

B.Deepika

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NIZAM COLLEGE: DEPARTMENT OF BIOTECHNOLOGY
Semester III

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester III)

Class: B.Sc Section:

Paper:III (BIOCHEMISTRY & METABOLISM

Unit: I (BIOMOLECULES) No. of Hours Allotted: 15

Topics to be covered	No. of Hours
Introduction to carbohydrates- types and characteristics	1
Carbohydrates – general structure and properties of carbohydrates and their functions in the cell; sterio isomerism and mutarotation	1
Carbohydrates - Monosaccharides (glucose, fructose, mannose, galactose), ▪ Disaccharides (sucrose, lactose, maltose, cellobiose)	1
Carbohydrates- Homo and Hetero polysaccharides (starch, inulin, cellulose, chitin, hyaluronic acid)	1
Nucleic acids: General structure and properties of nucleic acids and their function in the cell; -Building blocks of nucleic acids - purines and pyrimidines, nucleosides, nucleotides, Chargaff's rules;	1
Nucleic acids -DNA - double helix structure, properties and function Watson - Crick Model (B-DNA),	1
Nucleic acids- deviations from Watson - Crick Model, Other DNA helices (A- & Z-DNA);	1
Nucleic acids: - RNA - types and functions of m-RNA, t-RNA and r-RNA.	1
Lipids – general structure and properties of lipids and phospholipids and their function in the cell.	1
Lipids- Fatty acids – classification, structure and properties of saturated and unsaturated fatty acids; saponifiable and non saponifiable lipids	1
Lipids - Structure and functions of phospholipids (esp. lecithin cephalin, phospotidyl inositol and phospotidyl serine) spingo myelin.	1
Lipids - Structure and functions of cholesterol.	1
Introduction to Vitamins and coenzymes: classification of vitamins	1
vitamins- fat soluble and water soluble vitamins	**1**
Vitamins- Biological role and importance of vitamins and their deficiencies.	**1**

Dr. Sambashiva. Daravath

Name of the Teacher: Head, Department of
Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF BIOTECHNOLOGY
Semester III

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester III)

Class: B.Sc Section:

Paper:III (BIOCHEMISTRY & METABOLISM

Unit II: Biomolecules –Proteins and Enzymes No of Hours allotted: 15

Topics to be covered	No. of Hours
Introduction to Amino acids and Proteins	1
Amino acids – different types of classification and structure of amino acids.	1
Amino acids -Properties of amino acids, zwitter ion, and stereoisomerism)	1
Proteins - Primary, secondary, tertiary, quaternary levels of protein structure: types of bonds and forces that stabilize each level– alpha helix and beta sheets;	2
Enzymes: classification and nomenclature of enzymes; General properties of enzymes.	1
Enzymes - Kinetics and Mechanism of enzyme action: Specificity of enzyme action	1
Enzymes - Kinetics of single substrate reactions, Michaelis –Menten's equation	2
Regulation of enzyme activity**:** Allosteric regulation of enzymes	1
Enzymes - Factors influencing enzymatic reactions- ph, temperature, substrate conc, enzyme concentration	2
Enzyme inhibitions**:** introduction and types	1
Enzyme inhibition -competitive, non-competitive & uncompetitive inhibitions;	2

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NIZAM COLLEGE: DEPARTMENT OF BIOTECHNOLOGY
Semester III

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester III)

Class: B.Sc Section:

Paper:III (BIOCHEMISTRY & METABOLISM

Unit: III No of Hours allotted: 15

Topics to be covered	No. of Hours
Introduction to Bioenergetics	1
Types of energetic reactions: catabolism and anabolism	1
Energy generating pathways – Glycolysis and its significance	2
Energy generating pathways – TCA cycle and metabolics	2
Energy generating pathways –ETC (chemiosmatic theory of ATP synthesis)	2
Energy generating pathways -Photosynthesis**:** light reaction, dark reaction	2
Energy generating pathways- calvin/C_3 cycle	2
Energy generating pathways - $C_{4\ cycle}$	1
Energy generating pathways -Gluconeogenesis and its significance	2

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NIZAM COLLEGE: DEPARTMENT OF BIOTECHNOLOGY
Semester III

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester III)

Class: B.Sc Section:

Paper:III (BIOCHEMISTRY & METABOLISM

Unit – IV No of Hours allotted: 15

Topics to be covered	No. of Hours
Introduction to Lipid metabolism**:**	1
Degradation of fatty acids by β- oxidation (even and odd chain saturated fatty acids).	2
Protein Metabolism**:** transamination, deamination and decarboxylation of amino acids	2
Catabolism of amino acids: phenylalanine	1
Catabolism of amino acids: tyrosine (phenylketoneuria and albinism respectively)	2
HORMONES : introduction to hormones and biological significance.	1
HORMONES: Classification based on chemical nature(peptide, steroid hormones and amino acid derivatives.	2
HORMONES - Hypothalamic and pituitary homones,	2
Hormones - thyroid hormones and adrenal hormones,	1
Hormones of gonads, gastrointestinal hormones	1

Dr. Sambashiva. Daravath

Name of the Teacher: Head, Department of
Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF BIOTECHNOLOGY
Semester IV

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester IV)

Class: B.Sc Section:

Paper:IV (BIOPHYSICAL CHEMISTRY AND INSTRUMENTATION

Unit: I No. of Hours Allotted: 15

Topics to be covered	No. of Hours
Introduction to P^H and Buffers	1
Molecules and Interactions- Strong and Weak interactions in Biomolecules: Ionic, Covalent, Hydrogen bond, Vanderwaals forces.	2
Laws of Thermodynamics- types of thermodynamics.	2
Introduction to Microscopy- Principles and applications.	1
Light and Electron microscopy - Dark field, Bright field,	1
Phase contrast, Fluorescent Microscope,	1
Scanning and Transmission Electron microscopy.	2
Introduction to Spectroscopy- Principles and applications	1
UV and Visible Spectroscopy	2
Colorimetry- Principles and applications of colorimetry	2

Dr. Sambashiva. Daravath

Name of the Teacher: Head, Department of
Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF BIOTECHNOLOGY
Semester IV

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester IV)

Class: B.Sc Section:

Paper:IV (BIOPHYSICAL CHEMISTRY AND INSTRUMENTATION

Unit II: No of Hours allotted: 15

Topics to be covered	No. of Hours
Introduction to chromatographic techniques	1
Chromatography- Principles and applications of Chromatography.	1
Chromatography- paper, Thin Layer,	2
Ion Exchange Chromatography	2
Gel Filtration and Affinity chromatography	2
Chromatography - HPLC.	2
Electrophoresis- Principle of Electrophoresis, support media, Agarose, polyacrylamide.	2
Types of Electrophoresis- SDS-PAGE,	1
AGE (Agarose gel Electrophoresis), Immuno Electrophoresis.	2

Dr. Sambashiva. Daravath

Name of the Teacher: Head, Department of
Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF BIOTECHNOLOGY
Semester IV

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester IV)

Class: B.Sc Section:

Paper:IV (BIOPHYSICAL CHEMISTRY AND INSTRUMENTATION

Unit: III No of Hours allotted: 13

Topics to be covered	No. of Hours
Introduction to centrifugation technique and its importance	1
Centrifugation- Basic Principles and applications of Centrifugation.	1
Types of Centrifuges- Differential Centrifugation,	1
Types of Centrifuges -Density Gradient Centrifugation (Rate zonal, isopycnic centrifugation),	2
Types of Centrifuges -Ultra Centrifugation and its mechanism	2
Radioactive isotopes and their types, measures of Radioactivity,	2
GM Counter and Scintillation Counter.	2
Applications of Radio isotopes in medicine and diagnosis.	2

Dr. Sambashiva. Daravath

Name of the Teacher: Head, Department of
Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF BIOTECHNOLOGY
Semester IV

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester IV)

Class: B.Sc Section:

Paper:IV (BIOPHYSICAL CHEMISTRY AND INSTRUMENTATION

Unit – IV No of Hours allotted: 10

Topics to be covered	No. of Hours
Introduction to Autoradiography and its mechanism	2
Dialysis types and medical importance	2
Ultrafiltration.	2
Lyophilization.	2
Biosensors-principles and applications in Medical diagnosis, industrial, agriculture, Environmental monitoring.	2

Dr. Sambashiva. Daravath

Name of the Teacher: Head, Department of
Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF BIOTECHNOLOGY

SEMESTER V

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021(SEMESTER V)

Class:BSc III yr(**CBCS**) Paper V(MOLECULAR BIOLOGY)

Section: Biotechnology No.of Hours Alloted:15

Unit I

Topics to be covered	No. of Hours
Prokaryotic And viral Genome organization	2
Eukaryotic Genome organization: • Chemical composition of DNA- GC content, C-Value and C- Value paradox • Re-association kinetics of DNA- Denaturation and renaturation, Meltingtemperature(Tm values), Cot curves Kinetic classes of DNA- Single copy sequences, repeated sequences, inverted,tandem and Palindromic repeats	4
Organellar Genomes: mitochondrial genome, chloroplast genome	2
Molecular organization of chromosomes: • Levels of chromosome organization in eukaryotes - chromatin, nucleosomes, 30nm fibre, looped domains, chromosome. • Euchromatin and Heterochromatin; centromeres, teleomers; Specialized chromosomes: polytene and 4lampbrush Chromosomes	4
Gene and gene numbers	1
Gene families and clusters- Globin, Ribosomal genes	2

B.Ashok Reddy

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NIZAM COLLEGE: DEPARTMENT OF BIOTECHNOLOGY
SEMESTER V
LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018(SEMESTER V)

Class:BSc III yr(**CBCS**) Paper V(MOLECULAR BIOLOGY)
Section: Biotechnology No.of Hours Alloted:15

Unit II

Topics to be covered	**No. of Hours**
Exons, introns, promoters and terminators	4
Transcription in Prokaryotes	4
Transcription in Eukaryotes	4
Post-transcriptional modifications (Capping, polyadenylation, splicing and alternate Splicing)	3

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NIZAM COLLEGE: DEPARTMENT OF BIOTECHNOLOGY
SEMESTER V
LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018(SEMESTER V)

Class:BSc III yr(**CBCS**) Paper V(MOLECULAR BIOLOGY)
Section: Biotechnology No.of Hours Alloted:15

Unit III

Topics to be covered	**No. of Hours**
Genetic code and its features, single letter notation for amino acids, Wobble Hypothesis	4
Translation: Synthesis of polypeptides- initiation, elongation and termination in prokaryotes andEukaryotes	5
Regulation of gene expression in prokaryotes-Lac operon	4
Regulation of gene expression in eukaryotes- Mating types in yeasts	2

G.Sandhya

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NIZAM COLLEGE: DEPARTMENT OF BIOTECHNOLOGY

SEMESTER V

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018

Class:BScIIIyr (**CBCS**) Paper VIA(MEDICAL BIOTECHNOLOGY)

Section:Biotechnology No.of Hours Alloted:15

Unit I

Topics to be covered	No. of Hours
Classification of chromosomes-karyotype	1
Chromosomal disorders-Numerical disorders e.g.trisomies&monosomies,structural disorders e.g.deletions,duplications,translocations&inversions,chromosomal instability syndromes	4
Gain of function mutations:Huntington's disease	1
Loss of function –Tumor suppressor genes	1
Dynamic mutations –Fragile X syndrome	1
Mitochondriandisease:MELAS,LHON,MERRF	3
Immunopathology,Hepatitis,HIV,Autoimmune disorders-SLE,RA	4

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NIZAM COLLEGE: DEPARTMENT OF BIOTECHNOLOGY

SEMESTER V

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018

Class:BScIIIyr (**CBCS**) Paper VIA(MEDICAL BIOTECHNOLOGY)

Section:Biotechnology No.of Hours Alloted:15

Unit II

Topics to be covered	No.of Hours
Clinical management and metabolic manipulation – PKU,FamilialHypercholesterolemia,ADA	4
Gene therapy –Ex-vivo,Invivo,Insitu gene theraoy,strategies of gene therapy,Gene augmentation-ADA deficiency,CFTR	4
Vectors used in gene therapy-Biological vectors-retro virus,adenovirus,synthetic vectors-liposomes,receptor mediated gene transfer	4
Stem cells-Embryonic and adult stem cells,Totipotent,Pluripotent and Multipotent	3

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NIZAM COLLEGE: DEPARTMENT OF BIOTECHNOLOGY

SEMESTER V

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018

Class:BScIIIyr (**CBCS**) Paper VIA(MEDICAL BIOTECHNOLOGY)

Section:Biotechnology No.of Hours Alloted:15

Unit III

Topics to be covered	No.of Hours
Prenatal diagnosis-invasive techniques-Aminocentesis,Chronic villi sampling(CVS),Non-invasive techniques-Ultrasonography,TIFA	4
Microarray technology-genomic and Cdnaarrays,application to diseases	3
Gene products in medicine-Humulin,Erythropoietin,Growth Hormone(Somatostatin)	3

B.Deepika

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NIZAM COLLEGE: DEPARTMENT OF BIOTECHNOLOGY

SEMESTER VI

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021

Class:BScIIIyr(**CBCS**) Paper vIB(BIOPROCESS TECHNOLOGY)

Section:Biotechnology No.of Hours Alloted:15

Unit I

Topics to be covered	No. of hours
Introduction to fermentation	1
Historical perspectives of Fermentation Technology and its applications	1
An overview of Upstream and Down stream processing	5
Design of Fermentor-Components of Fermentor and their functions	3
Types of Bioreactors-Stirred tank Fermenter, Air lifetFermenter,Bubble Column Fermenter, Fluidized Bed Bioreactor, Packed Bed Bioreactor.	5

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NIZAM COLLEGE: DEPARTMENT OF BIOTECHNOLOGY

SEMESTER VI

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018

Class:BScIIIyr(**CBCS**) Paper vIB(BIOPROCESS TECHNOLOGY)

Section:Biotechnology No.of Hours Alloted:15

Unit II

Topics to be covered	No.of Hours
Media compositin and formulation-substrates used as carbon and Nitrogen sources	3
Bioprocess controle	2
Instrumentation for controlling Bioreactors	3
Online and off-line analysis	2
Manual and automatic controle systems	2
PID and DSC controle computer systems	3

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NIZAM COLLEGE: DEPARTMENT OF BIOTECHNOLOGY

SEMESTER VI

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018

Class:BScIIIyr(**CBCS**) Paper vIB(BIOPROCESS TECHNOLOGY)

Section:Biotechnology No.of Hours Alloted:15

Unit iii

Topics to be covered	No. of Hours
Down stream processing- foam separation	2
Primary separation-removal of insoluble products/cell(centrifugation, filteration and sedimentation)	3
Cell distruption(Mechanical, enzymatic and chemical)	2
Product isolation-solvent extraction, adsorption, aqueous two phase system and precipitation	2
Purification techniques-a. chromaqtography(Ion exchange, gel permeation and affinity) b.Membrane separation (Micro filteration, ultra filteration and reverse phase electro phoresis	4

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NIZAM COLLEGE: DEPARTMENT OF BIOTECHNOLOGY

SEMESTER VI

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021(SEMESTER VI)

Class:BScIIIyr(**CBCS**) Paper VII(GENETIC ENGINEERING AND IMMUNOLOGY)

Section: Biotechnology No.of Hours Alloted:15

Unit I

Topics to be covered	**No. of Hours**
Enzymes used in gene cloning a) Restriction endonucleases b) Polymerases c) Ligases d) Phosphatases e) Kinases f) Methylases	3
Properties of vectors cloning and expression vectors- Baculovirus vector system	3
Plasmids: Classification, basic features, size and copy number plasmid incompatibility, plasmid vectors (pBR322, pBR327, pUC)	4
Phage vectors: Insertional vectors (λgt), Replacement vectors (EMBL) m-13 vectors	3
Cosmids	1
Shuttle vectors	1

B.Ashok Reddy

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NIZAM COLLEGE: DEPARTMENT OF BIOTECHNOLOGY

SEMESTER VI

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021(SEMESTER VI)

Class:BScIIIyr(**CBCS**) Paper VII(GENETIC ENGINEERING AND IMMUNOLOGY)

Section: Biotechnology No.of Hours Alloted:15

Unit ii

Topics to be covered	No. of Hours
Construction of Genomic and c-DNA libraries,cloning process-ligation and transformation	3
Selection of recombinant clones a) Genetic selection b) Blotting techniques- Southern, Northern and Western c) Hybrid released translation (HRT), Hybrid arrested translation (HART	3
Principles and applications of PCR Technology, types of PCR (ARMS, RT and REAL TIME PCR)	3
DNA Finger printing technique and its applications	2
2.5 Applications of genetic engineering – Transgenic plants and transgenic animals	4

B.Ashok Reddy

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NIZAM COLLEGE: DEPARTMENT OF BIOTECHNOLOGY

SEMESTER VI

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021(SEMESTER VI)

Class:BScIIIyr(**CBCS**) Paper VII(GENETIC ENGINEERING AND IMMUNOLOGY)

Section: Biotechnology No.of Hours Alloted:15

Unit iii

Topics to be covered	**No. of Hours**
Immunity- Innate and Acquired immunity	1
Introduction to immune system – Organs and cells of the immune system	2
Antigens, Haptens: Physico-chemical characteristics	1
Structure of different immunoglobulins and their function Primary and secondary immune response	2
Antigen – antibody reaction	1
Monoclonal antibodies – Hybridoma technology	2
The Major Histocompatibility gene complex and its role in organ transplantationGeneration of antibody diversity	2
Hypersensitivity – Coombs classification, types of hypersensitivity	2
Autoimmune diseases – mechanism of autoimmunity	2

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NIZAM COLLEGE: DEPARTMENT OF BIOTECHNOLOGY

SEMESTER VI

ELECTIVE-1

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018

Class:BScIIIyr(**CBCS**) PaperVIII A(ANIMAL AND INDUSTRIAL BIOTECHNOLOGY)

Section:Biotechnology No.of Hours Alloted:15

Unit I

Topics to be covered	No. of Hours
1.1 Introduction and scope of animal biotechnology.	1
1.2 Animal cell culture- CultureVessels, Growth media components and types of media- Natural and Artificial.	2
Primary cell culture Techniques- Explant, Cell disaggregation (Mechanical, Enzymatic), Separation of Viable and non-viable cells	3
1.3 Establishment and preservation of cell lines- Maintenance and types of cell lines- Finite and Continuous cell lines, preservation of Cell lines.	3
1.4 Methods of Gene transfer in Animal cells- Microinjection, Electroporation, Lipofection, Viral mediated Gene Transfer Techniques.	2
1.5 Production of Transgenic Animals and Molecular Pharming.	2
1.6 Animal Transgenic Models for studying diseases- Knock out, Alzheimer's disease.	2

Name of the teacher Head,department of Biotechnology

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NIZAM COLLEGE: DEPARTMENT OF BIOTECHNOLOGY

SEMESTER VI

ELECTIVE-1

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018

Class:BScIIIyr(**CBCS**) PaperVIII A(ANIMAL AND INDUSTRIAL BIOTECHNOLOGY)

Section:Biotechnology No.of Hours Alloted:15

Unit ii

Topics to be covered	No.of Hours
Introduction and Scope of Industrial Biotechnology	1
Primary and Secondary Metabolic products of microorganisms	2
Screening – Primary and secondary Screening Techniques, introduction to strain improvement.	3
Types of fermentation- Classification of Fermentation based on availability of oxygen, mediatype (aerobic and anaerobic fermentation, solid state and submerged fermentation), Batch andContinuous Fermentation.	6
Methods of immobilization- Adsorption, Covalent binding, Entrapping and Encapsulation.	3

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NIZAM COLLEGE: DEPARTMENT OF BIOTECHNOLOGY

SEMESTER VI

ELECTIVE-1

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018

Class:BScIIIyr(**CBCS**) PaperVIII A(ANIMAL AND INDUSTRIAL BIOTECHNOLOGY)

Section:Biotechnology No.of Hours Alloted:15

Unit iii

Topics to be covered	**No.of Hours**
Production of Alcoholic Beverages- Wine, Alcohol/ Ethanol	3
Production of chemicals- Citric acid, Glutamic acid	3
Production of therapeutic proteins: Antibiotics- Pencillin, vitamins- Riboflavin	3
Production of Enzymes- Amylases, Proteases	3
Applications of immobilized Enzymes and Whole cells.	3

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NIZAM COLLEGE: DEPARTMENT OF BIOTECHNOLOGY

SEMESTER VI

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018

Class:BScIIIyr (**CBCS**) Paper VIIIB(PLANT AND ENVIRONMENTAL BIOTECHNOLOGY)

Section:BiotechnologyNo.of Hours Alloted:15

Unit I

Topics to be covered	No.of Hours
Introduction and scope of Plant Biotechnology	1
Composition of media(MS MEDIA,Gamborgs media),Preparation of media and sterilization methods(Explant sterilisation)	3
Types of plant tissue culture-Embryo culture,Callusculture,Meristemculture,Protoplast culture	4
Role of Micronutrients and plant growth regulators in differentiation.	2
Methods of gene transfer techniques in plants-particle bombardment,microinjection,electroporation,agrobacterium mediated gene transfer,lipofection	5

B.Ashok Reddy

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NIZAM COLLEGE: DEPARTMENT OF BIOTECHNOLOGY

SEMESTER VI

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018

Class:BScIIIyr (**CBCS**) Paper VIIIB(PLANT AND ENVIRONMENTAL BIOTECHNOLOGY)

Section:BiotechnologyNo.of Hours Alloted:15

Unit ii

Topics to be covered	No. of Hours
Clonal propagation of plants on commercial scale(somatic embryogenesis)	3
Meristem culture and production of virus free plants.	3
Somatic hybridization	2
Somaclonal variation	2
Production of secondary metabolites by plant cells(shikonin)	1
Production of therapeutic proteins from transgenic plants	1
Applications of recombinant DNA technology in agriculture	3

B.Deepika

Name of the teacher Head,department of Biotechnology

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NIZAM COLLEGE: DEPARTMENT OF BIOTECHNOLOGY

SEMESTER VI

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018

Class:BScIIIyr (**CBCS**) Paper VIIIB(PLANT AND ENVIRONMENTAL BIOTECHNOLOGY)

Section:BiotechnologyNo.of Hours Alloted:15

Unit iii

Topics to be covered	No.of Hours
Introduction and scope of Environmental biotechnology	1
Renewable and non- renewable energy resources	2
Conventional,non-conventional energy sources and their impact on environment	3
Microbiological quality of milk,food and water	3
Microbiological treatment of municipal and industrial effluents.	3
Biofertilizers,biopesticides,bioremediation,phytoremediation,biomineralization,biomonitoring And biodeterioration	3

B.Ashok Reddy

Name of the teacher Head,department of biotechnology

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BOTONY

NIZAM COLLEGE: DEPARTMENT OF BOTANY

Lesson Plan for the academic year 2020-2021

Class: B.Sc-1st year **(Semester I)** **Section: Botany**

Course/Paper: I – (Microbial diversity)

UNIT: I – Viruses **No. of Hours Allotted:** 15 Hrs

Topics to be covered	No. of. Hours
Origin and evolution of life with reference to microbes-an outline.	2
Viruses – general structure of TMV and bacteriophages,	4
Replication and transmission of viruses	2
Purification of plant viral particles	3
An outline of important plant diseases caused by viruses and their control	3
Brief account of Archebacteria, Actinomycetes and Mycoplasma	1
Total	**15 Hours**

Name of the Teacher: Dr. A. Vijaya Bhasker Reddy, Assistant Professor

NIZAM COLLEGE: DEPARTMENT OF BOTANY

Lesson Plan for the academic year 2020-2021

Class: B.Sc-1st year **(Semester II)** **Section: Botany**

Course/Paper: II – (Plant diversity)

UNIT: IV – Angiosperm taxonomy **No. of Hours Allotted:** 15 Hrs

Topics to be covered	No. of. Hours
Introduction to Angiosperm Taxonomy	2
Taxonomy and its significance and Opportunities	1
Basic principles of Plant taxonomy	1
International Code of Nomenclature (ICN for plants)	2
Binominal system of nomenclature	1
Typification	1
History of classification	1
Types of classifications –Artificial classification (Linnaeus system)	1
Natural classification (Bentham & Hooker system)	1
Phylogenetic classification (Engler & Prantl system)	1
APG system of classification	1
Herbarium techniques	1
DNA barcoding. Web resources – BHL, IPNI, Species 2000, Tropicos and The Plant List.	1
Total	**15 Hours**

Name of the Teacher: Dr. A. Vijaya Bhasker Reddy

NIZAM COLLEGE: DEPARTMENT OF BOTANY

Lesson Plan for the academic year 2020-2021

Class: B.Sc-2nd year **(Semester III)** **Section: Botany**

Course/Paper: III – (Embryology, Anatomy, Biodiversity)

UNIT: III –Biodiversity **No. of Hours Allotted:** 15 Hrs

Topics to be covered	No. of. Hours
Concepts, Convention on Biodiversity-Earth Summit	
Types and Levels of Biodiversity	
Hotspots of Biodiversity in India	
Endemism	
Threats and Value of Biodiversity	
Conservation- Ex situ and In situ conservation	
Red data book, IUCN Red List Categories and Criteria, Threatened & Endangered Plants of India	
Role of organizations/programs in the conservation of Biodiversity: BSI, IUCN, UNEP, UNCED, LACONES, NBPGR, NBRI, WWF	
Protected Area network in state of Telangana-National Parks, Wildlife sanctuaries & Tiger reserves	
Total	**15 Hours**

Name of the Teacher: Dr. A. Vijaya Bhasker Reddy

NIZAM COLLEGE : DEPARTMENT OF BOTANY

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester II)

Class : B.sc 1st year **Section:Botany**

Course/Paper:II - Plant Diversity (Bryophytes, pteridophytes, Gymnosperms and Angiosperms Taxonomy)

Unit:l - Bryophytes	**No.of Hours**
Topics to be covered	**Allotted**: 15
General characters of Bryophytes-structure, reproduction, life cycle, adaptations to land habit.	2
Classification of Bryophytes-Hepaticopsida, anthocerotopsida, bryopsida, range of thallus organization.	1
Marchantia-Classification of marchantia, Habit, distribution, gametophyte external characters, internal characters.	1
Reproduction of marchantia, vegetative reproduction- Fragmentation, formation of adventitious, branches, formation of gemmae.	1
Sexual reproduction - antheridiophore,antheridium, archegoniophore, archrgonium, fertilization, sporophyte, gametophyte, and life cycle	1
Anthoceros - Classification of anthoceros, Habit, distribution, gametophyte external characters, internal characters.	1
Reproduction of Anthoceros- vegetative reproduction, sexual reproduction- antharidium, archegonium, fertilization.	1
Anthoceros sporophyte, Sporophyte development, new gametophyte development, and life cycle.	1
Funaria- Classification of Funeria, Habit, distribution, gametophyte external characters, internal characters.	1
Reproduction of Funeria - vegetative reproduction- Bulbils, rhizome, primary protonema, secondary protonema.	1
Sexual reproduction of Funeria - male plant, antharidium, female plant, archegonium, fertilization.	1
sprophyte of funeria, development of sporophyte, foot, seta, capsule, dispersal of spores, and life cycle.	1
Evolution of sporophyte in Bryophyte - theory of sterilization and reduction theory.	1
Economic importance of Bryophtes - Direct uses of bryophytes, Indirect uses of bryophytes, Economic importance of Sphagnum.	**1**
	15 hrs

Name of the Teacher:CH.Nagesh Head,Department of Botany

Signature: Signature

NIZAM COLLEGE : DEPARTMENT OF CHEMISTRY

LESSON PLAN FOR THE ACADEMIC YEAR 2018-2019 (Semester I)

Class : B.sc **Section: Inorganic Chemistry**

Course/Paper: 1 Year - Semester-I- DSC- A

Unit: UNIT – I: Inorganic Chemistry – A **No. of Hours Allotted**: 15

Topics to be covered	No. of hours
Periodic properties-trends in ionic and atomic radii, covalent radii, single , double and triple bonds, Vander Waal radii, radii of cations and anions, isoelectronic ions	**1**
Ionization energy, electropositivity, basic nature, reducing behaviuor, electron affinity,electronegativity.	**1**
S -block elements- general charecteristics of Grp I &II elements-elements, comparision of grp-I and Grp-II elements, atomic ionic radii, electronegativity, electro positivity,basic nature etc. Born-haber cycle	**1**
Melting & boiling points,properties of oxides, hydroxides,superoxides,Complexation tendencies, diagonal relationship between Li & Mg, Be & Al	**1**
p-block elements- Group 13-elements, general properties , melting points, boiling points, compounds of boron , Aluminium, Gallium, Indium and Thallium	**1**
Synthesis and structure of Diborane and higher boranes(B_4H_{10}, & B_5H_9),	**1**
Boron nitrogen compounds (BN & $B_3N_3H_6$), Lewis acid nature of BX_3	**1**
Group 14: Carbides- classification- ionic, covalent, interstitial-synthesis, Structures and reactivity, industrial applications.	**1**
Carboranes-Nomenclature, Classification-Closo,Nido and Arachno types. Preparation and application of graphite compounds.	**1**
Silicones-preparation-a) direct silicon process b) use of Grignard reagent c)aromatic silylation, cyclic and cross linked. Types- oils,greases, resins and rubber-uses.	**1**
Silicates-Classification-orthosilicates, pyrosilicates, cyclic silicates, chain silicates, sheet silicates, three dimensional silicates and structural aspects	**1**
Group 15: elements and their properties. Compounds of nitrogen, phosphorous, arsenic,antimony,and bismuth.Nitrides-classification-ionic, covalent and interstitial. Structure of boron nitride.	**1**
Reactivity-hydrolysis. Preparation and reactions of Hydrazine, Hydroxyl amine, phosphazenes.	**1**
Group 16: elements-carbon, sulphur, selenium, tellurium, polonium, and their properties. Classification based on chemical behavior and oxygen content of Oxides-normal oxides, peroxides, suboxides, basic oxides, amphoteric oxides, acidic ,Neutral oxides.	**1**
Oxides and oxyacids of Boron and Carbon –structure and properties, oxyacids of N,P,S and Cl-structure, acidic nature and redox properties	**1**
	15

NIZAM COLLEGE : DEPARTMENT OF CHEMISTRY

LESSON PLAN FOR THE ACADEMIC YEAR 2018-2019 (Semester I)

Class : B.sc **Section: Organic Chemistry**

Course/Paper:1 Year - Semester-I- DSC- A

Unit:UNIT –II: Organic Chemistry – A **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours required
O.A.1 Structural theory and mechanism of organic reactions: Brief review of structural theory of organic chemistry, Hybridization.	1
Types of bond fission and organic reagents (Electrophilic, Nucleophilic, and free radical reagents including neutral molecules like H_2O, BF_3, NH_3 & $AlCl_3$)	1
Bond polarization: Factors influencing the polarization of covalent bonds. Electronegativity - inductive effect. Application of inductive effect (a) Basicity of amines (b) Acidity of carboxylic acids (c) Stability of carbonium ions	1
Resonance or Mesomeric effect, application to (a) acidity of phenol. (b) acidity of carboxylic acids, Hyper conjugation and its application to stability of carbonium ions, Free radicals and alkenes	2
Types of organic reactions: Addition-electrophilic, nucleophilic and free-radical. Substitution-electrophilic, nucleophilic and free radical. Elimination: eliminations	1
O.A.2. Acyclic Hydrocarbons: Alkanes: IUPAC Nomenclature of Hydrocarbons. Methods of preparation: Hydrogenation of alkynes and alkenes, Wurtz reaction, Kolb's electrolysis, Corey-House reaction. Chemical reactivity-inert nature, free radical substitution mechanism. Halogenation example - reactivity, selectivity and orientation.	1
Alkenes: Preparation of alkenes (a) by dehydration of alcohols (b) Dehydrohalogenation of alkyl halides (c) by dehalogination of 1,2-dihalides, Zaitsev's rule. Properties: Addition of Hydrogen-heat of hydrogenation and stability of alkenes.	1
Addition of halogen and its mechanism. Addition of HX, Markonikov's rule, addition of H_2O, HOX, H_2SO_4 with mechanism and addition of HBr in the presence of peroxide (anti-Markonikov's addition)	1
Oxidation-hydroxylation by $KMnO_4$, OSO_4, peracids (via epoxidation), hydroboration, ozonolysis-location of double bond. Dienes-Types of dienes, reaction of conjugated dienes –1,2 and 1,4 addition of HBr to 1,3-butadiene and Diel's-Alder reaction	1
Alkynes – Preparation by dehydrohalogination of dihalides, dehalogenation of tetrahalides, acetylene from CaC_2. Properties: Acidity of acetylenic hydrogen (Formation of metal acetylides)	1
preparation of higher acetylenes, metal- ammonia reductions. Physical properties, Chemical reactivity – electrophilic addition of X_2, HX, H_2O (tautomerism), Oxidation (formation of enediol; 1,2-diones and carboxylic acids), Reduction and polymerization reaction of acetylene.	1
O.A.3. Alicyclic hydrocarbons (Cycloalkanes): Nomenclature, Preparation by Freunds methods, heating dicarboxylic metal salts. Properties - reactivity of cyclopropane and cyclobutane by comparing with alkanes	1
Stability of cycloalkanes – Baeyer's strain theory, Sachse and Mohr predictions and Pitzer's strain theory, Conformational structures of cyclobutane, cyclopentane, cyclohexane	2
	15hrs

NIZAM COLLEGE : DEPARTMENT OF CHEMISTRY

LESSON PLAN FOR THE ACADEMIC YEAR 2018-2019 (Semester I)

Class : B.sc **Section: Physical Chemistry**

Course/Paper:1 Year - Semester-I- DSC- A

Unit:UNIT – III: Physical Chemistry – A **No. of Hours Allotted**: 15

Topic to be covered	**No. of hours**
General charateristics of gases expansibility, compressibility, diffusibility, parameters of a gas, the volume, its pressure, temperature, number of moles	1
Gas laws-Boyle's law, Charle's law, Avagadro's law, Gay Lussac's law. The ideal gas equation	1
Deviations of Real gases from Ideal behavior, Compressibilty factor, Effect of pressure and temperature on deviations	1
VanderWaal's equation of state-pressure correction, volume correction. Determination of units of a and b.limitations of VanderWaal's equation	1
Critical Phenemenon-Liquefaction of gases. Critical temperature Tc, Critical Pressure Pc,Crtical volume-Vc, Andrews isotherms of CO2, Continuity of state.	1
Derivation of relationship between critical constants and VanderWaals constant. Tc,Pc,Vc in terms of a and b vice versa i.e. a and b in terms of Tc,Pc,Vc.	1
Law of corresponding states-reduced equation of gas, Joule Thompson effect, inversion temperature, liquefaction of gas, linde's and Claude's method, problems	1
Solid state-types of solid-Crystalline, Amorphous,explanation of isotropy and anisotropy classification of crystal by nature of binding forces i.e. molecular covalent , ionic and metallic types.	1
Discussion on Unit cell, Crystallographic axes, axial ratio, lattice points, lattice sites symmetry in cubic crystals- plane, axix and centre of symmetry.	1
Types of cubic unit cells-simple, Body centered, face centered and end centered unit cell	1
Bravais lattice and seven crystal systems, law of rational indices, Miller indices	1
Derivation of Bragg's equation , measurement of diffraction angle-rotating crystal method and powder method	1
Structure of NaCl, Crystal defects, Stoichiometric –Schottky, Frenkel defects. Non-stoichiometric-metal excess defects, anion vacancies, extra cation occupancy, interstial sites and metal deficient defects.	1
Valence band theory of semiconductors-superconductivity, band gap, insulators, conductors, semiconductors, intrinsic and extrinsic semiconductors	1
n-type, p-type semiconductors, p-n junction applications in photoelectrochemical cells, solar and liquid crystals.	1
TOTAL	15

NIZAM COLLEGE : DEPARTMENT OF CHEMISTRY

LESSON PLAN FOR THE ACADEMIC YEAR 2018-2019 (Semester I)

Class : B.sc **Section: General Chemistry**

Course/Paper: 1 Year - Semester-I- DSC- A
Unit:UNIT – IV: General Chemistry – A **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Classification of universe, matter and radiation, Electromagnetic radiation, Black Body radiation, Planck's Radiation law – postulates and explanation	1
Photoelectric effect and Compton effects	1
De Broglie's hypothesis and Heisenberg's uncertainty principles	1
Postulates of quantum mechanics – explanation	1
Schrodinger's wave equation –derivation and application to a particle in a box	2
Energy level, Eigen functions, Eigen values, significance of ψ and ψ^2	1
Schrodinger's wave equation for H- atom – conversion of Cartesian coordinate to polar coordinate – reduced equation.	1
Radial wave functions and angular wave functions, probability distribution curves,shapes of s, p and d orbitals, Quantum numbers and their importance	1
Principles of volumetric analysis: Standard solution, indicator, end point, titration error and titration curves, Types of reactions - titrations	1
Neutralization reaction – principle, titration curves – strong acid – strong base; strong acid – weak base; weak acid – strong base; weak acid - weak base:, Neutralization indicators – indicator theory – Ostwald and Quinonoid theory	1
Redox reactions – principle, titration curves, Redox indicators, Precipitation reactions – principles, titration curves, Precipitation indicators – mechanism of indicators	1
Complexation – principles, metal ion indicators	1
Principles of Gravimetric analysis: Nucleation, precipitation, growth of precipitate,	1
impurities in precipitates – co-precipitation and post precipitation. Filtration, washing, drying and incineration of precipitates.	1
	15hrs

NIZAM COLLEGE : DEPARTMENT OF CHEMISTRY

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester II)

Class : B.sc **Section: Inorganic Chemistry**

Course/Paper: 1 Year - Semester-II- DSC- B

Unit: UNIT – I: Inorganic Chemistry – B **No. of Hours Allotted**: 15

Topic to be covered	No. of hours
Group 17: interhalogens-classification, general preparations and structure of AB, AB_3, AB_5, AB_7 type and their reactivity	**1**
Basic Iodine-Basic nature and evidence of +I and +III Iodine.Polyhalides- Definition and structures of ICl_2^{-1},ICl_4^{-1},I_3^-	**1**
Comparision of pseudohalogens with halogens, halides-classification and structural aspects of halides of C, Si, N, P & S.	**1**
Zero group elements –general preparation structure bonding and reactivity of Xenon compounds-Oxides, halides, and Oxy-halides.	**1**
Clatherate compounds and anomalous behavior of He(II)	**1**
Types of Inorganic compounds and nomenclature-classification of inorganic compounds and nomenclature-nomenclature of anions, isopoly anions, neutral and cationic radicals. Nomenclature of binary compounds and oxy acids.	**2**
d-block :elements, position in the periodic table, electronic configuration, variable valency, magnetic properties.	**1**
Catalytic properties-examples of $TiCl_3$,V_2O_5,$PdCl_2$,$CuCl_2$,Ni etc., ability to form complexes-presence of empty d-orbitals, small size and big charge.	**1**
Colour of d-block elements-d-d transitions, colour due to charge transfer(L->M) and (M->L), spectral behavior of transition metal complexes with respect to d^1 to d^9 complexes	**1**
Frost latimer Diagrams, Comparitive study of 2nd and 3rd transition series with respect to their oxidation states, magnetic behavior and spectral properties.	**1**
Study of triads:**Titanium triad**-electronic configuration, reactivity of +III and +IV states, oxides and halides-spectra of Ti^{+3} ion , special mention of Zieglar natta catalyst.	**2**
Chromium triad: reactivity of +III and +VI oxidation states. oxides of chromium, Oxidizing properties of Chromium compounds- $K_2Cr_2O_7$, K_2CrO_4 etc	**1**
Copper triad: reactivity of +1, +II, +III oxidation states, mention about role of silver in photography, importance of gold in treating rheumatoid arthritis, commercial applications of coinage metals.	**1**
Total	**15**

NIZAM COLLEGE : DEPARTMENT OF CHEMISTRY

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester II)

Class : B.sc **Section: Organic Chemistry**

Course/Paper: 1 Year - Semester-II- DSC- B

Unit: UNIT – II: Organic Chemistry – B **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours required
O.B.1 Benzene and its reactivity: Molecular formula of Benzene, structure of benzene-open chain structure not possible, proposition of cyclic structure by Kekulae, dynamic equilibrium, evidence based on ozonolysis experiment, concept of resonance, resonance energy.	2
Heat of hydrogenation, heat of combustion of benzene, mention of C-C bond lengths and orbital picture of benzene.	1
Concept of aromaticity: aromaticity (definition) , Huckle's rule-application to Bezinoid compounds(Benzene, Naphthalene, Anthracene and Phenanthracene) and Non- Benzenoid compounds (Cyclopropenyl cation, cyclopentadienyl anion and tropylium cation).	2
Reactions: General mechanism of electrophilic substitution, mechanism of nitration and sulfonation.Mechanism of halogenation, Friedel Craft's and acylation.	1
Orientation of aromatic substitution: Defination of ortho, para, and meta directing groups Ring activating and deactivating groups with examples.(Electronic interpretation of various groups like NO_2 and phenolic).	1
Orientaion: i. Amino, methoxy and methyl groups ii. Carboxy, nitro, nitrile, carbonyl and sulfonic acid groups. iii. Halogens (Explanation by taking one example)	1
O.B.2 Polynuclear aromatic hydrocarbons & Arenes: Polynuclear hydrocarbons **–** Structure of naphthalene and anthracene (Molecular Orbital Diagram and Resonance energy) Reactivity towards electrophilic substitution Nitration and suphonation as examples.	2
O.B.3 Halogen compounds: Nomenclature and classification of alkyl (into primary, secondary, tertiary), aryl, aralkyl, allyl, vinyl, benzyl). Physical properties, chemical reactivity- reduction, formation of RMgX, Nucleophylic substitution reaction – classification into S_N1 and S_N2. Mechanism of, energy profile diagrams of S_N1 and S_N2 reactions.	3
Stereochemistry of S_N2 (Walden Inversion), S_N1 (Racemisation) explanation of both by taking the example of optically active alkyl halide-2-bromo butane. Structure and reactivity-comparision of allyl, benzyl, alkyl, vinyl and aryl halides toward ease of hydrolysis.	2
	15hrs

NIZAM COLLEGE : DEPARTMENT OF CHEMISTRY

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester II)

Class : B.sc **Section: Physical Chemistry**

Course/Paper: 1 Year - Semester-II- DSC- B

Unit: UNIT – III: Physical Chemistry – B **No. of Hours Allotted**: 15

Topic to be discussed	No. of hours
Solutions:liquid-liquid ideal solutions, Raoult's law, Ideally dilute solutions, Henry's Law. Non-Ideal solutions.	**2**
Vapour pressure –composition and vapour Pressure- temperature curves.	**1**
Azeotropes-HCl-H2O, Ethanol-Water system and Fractional distillation	**1**
Partially miscible liquids-phenol-water, Nicotine water systems.	**1**
Effect of impurity on absolute temperature. Immiscible liquids and steam distillation	**1**
Nernst distribution law. Calculation of partition coefficient. Applications of distribution law.	**1**
Liquid state: Intermolecular forces, Structure of liquids(Qualitative description).Structural difference between solids, liquids and gases.	**1**
Liquid crystals, the mesomorphic state: Classification of liquid crystals into Smectic and Nematic , difference between liquid crystal, solid and liquid.	**1**
Applications of liquid crystals as LCD devices.	**1**
Colloids: definition, classification. Solids in liquids(sols): Preparation, properties-kinetic,optical and electrical, Stability of colloids,protective action,Hardy-Schultz law, Gold number.	**2**
Liquids in liquids(emulsions): types, preparation and emulsifier	**1**
Liquids in solids(gels): classification, preparation, properties, inhibitors, general applications of colloids	**1**
Adsorption:Types, factors influencing adsorption. Freundlich Adsorption isotherm.Langmiur theory of unilayer adsorption isotherm.Applications	**1**
Total	**15**

NIZAM COLLEGE : DEPARTMENT OF CHEMISTRY

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester II)

Class : B.sc **Section: General Chemistry**

Course/Paper: 1 Year - Semester-II- DSC- B

Unit: UNIT – IV: General Chemistry – B **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Ionic solids – general properties of ionic solids, energy changes during ionic solid formation - lattice energy – definition and derivation	2
Solvation energy and solubility of ionic solids - Fajan's rules.Polarizing power and polarisability of ions	1
Covalent bond- Stereochemistry of inorganic molecules – common hybridization and shapes – sp, sp^2, sp^3, sp^3d^2, sp^3d, d sp^2, sp^3d^3 ….	1
Molecular orbital theory – Shapes and sign convention of atomic orbital, modes of overlapping, concepts of sigma and pi bonds, criteria for forming molecular orbital from atomic orbital	2
LCAO – concept, types of molecular orbital – bonding, anti – bonding and non – bonding	1
electron density distribution diagram for H_2^+, MOED of homo- nuclear- H_2, He^{2+}, B_2, C_2, N_2, O_2, F_2 { Bond order and magnetic properties }	1
MOED of hetero- nuclear diatomic molecules CO,CN^-, NO, NO^- and HF { Bond order and magnetic properties }	1
Semi – micro analysis: Principles involved – solubility product, common ion effect	1
Separation of cations into groups; group reagents; reactions of cations	1
reactions of anions, theory of Flame test	1
Classification and characteristics of a solvent.Reactions in liquid ammonia – physical properties, auto-ionisation, examples of ammono acids and ammono bases.	1
Reactions taking place in liquid ammonia – precipitation, neutralization, solvolysis, solvation - solutions of metals in ammonia, complex formation and redox reactions	1
Reactions in HF – auto-ionisation, reactions taking place in HF – precipitation, acid – base reactions and protonation	1
	15hrs

NIZAM COLLEGE : DEPARTMENT OF CHEMISTRY

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester III)

Class : B.sc **Section: Inorganic Chemistry**

Course/Paper: II Year - Semester-III- DSC- C

Unit: UNIT – I: Inorganic Chemistry – C **No. of Hours Allotted**: 15

Topic to be covered	**No. of hours**
Introduction to f-block elements-position in the periodic table elements, their electronic configuration and stable oxidation states	**1**
Atomic and ionic radii, lanthanide contraction and its consequences: anomalous behavior of post lanthanides and their basicity	**1**
Magnetism of lanthanides, colour properties-relation between nf electrons and (14-n)f electrons, spectral properties- comparision of f- and d-block elements spectral characters	**1**
Separation of lanthanides by ion exchange chromatography and solvent extraction, Actinides-elements,	**1**
stable oxidation states, atomic and ionic radii, magnetism, complex formation and brief note about actinide contraction	**1**
Metals- properties,uses,applications and their sources	**1**
Theories explaining metallic properties-free electron theory, valence band theory,	**1**
Band theory-conductors, insulators, p-type and n-type semi conductors	**1**
Alloys-definition, uses, types, classification-substitutional solid solutions, interstitial and intermetallic alloys	**1**
Preparation of alloys-fusion. Electrodeposition, reduction and compression,	**1**
uses of ferrous and non ferrous alloys,Hume –rothery for the classification of alloys into α,β,ε types	**1**
Extraction of metals-minerals, ores, examples, methods involved in extraction-concentration,reduction,purification	**1**
Concentration-hand picking, wilfley table, hydraulic classifier, leaching, calcination and roasting	**1**
Acid and alkali digestion, reduction- smelting, flux, auto reduction, alumino thermi reduction, electrolytic reduction	**1**
Purification-liquation, fractional distillation, zone refining, oxidative processes,amalgamation and electrolysis	**1**
	15

NIZAM COLLEGE : DEPARTMENT OF CHEMISTRY

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester III)

Class : B.sc **Section: Organic Chemistry**

Course/Paper: II Year - Semester-III- DSC- C

Unit: UNIT – II: Organic Chemistry – C **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours required
Nomenclature and classification of hydroxy compounds. Preparation: from carbonyl compounds. Aryl carbinols by hydroxy methylation	1
Phenols – (a) by diazotisation (b) from sulfonic acid (c) from cumene (d) by hydrolysis of halobenzene. Physical properties – Hydrogen bonding (inter molecular and intramolecular) effect of hydrogen bonding on boiling point and water solubility	1
Chemical properties (a) acidic nature of Phenols (b) Formation of alkoxide/phenoxides and their reaction with RX (c) replacement of OH by X using PCl5, PBr3, SOCl2 and with HX/ZnCl2	1
Esterification by (a) acid halides, anhydrides and acids (mechanism) (b) Esters of inorganic acids (c) dehydration of alcohols (in case of phenols not possible). Oxidation of alcohols by CrO3, KMnO4.	1
Special reactions of Phenols – (a) Bromination , (b) Kolbe- Schmidt reaction (c) Riemer Tiemann (d) Azo coupling	1
Analysis of alcohols by oxidation (KMnO4), Ceric ammonium nitrate, Lucas reagentAnalysis of phenols by action of FeCl3, and by the solubility in NaOH. Poly hydroxyl compounds - Pinacol-pinacolone rearrangement, Oxidatve cleavage (Pb(OAc)4 & HIO4.	1
Nomenclature, preparation by (a) Williamson's synthesis (b) from alkenes by the action of conc. H2SO4. Physical properties – Absence of Hydrogen bonding, insoluble in water, low boiling point.	1
Chemical properties – inert nature, action of conc. H2SO4 and HI. Acid and base catalysed ring opening of epoxides- orientative	1
Nomenclature of aliphatic and aromatic carbonyl compounds and isomerism. Synthesis of aldehydes & ketones from acid chloride, by using 1,3-dithianes, nitriles and from carboxylic acids.	1
Special methods of preparing aromatic aldehydes and ketones by (a) Oxidation of arenes (b) Hydrolysis of benzal halides.	1
Physical properties – absence of Hydrogen bonding. Keto-enol tautomerism, polarisability of carbonyl groups, reactivity of the carbonyl groups in aldehydes and ketones.	1
Chemical reactivity – i. Addition of [a] NaHSO3 (b) HCN (c) RMgX (d) NH3 (e) RNH2 (f) NH2OH(g) PhNHNH2 (h) 2,4DNP Schiff bases, Addition of H2O to form hydrate (unstable), comparison with chloral hydrate (stable), addition of alcohols - hemi acetal and acetal formation, Halogenation using PCl5 with mechanism.	1
Base catalysed reactions – with particular emphasis on Aldol, Cannizaro reaction, Perkin reaction, Benzoin condensation, haloform reaction, Knoevengeal condensation.	1
Oxidation reactions –KMnO4 oxidation and auto oxidation, reduction – catalytic hydrogenation, Clemmenson's reduction, Wolf- kishner reduction, MPV reduction, reduction with LAH, NaBH4.	1
Analysis – 2, 4 –DNP test, Tollen's test, Fehlings test, Scihff's test, haloform test (with equations). Introduction to Unsaturated carbonyl compounds.	1
	15hrs

NIZAM COLLEGE : DEPARTMENT OF CHEMISTRY

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester III)

Class : B.sc **Section: Physical Chemistry**

Course/Paper: II Year - Semester-III- DSC- C

Unit: UNIT – III: Physical Chemistry – C **No. of Hours Allotted**: 15

Topic to be discussed	No. of hours
Phase rule: Statement and meaning of phase, component and degrees of freedom.	**1**
Gibbs phase rule, phase equilibria of one component system-water system.	**1**
Phase equilibria of two component system-solid-liquid equilibria, simple eutectic-Pb-Ag system, desilverization of lead.	**2**
Solid solutions-compound with congruent melting point-(Mg-Zn) system and incongruent melting point-($NaCl$-H_2O) system. Freezing mixtures.	**2**
Dilute solutions and Colligative properties: Dilute solutions, colligative properties, ideal and non-ideal solutions.	**1**
Raoult's law,relative lowering of vapour pressure ,molecular weight determination.	**2**
Osmosis, laws of osmotic pressure, its measurement,	**1**
determination of mol.wt from osmotic pressure	**1**
Elevation of boiling point and depression of freezing point. derivation of relation between mol.wt and elevation in boiling point and depression in freezing point.	**1**
Experimental determination of boiling point and depression of freezing point.	**1**
Experimental methods for determining various colligative properties, abnormal molar mass, Vant Hoff factor, degree of dissociation and association of solutes.	**2**
Total	**15**

NIZAM COLLEGE : DEPARTMENT OF CHEMISTRY

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester III)

Class : B.sc **Section: General Chemistry**

Course/Paper: II Year - Semester-III- DSC- C

Unit: UNIT – IV: General Chemistry – C **No. of Hours Allotted**: 15

Topics to be covered	**No. of Hours required**
Definition, requirements for an ideal drug source; Terminology: Pharmacy, Pharmacology, Pharmacophore, Pharmacodynamics, Pharmacokinetics (ADME, Receptor – brief treatment)	2
Metabolites and anti-metabolites; Nomenclature: Chemical name, generic name and trade name with 3 examples.	1
Classification of drugs based on structure and therapeutic action. Chemotherapeutic agents, Pharmacodynamic agents	1
Natural drugs: Penicillins, isolation and therapeutic uses, structures of different penicillins.	1
Structure, name and therapeutic uses of the following drugs: 1. Sulpha drug: Sulphanilamide; 2. Antipyretic and analgesics: Paracetamol, Aspirin and Analgin	1
Anti- inflammatory drug: Ibuprofen; 4. Anti-Parkinson's drug : L-Dopa	1
5. Antiemetic drug: Metoclopramide; 6. Muscle relaxant: Mephensin; 7.Bronchodilator: Salbutamol	1
8. Anti malarial drug: Cholroquin; 9. Anti hypertensive and angina drug: Nifedipine	1
10. Antiepileptic drug: Phenobarbital; 11. Anti-bacterial: Ciprofloxacin	1
12. HIV AIDS drugs: Indinavir, Zidovudine (Retro AZT, ZD)	1
Introduction to pesticides – types – Insecticides, Fungicides, Herbicides, Weedicides, Rodenticides plant growth regulators, Pheremones and Hormones. Brief discussion with examples, Structure and uses	2
Synthesis and present status of the following: 1. DDT, 2. BHC, 3. Malathion, 4. Parathion, 5. Endrine, 6. Baygon, 7. 2,4-D and 8. Endosulphon	2
	15hrs

NIZAM COLLEGE : DEPARTMENT OF CHEMISTRY

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester IV)

Class : B.sc **Section:Inorganic Chemistry**

Course/Paper:II Year - Semester-IV - DSC- D

Unit:UNIT – I: Inorganic Chemistry – D **No.of Hours Allotted**: 15

Topics to be covered	No. of Hours required
Evaluation of Analytical Data: Introduction to Data handling, role in chemical analysis,Error-definition, classification of errors, minimization of errors.	1
Accuracy-Definition, Ways of expressing accuracy, precision-definition, ways of expressing precession,Numberical problems	1
Significant figures- Definition,mathematicaloperation,addition,subtraction, division, and multiplication,Numberical problems	1
Introduction to separation techniques: Definition, role of separation in analysis,examples and brief review on basic separation methods	1
Chromatography: Definition,principles, adsorption,partition, adsorbent-Definition, nature of adsorbents, forces of adsorption. Plate theory and rate theory	1
Eluent, and Choice of eluents for development, Classification of chromatographic technique,Column chromatography: principle, types of column packing,experimental procedure-separation of Ortho and Para nitroaniline, applications	2
Paper chromatography: principle, types of paper, choice of paper, experimental procedure	1
Modes of development, two dimensional chromatography, Applications	1
TLC: Principle,merits, experimental procedure,types of stationary phases,locatingreagents,detection of spot, calculation of Rf values.	1
Applications of TLC, Introduction to gas chromatography, instrumentation,applications	1
Introduction to HPLC, instrumentation,applications	1
Solvent extraction: introduction,Definition, principle, distribution coefficient, distribution ratio, Chelating reagents	1
Types of extractions based on K_d , Applications,Advantages, Limitations	1
Revision	1
	15hrs

NIZAM COLLEGE : DEPARTMENT OF CHEMISTRY

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester IV)

Class : B.sc **Section: Organic Chemistry**

Course/Paper: II Year - Semester-IV - DSC- D

Unit: **UNIT – II:** Organic Chemistry – D **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours required
Nomenclature, classification and methods of preparation: a) Hydrolysis of Nitrites, amides and esters. b) carbonation of grignard reagents	1
Physical properties- hydrogen bonding, dimeric association, acidity – strength of acids with the examples of trimethyl acetic acid and trichloro acetic acid, Relative differences in the acidity of Aromatic and aliphatic acids.	1
Chemical properties – Reactions involving H, OH and COOH groups -salt formation, anhydride formation, Acid halide formation, Esterification (mechanism) & Amide formation	1
Reduction of acid to the corresponding primary alcohol - via ester or acid chloride. Degradation of carboxylic acids by Huns Diecker reaction, Schmidt reaction (Decarboxylation)	1
Arndt – Eistert synthesis, Halogenation by Hell – Volhard - Zelensky reaction. Carboxylic acid Derivatives – Reactions of acid halides, Acid anhydrides, acid amides and ester. (mechanism of ester hydrolysis by base and acid)	1
-Hydrogens, structure of carbanion. Preparation of Acetoacetic ester by Claisen condensation and synthetic application of Aceto acetic ester. [a) Acid hydrolysis and ketonic hydrolysis.	1
Preparation of i) monocarboxylic acids ii) dicarboxylic acids (b) malonic ester – synthetic applications. Preparation of i] substituted mono carboxylic acids ii) substituted dicarboxylic acids. iii) trialkyl acetic acid	1
Nitro hydrocarbons: Nomenclature and classification – nitro hydrocarbons – structure. Tautomerism of nitroalkanes leading to aci and keto form.	1
Preparation of Nitroalkanes. Reactivity – halogenation, reaction with HONO (Nitrous acid), Nef reaction and Mannich reaction leading to Michael addition and reduction.	1
Amines (Aliphatic and Aromatic): Nomenclature, Classification into 1°, 2°, 3° Amines and Quarternary ammonium compounds	1
Preparative methods -1. Ammonolysis of alkyl halides 2. Gabriel synthesis 3. Hoffman's bromamide reaction (mechanism). 4. Reduction of Amides and Schmidt reaction.	1
Physical properties and basic character – Comparative basic strength of Ammonia, methyl amine, dimethyl amine, trimethyl amine and aniline – comparative basic strength of aniline, N-methylaniline and N,N-dimethyl aniline (in aqueous and non-aqueous medium), steric effects and substituent effects	1
Use of amine salts as phase transfer catalysts. Chemical properties: a) Alkylation b) Acylation c) Carbylamine reaction d) Hinsberg separation e) Reaction with Nitrous acid of 1°, 2°, 3°(Aliphatic and aromatic amines).	1
(Aliphatic and aromatic amines). Electrophilic substitutions of Aromatic amines – Bromination and Nitration. Oxidation of aryl and 3° Amines. Diazotization. Cyanides and isocyanides: Nomenclature (aliphatic and aromatic) structure.	1
Preparation of cyanides from a) Alkyl halides b) from amides c) from aldoximes. Preparation of isocyanides from Alkyl halides and Amines. Properties of cyanides and isocyanides, a) hydrolysis b) addition of Grignard reagent iii) reduction iv) oxidation	1
	15hrs

NIZAM COLLEGE : DEPARTMENT OF CHEMISTRY

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester IV)

Class : B.sc **Section: Physical Chemistry**

Course/Paper: II Year - Semester-IV - DSC- D

Unit:UNIT – III: Physical Chemistry – D **No.of Hours Allotted**: 15

Topic to be covered	No. of hours
Electrochemistry- electrical transport-conduction in metals and in electrolyte solutions,.	**1**
Specific conductance and equivalent conductance, measurement of equivalent conductance	**1**
Variation of specific and equivalent conductance with dilution. Migration of ions and Kholrausch' Law.	**1**
Arrhenius theory of electrolyte dissociation and its limitations	**1**
Weak and strong electrolytes, Ostwalds diution law, its uses and limitations.	**1**
Debye-Huckel –Onsagar's equation for strong electrolytes(elementary treatment only)	**1**
Transport number, definition and determination by Hittorf method for attackable electrodes	**1**
Applications of conductivity measurements: determination of degree of dissociation, determination of Ka of acids, determination of solubility product of a sparingly soluble salt,.	**2**
conductometric titrations.	**1**
Types of reversible electrodes-gas-metal ion, metal-metal ion, metal-insoluble salt-anion and redox electrodes.	**2**
Electrode reactions, Nernst equation,Cell EMF and single electrode potential, standard Hydrogen electrode-reference electrodes-Standard electrode potential, sign conventions,electrochemical series and its significance.	**3**
Total	**15**

NIZAM COLLEGE : DEPARTMENT OF CHEMISTRY

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester IV)

Class : B.sc **Section: General Chemistry**

Course/Paper: II Year - Semester-IV - DSC- D

Unit: UNIT – IV: General Chemistry – D **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours required
Interaction of electromagnetic radiation with molecules and types of molecular spectra. Potential energy curves for bonding and antibonding molecular orbitals. Energy levels of molecules (σ, π, n).	2
Selection rules for electronic spectra. Types of electronic transitions in molecules effect of conjugation. Concept of chromophore	1
Energy levels of simple harmonic oscillator, molecular vibration spectrum, selection rules. Determination of force constant. Qualitative relation of force constant to bond energies	1
Anharmonic motion of real molecules and energy levels. Modes of vibrations in polyatomic molecules. Characteristic absorption bands of various functional groups. Finger print nature of infrared spectrum	1
Concept of polarizavility, selection rules, pure rotational and pure vibrational Raman spectra of diatomic molecules, selection rules	1
Principles of nuclear magnetic resonance, equivalent and non-equivalent protons, position of signals.	1
Chemical shift, NMR splitting of signals – spin-spin coupling, coupling constants. Applications of NMR with suitable examples – ethyl bromide, ethanol, acetaldehyde, 1, 1,2tribromo ethane, ethyl acetate, toluene and acetophenone.	2
Basic principles – Molecular ion / parent ion, fragment ions / daughter ions. Theory – formation of parent ions	1
Representation of mass spectrum. Identification of parent ion, (M+1), (M+2), base peaks (relative abundance 100%)	1
Determination of molecular formula – Mass spectra of ethylbenzene, acetophenone, n-butyl amine and 1- proponal.	2
Interpretation of IR, UV-Visible, 1H-NMR and mass spectral data of the following compounds 1. Phenyl acetylene, 2. Acetophenone, 3.Cinnamic Acid, 4. para-nitro aniline	2
	15hrs

III YEAR -SEMESTER – V

DSC E, HOUR-WISE TEACHING PLAN

UNIT – I INORGANIC CHEMISTRY – E - PAPER - 5

I. COORDINATION COMPOUNDS

1. Introduction – Simple salts, double salts, complex compounds.

2. IUPAC Nomenclature of Coordination complexes.

3. Werner's theory - Postulates and experimental evidences, limitations.

Sidwicks theory – Electronic interpretation, coordination number and calculation of EAN, Limitations.

4. Types of ligands, Coordination geometries of metal ions with C.N. 4 and 6.

Isomerism in coordination complexes - Structural isomerism – Ionisation, hydrate, linkage, coordination position, polymerization and coordination isomerism.

5. Stereoisomerism – Geometrical isomerism in square plannar and octahedral complexes. Optical isomerism in tetrahedral and octahedral complexes.

6. Valence bond theory (VBT) – postulates, applications based on C.N. 4 (tetrahedral and square planar) and C.N. 6 (octahedral) complexes.

7. Crystal field theory (CFT) - Features of CFT, splitting of d-orbital in Oh, Td, Square plannar complexes

8. Weak and strong ligands, spectrochemical series, high spin and low spin complexes.

9. Crystal field stabilization energies (CFSE), its calculation for d^n configurations in octahedral complexes; Factors affecting CFSE.

10. Spectral and Magnetic properties of transition metal complexes – Electronic absorption spectrum of $[Ti(H_2O_6)]^{3+}$ion.

11. Types of magnetic behavior (para, dia, ferro and antiferromagnetic): Calculation of magnetic moments using spin only formulae. Determination of magnetic susceptibility- Guoy balance method.

12. Determination of composition of metal complex using Job's method and Mole ratio method.

II. STABILITY OF METAL COMPLEXES

13. Thermodynamic stability and kinetic stability of metal complexes

14. Types of stability constants – step-wise and overall stability constants. Relation between step-wise and overall stability constants.

15. Factors affecting the stability of metal complexes.

UNIT – II Organic chemistry – E

I. AMINO ACIDS AND PROTEINS :

1. INTRODUCTION: Defintion of amino acids, classification of amino acids into alpha, beta and gama amino acids. Natural and essential amino acids- definition and examples, classification of alpha amino acids into acidic, basic and neutral amino acids with examples.
2. METHODS OF SYNTHESIS: General method of synthesis of alpha amino acids (specific examples-glycine, alanine,valine,and leucine) by following methods: a)from halogenated carboxylic acid b)malonic ester synthesis c)Streckers synthesis.
3. PHYSICAL PROPERTIES: Optical activity of naturally occurring amino acids: L-configuration,irrespective of sign of rotation. Zwitter ion structure-salt like character, solubility, melting point, amphoteric character, definition of isoelectric point.
4. CHEMICAL PROPERTIES: General reactions due to amino and carboxylic groups – lactams from gamma and delta amino acids by heating peptide bond.
5. STRUCTURE: Structure and nomenclature of peptide and proteins, peptide synthesis.

II. HETEROCYCLIC COMPOUNDS:

6. INTRODUCTION: Introduction to heterocyclic compounds and nomenclature.
7. DEFINITION AND IMPORTANCE: Simple 5 membered ring compounds with one hetero atom. Eg.Furan, Thiophene and Pyrrole.
Importance of ring systems-presence in important. Natural products like haemoglobin and chlorophyll.
8. NUMBER AND CHARACTER: Numbering the ringsystems as per Greek letters and numbers. Aromatic character 6-electron system(4-electron from two double bonds and a pair of non bonded electrons from hetero atom)
Tendency to undergo substitution reactions.
9. RESONANCE STRUCTURES: Indicating electron surplus carbon and electron deficient hetero atom, Explanation of feebly acidic character of pyrrole.
10. CHEMICAL PROPERITIES: Electrophilic substitution at 2 or 5 position, Halogenation, Nitration, and Sulphonation under mild conditions.
11. REACTIVITY: Reactivity of furan as 1,3-diene, diels alder reaction(with one example). Sulphonation of thiophene (purification of Benzene obtained from coal tar).
PREPARATION: Preparation of furan, pyrrole and thiophene from 1,4-dicarbonyl compounds only.
12. STRUCTURE: Structure of pyridine, Basicity, Aromaticity-comparision with pyrrole.
13. PYRROLE: Preparation of pyrrole, properties. Reactivity towards Nucleophilic substitution reactions-chichibabin reaction.
14. QUINOLINE:Structure of Quinoline, basicity, aromaticity, Preparation.
ISOQUINOLINE: Structure of Isoquinolin, basicity, aromaticity, preparation.
15. REACTIVITY: Reactivity, Properties, reactivity towards Nucleophilic substitution reations.

UNIT – III PHYSICAL CHEMISTRY – E

I. CHEMICAL KINETICS

1. Introduction, Rate of a reaction,

2. Factors influencing the rate of a reaction – concentration, temperature, pressure, solvent, light and catalyst.

3. Concentration dependence of rates, mathematical characteristics of simple chemical reactions.

4. Zero order, first order,

5. Second order, pseudo first order, half-life and mean life.

6. Determination of order of a reaction – differential method, method of integration, half-life method, isolation method and initial rate method.

7. Radioactive decay as first order phenomenon.

8. Experimental methods of chemical kinetics: Conductometric, potentiometric, optical methods and polarimetry and spectrophotometer.

9. Theories of chemical kinetics: effect of temperature on rate of a reaction, Arrhenius equation, and concept of activation energy.

10. Numerical problems. Simple collision theory based on hard sphere model.

II. PHOTOCHEMISTRY

11. Interaction of radiation with matter, difference between thermal and photochemical processes.

12. Laws of photochemistry: Grothus –Draper law.

13. Stark – Einstein law, Quantum yield, photochemical combinations of hydrogen-chlorine and hydrogen-bromine.

14. Jablonski diagram depicting various processes occurring in the excited state, qualitative description of fluorescence, phosphorescence, non-radiative processes (internal conversion, intersystem crossing), photosensitized reactions – energy transfer processes (simple examples).

15. Revision

SEMESTER-VD SE E1(ELECTIVE- I) - PAPER-6

UNIT – I INORGANIC CHEMISTRY – E1

I. ORGANOMETALLIC CHEMISTRY

1. Introduction, Definition and classification of organometallic compounds.
2. Nomenclature of organometallic compounds.
3. Preparation and properties of organometallic compounds.
4. Applications of alkyls of Li, Mg and Al.
5. Preparation and structure of Metallocenes-ferrocene and bis(benzene)chromium.

II. BIOINORGANICCHEMISTRY

6. Introduction, Role of elements in biological systems.
7. Essential and non-essential elements.
8. Biological significance of Na, K, Ca and Mg.
9. Biological significance of Fe, Co and Ni.
10. Biological significance of Cu, Zn and chloride.
11. Metalloporphyrins – introduction, definition, significance of hemoglobin.
12. Structure and function of hemoglobin
13. Chlorophyll: structure and role in photosynthesis.
14. Biological Nitrogen fixation; Na-K Pump.
15. Role of calcium in blood clotting, stabilization of protein structures and structural role in bones.

UNIT – II Organic Chemistry – E1

I. ORGANIC REACTION MECHANISM

1. Introduction to reaction mechanism
2. Types of organic reactions- Addition reaction mechanism.
3. Addition reaction examples,substitution reaction mechanism
4. Elimination reactions mechanism and examples
5. Substitution Vs elimination reactions and overview

II. SELECTED ORGANIC NAMED REACTIONS

6. Favorskii reaction mechanism and examples
7. Stork enamine mechanism and examples
8. Michael addition mechanism and examples
9. Mannich bases mechanism and examples
10. Ene reaction m mechanism and examples
11. Barton reaction mechanism and examples
12. Baeyer villager reaction mechanism and examples
13. Chichibabin reaction mechanism and examples
14. Revision
15. Slip test

UNIT – III Physical Chemistry – E1

1. ENERGY SOURCES

1. Introduction to Energy sources - Conventional energy resources.
2. Chemical fuels, classification (solids, liquids, gaseous).
3. Solid fuels: coal, analysis of coal, proximate and ultimate analysis and their significance.
4. Liquid fuels: petroleum, refining of petroleum.
5. Cracking (Thermal and catalytic), reforming.
6. Synthetic petrol - Bergius and Fischer Tropsch's process
7. Knocking, anti knocking agents, octane number.
8. Diesel fuel: Cetane number. Other liquid fuels: LPG, biodiesel, kerosene, fuel oil, benzol, tar, power alcohol.
9. Gaseous fuels: natural gas, coal gas, producer gas, oil gas, water gas, biogas.
10. Combustion: Calorific value and its determination, bomb calorimeter. HCV and LCV values of fuels.
11. Numerical problems.
12. Analysis of flue gas by Orsats method. Rocket fuels, solid propellants, liquid propellants, monopropellants, bipropellants.
13. Non conventional energy resources: Nuclear fuels- nuclear reactor.
14. Nuclear fission, nuclear fusion, sources of nuclear fuels, disposal of radio active wastes, reprocessing of nuclear fuels.
15. Solar, hydro, wind and tidal energies. Bio fuels, H_2 as a non polluting fuel.

PRACTICAL PAPER – 5 (SEMESTER V) DSC E

PREPARATION OF ORGANIC COMPOUNDS AND TLC

1. Introduction
2. Preparation of Tribromophenol and Tribromoaniline
3. Preparation of Benzilideneaniline
4. Acetylation of aniline, Benzoylation of Aniline and Phenol.
5. Nitration: Preparation of nitro benzene and p-nitro acetanilide.
6. Halogenation: Preparation of p-bromo acetanilide
7. Diazotization and coupling*:* Preparation of phenyl azo-β-naphthol.
8. Oxidation: Preparation of benzoic acid from benzyl chloride.
9. Reduction: Preparation of m-nitro aniline from m-dinitro benzene.
10. Esterification: Preparation of methyl p-nitro benzoate from p-nitro benzoic acid.
11. Methylation: Preparation of β- naphthyl methyl ether.
12. Condensation: Preparation of benzilidine aniline and Benzoyl aniline.
13. Synthesis of drugs –paracetamol and aspirin
14. Determination of R_f Values and identification of organic compounds: Preparation and separation of 2,4-dinitrophenyl hydrazones of acetone and 2-butanone using toluene and light petroleum (40:60).
15. Record correction

PRACTICAL PAPER – 6

PHYSICAL CHEMISTRY EXPERIMENTS

1. Introduction
2. Determination of specific reaction rate of the hydrolysis of methyl/ethyl acetate catalyzed by hydrogen ion at room temperature.
3. Determination of rate of decomposition of hydrogen peroxide.
4. Determination of order of saponification of ethyl acetate.
5. Determination of distribution coefficient of iodine between water and carbon tetra chloride.
6. Determination of molecular status and partition coefficient of benzoic acid in Toluene and water.
7. Determination of Density using Piconometer.
8. Determination of Viscosity using Viscometer.
9. Determination of Surface tension using Stalgnometer.
10. Determination of Refractive index using Abbe refractometer.
11. Calculation of Parachor & Refrachor.
12. Adsorption of acetic acid on animal charcoal and verification of Freundlich isotherm.
13. Repetition of experiments.
14. Revision.
15. Record correction.

Semester VI, Paper VII
UNIT – I Inorganic Chemistry – F **15 Lectures**

Topics to be covered	No. of Hours
Molecular symmetry: Concept of symmetry in chemistry – symmetry operations, symmetry elements	1
Rotational axis of symmetry and types of rotational axis; Plane of symmetry and types of planes	1
Improper rotational axis of symmetry; Inversion centre and identity element.	1
The symmetry operations and point groups. Flow chart for the identification of molecular point groups	1
Determination of point groups: H_2O, H_2O_2, NH_3	1
Determination of point groups: $XeOF_4$, and Trans-1,2-dichloroethylene.	1
Reactivity of metal complexes: Labile and inert complexes:	1
Definitions with examples;Ligand substitution reactions – S_N1 and S_N2 reactions	1
Substitution reactions of square planar complexes – Trans-effect and applications of trans-effect.	1
Hard and soft acids bases (HSAB): Classification, Pearson's concept of hardness and softness,.	1
application of HSAB principles – Stability of compounds / complexes, predicting the feasibility of a reaction	1
Spectrophotometry General features of absorption – spectroscopy, Beer-Lambert's law and its limitations	1
transmittance, Absorbance, and molar absorptivity. Single and double beam spectrophotometers	2
Application of Beer-Lambert law for quantitative analysis of 1. Chromium in $K_2Cr_2O_7$, 2.Manganese in manganous sulphate, 3. Iron (III) with thiocyanate.	1

Name of the Teacher: Dr. K. Ravi Kiran Head, Departmentof Chemistry

Signature: Signature:

UNIT – II Organic Chemistry – F **15 Lectures**

Topics to be covered	No. of Hours
Carbohyates: Classification and nomenclature-Classification into mono,oligo and polysaccharides into pentoses, hexoses etc., into aldoses and ketoses. MONOSACCHARIDES: All discussion to be confined to (+) glucose as an example of aldose and (-) fructose as example of ketohexoses	1
CHEMICAL PROPERTIES : Evidences for the straight chain pentahydroxy aldehyde structure (Acetylation, reduction to n-hexane, cyanohydrin, formation, reduction of Tollens and Fehliings reagent and oxidation to gluconic and saccharic acids).	1
STRUCTURAL ELUCIDATION: Number of optically active, isomers possible for the structure configuration of glucose based on D-glyceraldehyde as primary standard (no proof for configuration is required).	1
EVIDENCES FOR CYCLIC STRUCTURE: Evidences for cyclic structure of glucose (Some negative aldehyde tests and mutarotation). Cyclic structure of glucose proposition of cyclic structure (Pyranose structure, anomeric carbon and anomers. PROOF FOR THE RING SIZE: Proof for the ring size (methylation, hydrolysis and oxidation reaction). Different ways of writing pyranose structure (Haworth formula and chair conformational formula).	1
STRUCTURE OF FRUCTOSE: Evidence of 2-ketohexoses structure (Formation of penta acetate, formation of cyanohydrin its hydrolysis and reduction by HI to give 2-Carboxy-n-hexane). Same osazone formation from glucose and fructose, hydrogen bonding in Osazone, Cyclic structure for fructose (Furanose structure and Haworth formula)	1
INTERCONVERTION OF MONOSACCHARIDES: Aldopentose to aldohexose (Kiliani-Fischer method), Epimers, Epimerisation-Lobry de bruyn van Ekenstein rearrangement. Aldohexose-Aldopentose eg.D-glucose to D-arabinose by Ruffs degratdation. Aldohexose(+) glucose to ketohexose (-)fructose and ketohexose(fructose) to aldohexose(glucose)	1
STEREOCEMISTRY OF CARBON COMPOUNDS: INTRODUTION	1
ISOMERISM: Definition, classification into constitutional isomerism and stereoisomerism. Constitutional into-chain, functional, positional and metamerism. Stereoisomerism into conformational and configurational isomerism based on energy. Representation of Wedge, Newman, Fischer and Saw-horse formulae.	1
Conformational isomerism: Definition, conformations of ethane, propane, n-butane. Stability and energy diagram. Conformatiaons of cyclobutane, cyclopentane, and cyclohexane. Stability and energy diagram. Configurational isomerism: Definition-Division into Geometric and Optical isomerism. Geometric isomerism with reference to alkenenes – Cohn-Ingold-Prelogs rules, E&Z.	1
OPTICAL ISOMERISM: Definition, enantiomers. Wave nature of light, planne polarised light, optical rotation and specific rotation. Criteria for optical activity-Non superimpossibility of mirror images.	1
PLANE OF SYMMETRY: Definition of plane of symmetry, center of symmetry and axis of symmetry simple axis (Cn) and alternating axis(Sn). Absence of plane of symmetry, center and axis of symmetry and presence of only single fold axis of symmetry(Cn).	1
CHIRAL CENTER: Definition of chiral center. Classification of chiral molecules into asymmetric and dissymmetric molecules.	1
ASYMMETRIC MOLECULES: Asymmetric molecules eg.Glyceraldehyde, Lactic acid, Alanine (with chiral centre). Disymmetric molecules eg.Tartaric acid with similar chiral centre and dissimilar chiral centre. Calculation of number of enantiomers and mesomers.	2
ASSIGNMENT OF CONFIGURATION: Assignment of configuration into D, L & R,S configuration for asymmetric and dissymmetric molecules. Racemic mixture-Racemisation and Resolution techniques.	1

Name of the Teacher: Mrs. G. Dhanalakshmi Head, Departmentof Chemistry

Signature: Signature

UNIT – III Physical Chemistry – F **15 Lectures**

Topics to be covered	No. of Hours
Thermodynamics The first law of thermodynamics-statement.	1
Definition of internal energy and enthalpy.Heat capacities and their relationship.	1
Joule's law-Joule-Thomson coefficient.	1
Calculation of w, q, dU and dH for the expansion of perfect gas under isothermal and adiabatic conditions for reversible processes.	1
State function. Temperature dependence of enthalpy of formation-Kirchoff's equation	1
Second law of thermodynamics.Different Statements of the law.	1
Carnot cycle and its efficiency.Carnot theorem.	1
Thermodynamic scale of temperature. Concept of entropy, entropy as a state function,	1
entropy changes in cyclic, reversible, and irreversible processes and reversible phase change.	1
Calculation of entropy changes with changes in V & T and P&T.	1
Entropy of mixing inert perfect gases. Entropy changes in spontaneous and equilibrium processes.	1
The Gibbs (G) and Hlmholtz (A) energies. A &G as criteria for thermodynamic equilibrium and spontaneity-advantage over entropy change.	1
Gibbs equations and the Maxwell relations.	2
Variation of G with P, V and T,	1

Name of the Teacher: Head, Departmentof Chemistry

Signature: Signature:

Semester-VI **Paper VIII**

UNIT – I Inorganic Chemistry – F **15 Lectures**

Topics to be covered	No. of Hours
MetalCarbonylclusters: Carbon monoxide as a ligand – Molecular orbitals of CO - Donor and Acceptor molecular orbitals of CO;	1
Bonding modes of CO- Terminal and Bridging; Evidence for multiple bonding from Bond lengths and Stretching frequencies;	1
Classification in to Low Nuclearity and High Nuclearity carbonyl clusters; Factors favouring Metal-Metal bonding	1
18 Valence electron rule and its application to Low Nuclearity carbonyl clusters	1
structure, bonding and shapes of metal carbonyls of $[V(CO)_5]^-$, $[Cr(CO)_6$, $Ni(CO)_4$,:	1
structure, bonding and shapes of metal carbonyls of $Fe(CO)_5$, $Fe_2(CO)_9$,$Mn_2(CO)_{10}$ and $Co_2(CO)_8$;	1
M_3 and M_4 clusters : structural patterns in $M_3(CO)_{12}$ (M=Fe,Ru,Os)	1
structural patterns in $M_4(CO)_{12}$(M=Co,Rh,Ir) Clusters	1
Relative stability of Bridging and Non- bridging structures	1
Metal carbonyl scrambling in $Fe_2(CO)_4(cp)_2$	1
High Nuclearity clusters M_5,M_6,M_7,M_8 and M_{10} Clusters	1
Polyhedral skeletal electron pair theory and Total Electron Count theory	1
Wades rules – Capping rule, Structural patterns in $[Os_6(CO)_{18}]^{2-}$, $[Rh_6(CO)_{16}]$, $[Os_7(CO)_{21}]$	2
$[Rh_7(CO)_{16}]^{3-}$, $[Os_8(CO)_{22}]^{2-}$, $[Os_{10}C(CO)_{24}]^{2-}$ and $[Ni_6(CO)_{12}]^{2-}$.	1

Name of the Teacher: Dr. K. Ravi Kiran Head, Departmentof Chemistry

Signature: Signature:

UNIT – II Organic Chemistry – F **15 Lectures**

Topics to be covered	No. of Hours required
O.F1.1 pericyclic reactions	
Introduction to pericyclic reactions	1
LCAO concept for the formation of molecular orbitals	1
Symmetry properties of m & σ HOMO & LUMO	1
Thermal & photochemical pericyclic reactions	1
Types of pericyclic reactions with examples	1
O.F1.2 SYNTHETIC STRATEGIES	
Introduction to retrosynthesis	1
Disconnection, symbol, synthon,SE,FGI,TM with examples.	1
Linear,convergent,and combinatorial synthesis with examples	1
Retrosynthesis of 1) acetophenone 2) cyclohexene	1
Retrosynthesis of ethyl bromide and overview of the topic	1
O.F1.3 ASSYMETRIC SYNTHESIS	
Introduction to chirality	1
Definition of asymmetric synthesis, enantiomeric excess,diasterotopic excess	**1**
Stereospecific reaction definition examples	1
Stereoselective reaction with examples and overview	2
	15hrs

Name of the Teacher: Mrs. P.Revathi Head, Department of chemistry

Signature: Signature:

UNIT –III Physical Chemistry – F **15 Lectures**

Topics to be covered	No. of Hours
Materials science Superconductivity, characteristics of superconductors,	1
Meissner effect, types of superconductors and applications.;	1
Nanomaterials- synthetic techniques, bottom-up-sol-gel method, top-down- electro deposition method.	1
Properties and applications of nano-materials.	1
Composites-definition, general characteristics,	1
Particle reinforces and fiber reinforces composites and their applications.	1
Catalysis Homogeneous and heterogeneous catalysis, comparison with examples	1
Kinetics of specific acid catalyzed reactions, inversion of cane sugar.	1
Kinetics of specific base catalyzed reactions, base catalyzed conversion of acetone to diacetone alcohol.	1
Acid and base catalyzed reactions- hydrolysis of esters, mutarotation of glucose.Catalytic activity at surfaces.	1
Mechanisms of heterogeneous catalysis. Langmuir-Hinshelwood mechanism	1
Enzyme catalysis: Classification, characteristics of enzyme catalysis.	1
Kinetics of enzyme catalyzed reactions-MichaelisMenton law, significance of Michaelis constant (K_m) and maximum velocity (V_{max}). Factors affecting enzyme catalysis-	2
Effect of temperature, pH, concentration and inhibitor. Catalytic efficiency.Mechanism of oxidation of ethanol by alcohol dehydrogenase.	1

Name of the Teacher: Head, Departmentof Chemistry

Signature: Signature:

NIZAM COLLEGE : DEPARTMENT OF CHEMISTRY

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester **IX**)

Class : FIVE YEAR INTEGRATED COURSE IN CHEMISTRY (FYIC) – V year

Paper-I FYIC 901 INORGANIC CHEMISTRY (Bonding, Group Theory and its Applications)

IC-01: Group Theory, Normal mode analysis and Spectral Activity

S.No.	Topic	Hours
1	Properties of a point group, closure rule-abelion and non-abelion groups, associative rule, inverse rule and identity rule.	1
2	Group multiplication table, the rearrangement theorem, GMT of C_3, C_4, C_{2V}, C_{2h}, C_{3V} and C_5 point groups	2
3	Sub groups-Langrange's theorem, Classes, similarity transformation. Properties of conjugate elements, definition, classes for C_{2V}, C_{3V}	2
4	Matrices and vectors, types of matrices, multiplication and direct product, matrix representation of symmetry elements-E, σ, *i*, Cn and Sn.	2
5	Matrix representation of point groups, product and square rule, Matrices of C_{2h}, C_{2V}, C_{3V} and C_{4V}, block factorization	1
6	Transformation matrices, reducible and irreducible representations, character of a representation, properties of irreducible representation, orthognality principle, construction of character table	2
7	Character tables of C_{2h}, C_{2V}, C_{3V} and C_{4V} groups	1
8	Mulliken symbolism, rules for IRs. Symmetry species for translations and rotations, standard reduction formula	1
9	The direct product, rules of direct products, normal mode analysis, Cartesian coordinate method,C2v, alternate method	1
10	Internal coordinate method C_{2V}- H_2O, IR and Raman activity	1
11	Normal mode/Internal coordinate method for C_{2h} and C_{3V} with examples	1

IC-02: MOT of Metal Complexes

S.No.	Topic	Hours
1	Limitations of CFT, Adjustments of CFT to allow for covalence	1
2	Experimental evidences for metal-ligand orbital overlap – ESR and NMR studies of few metal complexes	1
3	Adjusted CFT, introduction to MOT	1
4	Symmetry classification of metal and ligand orbitals in non-cubic environment, square pyramidal, trigonal bipyramidal and square planar geometries	2
5	Concept of LGO's, LCAO concepts	1
6	Construction of LGO's for Oh, Td and Sq pl geometries	1
7	Construction of MOED –Oh metal complexes with σ orbitals, σ and π orbitals, σ, π and π* orbitals	2
8	Construction of MOED for Td metal complexes with σ and π orbitals	1
9	Construction of MOED for square planar metal complexes with σ and π orbitals	2
10	MO electronic configuration and calculation of magnetic moment	

IC-03: Electronic Spectroscopy of Metal Complexes

Topic to be covered	**No. of hours**
Introduction to crystal field diagrams-construction of CFELD of Oh, Td, Square planar geometries, constructionof ligand field diagrams- effect of weak crystal field on S, P, D, f terms	**1**
Construction of Orgel diagrams- d^1,d^6,d^9,d^4; d^2, d^7,d^8,d^3; d^5 configurations, concept of hole formalism, expected electronic transitions	**1**
Construction of correlation diagram for d^2 Oh environments-strong field configurations-calculation of no.of microstates for each strong field configuration by direct product method, and method of descending symmetry. Rule of correspondence and non crossing rule	**2**
Correlation diagram for Td environment and other for orther configurations discussion	**1**
Tanabe-Sugano Diagrams-construction for d^2 and d^8 configuration, comparision of orgel and tanabe-sugano diagrams	**2**
Classification of electronic spectra –ligand field spectra and charge transfer spectra, types of electronic spectral recordings-solid, solution spectra.	**1**
Selection rules for electronic spectra-orbital selection rules-transitions between two non-degenerate states, transitions between states of different degeneracy, two electron transitions	**1**
Spin selection rules, relaxation in rules-departure from cubic symmetry, d-p mixing, vibronic coupling, magnetic dipole transitions	**1**
Nature of spectral bands- band intensities-intensity of d-d band, intensity of C-T band, band widths-variation in 10Dq,lower symmetry components	**1**
Franck condon principle, spin orbit coupling, Jahn-Teller effect,	**1**
Experimental evidence, dynamic JT effect	**1**
Spectrochemical series-factors effecting 10Dq, Nephelauxetic series	**1**
Examples of metal complexes and their detailed electronic spectral charecterisation with values	**1**
Total	**15**

IC-04: IR and Raman Spectroscopy

Topic to be covered	**No. of hours**
Introduction to molecular spectra, nature of electro magnetic radiation, mechanism of interaction and ,Hooke's law, force constants, potential energy curve for a vibrating molecule	**1**
Selection rules-conditions for IR activity-HOMO nuclear diatomics and HETERONuclear diatomics, polyatoms	**1**
Anharmonicity of molecular vibrations and potential energy functions,	**1**
Fundamental bands, overtones, and hot bands, fermi resonance	**1**
Partial normal mode analysis-finding out the molecular point group, character table and calculating the no. of reducible representations from standard reduction formula, classifying the RR's into vibrations, rotations and assignment of IRR's for the modes.	**3**
Few more examples for normal mode analysis	**1**
Determination of coordination sites and linkage isomers like NO_2 and SCN, denticity of SO_4^{2-}, CO_3^{2-}	**1**
Distinguishing geometrical isomers- cis & trans , fac and mer isomers	**1**
Effect of coordination on ligand vibrations-mono, bi, polydentate ligands of oxygen, nitrogen, carbon and halogens-NH,H_2O,Glycine, Carbonyl and halides	**1**
Prediction of diagnostic fundamentals of geometrical isomers of metal complexes, distinguishing isomers of metal complexes	**1**
Discovery of Raman effect-Raman experiment, Raman lines-stokes, anti stokes, Rayleigh scaterring, conditions for Raman activity-polarizability	**1**
Raman spectra of CO, HCN, CO_2,NO_2,H_2O, principles of resonance Raman spectra	**1**
Structural elucidation of the active sites of Heme and non meme oxygen carriers.complementary nature of IR and Raman spectra.	**1**
Total	**15**

Paper II FYIC 902 ORGANIC CHEMISTRY

OC- 01: New synthetic reactions

Topics to be covered	No. of Hours
Metal mediated C-C and C-X coupling reactions: Introduction to Metal mediated C-C and C-X coupling reactions; General Reaction mechanism of transition metal mediated C-C and C-X reactions	2
Suzuki Coupling Reaction; Heck Coupling Reaction; Stille Coupling Reaction	1
Sonogishira cross coupling, Buchwald-Hartwig and Negishi-Kumada coupling reactions	1
C=C Formation Reactions: Importance of double bonded compounds; Introduction toC=C Formation Reactions	1
Shapiro, Bamford-Stevens andMcMurrey reactions	1
Julia-Lythgoe olefination and Peterson's stereoselective olefination	1
Multicomponent Reactions: Importance of Multicompounet reactions; Ugi and Passerini reactions	1
Biginelli, Hantzsch and Mannich reactions	1
Ring Formation Reactions: Pausan-Khand reaction, Bergman cyclisation, Nazerov cyclisation	1
Click Chemistry: Overview of Click Reactions; Criteria for Click reaction	1
Sharpless azides cycloadditions	1
Metathesis: Grubb's 1st and 2nd generation catalyst; Olefin cross coupling metathesis(OCM), ring closing metathesis(RCM), ring opening metathesis(ROM), applications	1
Other important synthetic reactions: Baylis-Hilman reaction and Eschenmoser-Tanabe fragmentation	1
Mitsunobu reaction, Stork-enamine reaction and Michael reactions	1
	15hrs

Course/Paper: IV- FYIC 904 (ANALYTICAL TECHNIQUES, SPECTROSCOPY and GREEN CHEMISTRY)

Unit: GC-01: Atomic Spectroscopy **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Atomic Absorption Spectroscopy - Principle of AAS, quantitative methodology	1
Instrumentation – flame AAS and furnace AAS, resonance line sources - hollow cathode lamp.	1
Atomisers, monochromators, detectors, readout devices.	1
Graphite furnace atomic absorption spectroscopy - advantages and disadvantages.	1
Single beam atomic absorption spectroscopy, double beam atomic absorption spectroscopy.	1
Sensitivity and detection limits in AAS	1
Interferences atomic absorption spectroscopy – chemical, spectral, physical interferences.	1
Evaluation methods in AAS and application in qualitative and quantitative analysis.	1
Atomic Emission Spectroscopy - Introduction, Principles of AES	1
Instrumentation - dc arc, ac spark, dc plasma, universal arc-spark	1
Interferences, evaluation methods, Application in quantitative analysis	1
Inductively Coupled Plasma - Atomic Emission Spectroscopy (ICP-AES) - Limitations of AES, introduction to ICP- AES, characteristics of plasma.	1
Principles of plasma spectroscopy, plasma as an excitation source.	1
Inductively coupled plasma source, ICP-AES – Instrumentation, sample introduction, , monochromators, dectectors, processing and readout.	**1**
Application of ICP-AES, Comparison with AAS	**1**
	15hrs

Name of the Teacher**: Kavitha Ramdas** Head, Department of Chemistry

Unit: GC-02: CD, ORD and 2D NMR techniques **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Optical Rotatory Dispersion (ORD) and CD Spectroscopy Optical rotation, Plane polarised light & LCP, RCP	1
circular birefringence, circular dichroism.	1
Cotton effect, Plain curves and anomalous curves	1
Determination of configuration of cyclic systems by comparing with known steriodal skeletol system	2
the octant rule Empirical and semiempirical rules-The axial haloketone rule and examples	1
Helicity rule, Exciton chirality method. Application of the rules to the study of absolute configuration and conformations of organic molecules.	1
Principles of 2D NMR, Classification of 2D-experiments.	1
Correlation spectroscopy (COSY) different examples	1
HOMO COSY (1H-1H COSY) -Examples	1
TOCSY (Total Correlation Spectroscopy),	1
Hetero COSY (1H13C COSY,HMQC),	1
long range 1H,13C COSY (HMBC), Homonuclear and Heteronuclear 2D-J-resolved spectroscopy	1
NOESY and 2D-INADEQUATE experiments and their applications	2
	15hrs

Name of the Teacher**: Dr. P.Sarita Rajender** Head, Department of Chemistry

Unit: GC-03 : Diffraction Methods **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
X-Ray Diffraction Methods: Introduction to diffraction phenomenon; X-rays-introduction to X-rays, their discovery, production – discharge tube, theory of generation of X-rays; instrumentation, detection methods – photographic and counter methods.	1
Bragg's equation, Miller indices – calculation of miller indices; Methods of Diffraction – powder and single crystal methods.	1
Laue's photographic method – description of the method and detection, Bragg's X-ray spectrometric method – instrumentation and detection of diffracted X-rays.	1
Bragg's method for deduction of crystal structures – fcc, bcc and simple cubic structures. Deduction of structures of NaCl and KCl.	1
Rotating crystal method – methodology and detection, Powder X-ray diffraction method-instrumentation, diffraction cones/rings, detection on comparison with standard spectra.	1
Indexing reflections, systematic absences, reciprocal lattice concepts; Diffraction studies – contour / electron density maps.	1
Electron density studies of platinum pthalocyanine complex – contour maps and assignment of the atoms on respective positions on contour maps.	1
Electron density studies on silyl acetate and tetra alkyl biphosphate.	1
Advantages of X-ray diffraction studies – determination of bond length, bond anghe, no. of bonds; Limitations of XRD.	1
Electron diffraction by Gases: Electron diffraction - introduction, principle and instrumentation.	1
Radial distribution curves; Interpretations of results for $PBrF_2S$, PF_3HS, PF_2HS.	1
Interpretation of results for $HClO_4$, silyl monothioacetate and Germyl monothioacetate; $HgCl_2$ molecule. Advantages and limitations of electron diffraction studies.	1
Neutron diffraction: Principle, sources used for neutron diffraction – fast neutrons – their isolation	1
Applications of neutron diffraction in hydrogen bonding studies, combined use of XRD and Neutron diffraction studies; Advantages and limitations of neutron diffraction studies.	**1**
Discussion – XRD, Electron and neutron diffraction	**1**
	15hrs

Name of the Teacher**: Dr. A.V.Aparna** Head, Department of Chemistry

Paper 1 CH 101 (INORGANIC CHEMISTRY)

M.Sc. Chemistry Semester I Paper CH 101 Inorganic Chemistry

Hour-wise Synopsis

IC-01: Symmetry of Molecules Dr. B. Sireesha

1. **Concept of symmetry in Chemistry**: Introduction to symmetry, symmetry in nature, plants, leaves, flowers, animals, viruses, food, language, architecture, geometrical figures, polygons, pyramids, prisms and antiprisms, Molecular geometry, Concept of symmetry in molecules.
2. **Symmetry operation**: Operation, geometrical manipulation, equivalent and indistinguishable configurations, original and identical configurations of molecules. Operations- rotation, reflection and inversion. **Symmetry elements**: geometrical entity- point, line or plane in a molecule, five types of symmetry elements: Cn, σ, Sn, i and E.
3. **Rotational axis of symmetry C_n**: Rotation operation, axis, direction of rotation, notation with arrows, order of rotational axis, equivalent or indistinguishable orientations, identical orientation, e.g. H_2O, NH_3, $[Ni(CN)_4]^{2-}$, etc., types of rotational axis- Principal rotational axis, simple or secondary or subsidiary axes, e.g. BF_3, C_6H_6, planar ethylene, allene, etc., Cn axis n = 1,2,3,-,- , Cα axis, $C_n^n = E$.
4. **Plane of symmetry σ**: Reflection operation, bisecting plane, mirror images, e.g. H_2O, NH_3, etc., σ, $\sigma^2 = E$. Types of planes- a) vertical plane σv, e.g. H_2O, NH_3, BF_3, etc.; b) horizontal plane σh e.g. BF_3, C_6H_6, planar ethylene, etc. c) dihedral plane σd e.g. allene, regular tetrahedron, C_6H_6, etc., molecular plane, molecules with only plane of symmetry, e.g. HOD, C_6H_5OH, $POBrCl_2$ etc., molecules with no plane of symmetry, FClSO, PBrClFI etc.
5. **Improper rotational axis of symmetry S_n**: improper axis, rotational axis and perpendicular plane, order of improper axis, e.g. BF_3, eclipsed and staggered ethane, tetrahedron, etc., set of operations generated by S_n: molecules in which C_n axis is coincident with S_n axis, with same n order, with n = even order and n = odd order.
6. **Inversion centre *i***: Centre of symmetry, reflection operation through the center of gravity of molecule, direction, equivalent distance, equivalent atom, e.g. homo-diatomic molecules like H_2, O_2 etc, CO_2, C_2H_4 regular square planar and octahedral geometries, staggered ethane, chair form of cyclohexane, P_2F_4, etc., $i^2 = E$. **Identity element E**: doing nothing, rotation by 360°. Symmetry operations which give original orientation, identity operations C_n^n, S_n^n when n = even, S_n^{2n} when n = odd, i^n and σ^n, n = even.
7. **More about symmetry elements**, Cartesian coordinates system and symmetry elements, coordinate axes, inversion centre at origin, proper and improper rotational axes of symmetry and Cartesian axes, principal rotational axis, z axis in the Cartesian system, x and y axes, correlation between the symmetry elements, presence of other symmetry elements, notation by lower order of C_n, S_n when n is of even and odd order.
8. **Molecular point groups**: Molecules as points, definition, symbols, notation of point groups, generators, order of the point group *n*, number of symmetry elements in a point group *h*,, classification of molecules into point groups, **Type I point group:** Non-axial groups, C_1- asymmetric compounds, no symmetry elements, C_S- only σ generator, C_i- molecules with only centre of symmetry, examples of non axial point groups.

9. **Classification of point groups**: **Type II**: Molecules with only one axis of rotation, axial point group- C_n- molecules with only rotational axis as symmetry element, S_n- molecules with improper axis with even order greater then two, C_{nv}- molecules with one proper axis and n number of vertical planes, $C_{\alpha v}$, C_{nh}- molecules with one proper axis, horizontal plane and inversion centre, examples of the axial point groups.
10. **Classification: Type III;** Dihedral point groups, molecules with one n fold axis and n number of two-fold axis, D_n- molecules with only one n fold axis and n number of two-fold axis as symmetry elements, D_{nh}- molecules C_n, nC_2's $\perp C_n$, σh and $n\sigma v$'s, *i* when n is of even order, D_{nd}- molecules C_n, nC_2's $\perp$ Cn, σd's and *i* when n is of odd order, $D_{\alpha h}$. Examples of dihedral point groups
11. **Classification: Type IV**: Molecules with more than one rotational axis of higher order than two-fold, polyhedral molecules, platonic solids, tetrahedron, octahedron, cube, dodecahedron and icosahedrons, T_d- molecules with four C_3 rotational axis and no other higher order axis. Oh- molecules with three C_4 rotational axis, I and I_h- molecules with several five fold axes. Examples of the polyhedral point groups.
12. **Classification**: Spherical point group, K_h. Systematic procedure for symmetrical classification of molecules into point groups, flow chart with examples. Exercises with the models of various molecules.
13. **Descent in symmetry with substitution**, substitutions on AB_3- planar, AB_4- tetrahedral, square planar and square pyramidal, AB_5- square pyramidal and trigonal bipyramidal, AB6- octahedral geometries, benzene, borazole etc.
14. **Exercises on molecular point groups** following the systematic procedure, working out point groups for common organic, inorganic and complex compounds.
15. **Symmetry and dipole moments**- molecules belonging to point groups C_n, C_S, C_{nv} possess permanent magnetic moment, **Symmetry criteria for optical activity**- dissymmetric and asymmetric molecules, molecules belonging to C_1, C_2, C_3, D_2 and D_3, diastereomers and mesomers.

M.Sc. Chemistry Semester I Paper CH 101 Inorganic Chemistry

Hour-wise Synopsis

IC 02: Bonding in Metal Complexes - I Dr. P.Muralidhar Reddy

Topics to be covered	No. of Hours
Crystal Field Theory-Salient features of CFT- Limitations and applications of crystal field theory (CFT)	1
d-orbital splitting patterns in regularOctahedral, and tetragonally distorted octahedral geometries, Jahn-Tellar theorem and its consequences	1
Crystal field splitting patterns intrigonal bipyramidal and square planar geometries	1
d-orbital splitting patterns in trigonal planar, Pentagonal bipyramidal, and linear geometries	1
Concept of weak field and strong fields-high spin and low spin octahedral complexes	1
Calculation of crystal field stabilization energies (CFSE's) in six and four coordinate complexes	1
Factors influencing the magnitude of crystal field in octahedral complexes	1
Origin of magnetism-Electron orbital motion-Electron spin motion- Definition of terms-magnetic dipole-polestrength- Gauss's Law and total magnetic induction	1
Magnetic Permeability- Magnetic susceptibility- Gram susceptibility-Molar susceptibility-Types of magnetic behavior	1
Classification of Magnetic behavior-Diamagnetism-Paramagnetism-Ferromagnetism-Antiferromagnetism-Ferrimagnetism-Curi temperature-Neel temperature	1
Calculation of magnetic momentfrom magnetic susceptibility spin only formula	1
Quenching of orbital angular momentum- Quenching of orbital angular momentum in octahedral complexes (spin free and spin paired complexes) - Quenching of orbital angular momentum in tetrahedral complexes	2
Determination of magnetic moment from Guoy's method	1
Applications of magnetic momentdata for the determination of oxidation states, bond type and stereochemistry. Spin crossover:High spin, low spin cross over phenomenon in $[Fe(Ophen)_2(NCS)_2]$ and $[Fe(R_2NCS_2)_3]$ Spinels.	1
	15hrs

M.Sc. Chemistry Semester I Paper CH 101 Inorganic Chemistry

Hour-wise Synopsis

IC 03: Coordination equilibria Dr. S.Sreekanth

Topics to be covered	No. of Hours
Solvation of metal ions- Metal complex formation in solution-Binary metal complexes – Demonstration using $CoCl_2$ and $CuSO_4$	1
Stability constants (types and relationships between them) – Step wise and over all stability constant. Kinetic stability and thermodynamic stability	1
Factors influencing the stability constants- Metal ion effects – effect of charge on metal ion, size of metal ion, charge/size ration, ionic potential, crystal field effect, and John-Teller effect	2
Pearson theory of hard and soft acids and bases (HSAB)- class A and Class B metals – effect of factors like electronegativity and softness on stability constant and symbiosis	2
Factors influencing the stability constants- Ligand effects – Basic nature of ligand, effect of substituent on ligand, steric effect,	1
Chelate effect – definition of chelation – effect of size of chelate ring and number of chelate ring formed.	1
Macrocyclic effect and cryptate effect – examples like crown ethers, cryptands, Macrocycles with pendent groups	1
Formation of macrocycles – size selectivity and concept of hole size match and its limitation	1
Methods used for the determination of Stability constants (Basic Principles only): pH metric method	1
Spectrophotometric method – mole ratio and jobs method	1
Polarographic methods – Polarography, diffusion current and stability constant relation	1
Ternary Metal Complexes – definition – Formation of ternary metal complexes – Step-wise and simultaneous equilibria with simple examples	2
	15hrs

M.Sc. Chemistry Semester I Paper CH 101 Inorganic Chemistry

Hour-wise Synopsis

IC – 04: Ligational Aspects of Diatomic molecules Dr.M.Radhika

Topics to be covered	No. of Hours
Metal Carbonyls: Introduction, structure of CO, electronic configuration, CO as a ligand.	1
Molecular orbitals of CO: molecular orbital diagram of CO, electronic configuration of CO (sigma and pi molecular orbitals), discussion of energy of atomic orbitals of Carbon & Oxygen based on electronegativity, Bond order calculations. Donor and Acceptor molecular orbitals of CO : nature of bonding , anti- bonding &non bonding molecular orbitals, Donor and Acceptor molecular orbitals of CO .	1
Different types of bonding modes of CO : terminal mode with examples and bridging mode with examples. No. of electrons donated by CO in both modes, Reasons for the formation of bridging carbonyl complexes by only early transition metals.	1
Evidencefor multiple bonding , Infra- red spectroscopy- stretching frequencies for free CO, terminal CO and Bridging CO, reasons for decreasing order of stretching frequencies from free CO to terminal CO to Bridging CO. X-ray diffraction studies : measures the bond length and their trend in different types of bonding modes of CO.	1
18 Valence electron rule and its application : Definition, explanation of the rule with many examples (mononuclear and dinuclear metal carbonyl complexes). Its application in predicting the stability of the complexes.	2
Metal Nitrosyls: Introduction, structure of NO, electronic configuration, NO as a ligand.	1
Molecular orbitals of NO: molecular orbital diagram of NO, electronic configuration of NO (sigma and pi molecular orbitals), discussion of energy of atomic orbitals of Nitrogen& Oxygenbased on electronegativity, Bond order calculations. Donor and Acceptor molecular orbitals of NO : nature of bonding , anti- bonding &non bonding molecular orbitals, Donor and Acceptor molecular orbitals of NO .	1
Bonding modes of NO – terminal mode – linear & bent, bond angle , hybridization, no. of electrons donated; bridging mode , with examples.	1
Structuralaspects of [IrCl(PPh3)2(CO)(NO)]+ : binding mode of NO as a ligand, bond length, bond angle , hybridization, no. of electrons donated. [RuCl(PPh3)2(NO)2]: binding mode of NO as a ligand (different binding modes in one complex) , bond length, bond angle , hybridization, no. of electrons donated by 2 NO's . Stereo chemical control of valence in [Co(diars)2(NO)]2+ and Co(diars)2(NO)(SCN)]+.	1
Metal Dinitrogen complexes: - Introduction, structure of N_2, electronic configurationN_2 as a ligand	1
Molecular orbitals of N_2 : molecular orbital diagram of N_2, electronic configuration of N_2 (sigma and pi molecular orbitals), Bond order calculations. Donor and Acceptor molecular orbitals of N_2 : nature of bonding , anti- bonding &non bonding molecular orbitals, Donor and Acceptor molecular orbitals ofN_2	1
Bonding modes –Terminal and Bridging : side on , end on mode of binding, bond angle , hybridization, no. of electrons donated, with examples.	1
Stretching frequencies; Structures of Ru (II) and Os(II) dinitrogencomplexes; 18 electron rule	1
Chemical fixation of dinitrogen.: examples including synthesis of complexes	1

M.Sc previous teaching plans

STEREO CHEMISTRY (I –semester) Dr.B.Sakram

1st hr.: SYMMETRY- symmetry elements in methane, staggered ethane , ethylene

2nd hr.: Symmetry elements in benzene, chaircyclohexane ,allene , tartaric acid

3rd hr.: Point groups : Achiral and chiral point groups and their symmetry elements Desymmetrisation

4th. Axial, planar, helical chirality : Configurational nomenclature : Axially chiral allenes , spiranes.

5th hr.: Axial, planar, helical chirality. alkylidene , cycloalkanes , chiral biarylsatropoisomerism,

6th hr.: Planar chiral ansacompunds and trans – cyclooctene .

7thhr. helically chiral compounds

8th hr.: Relative and absolute configuration: Determination of absolute configuration

9th hr.: Anamolous X – ray scattering method and chemical correlation methods

10th hr.:Chemical correlation methods.

11th hr.: Properties of enantiomers and diastereoisomers : Discrimination of enantiomers based on diastereomeric interactions, chirotopical methods.

12th hr.: Chiral NMR solvents , chiral stationary phases and enzymatic methods

13th hr.: Racemisation ,racemate and resolution techniques: Resolution by direct crystallization , diastereoisomer salt formation , chiral chromatography and asymmetric transformation.

14th hr.: Determination of configuration in E,Z- isomers : Spectral , chemical methods.

15th h.: Determination of configuration in aldoximes and ketoximes.

NIZAM COLLEGE:DEPARTMENT OF CHEMISTRY

M.Sc. Chemistry Semester I Paper-II CH 101 T (Organic Chemistry)

Hour-wise Synopsis

OC-02: Reaction mechanism-I Dr. A. Krishnam Raju

1. **Electrophilic additions to carbon-carbon double bond: Introduction;** Stereoselective addition to carbon-carbon double bond;
2. *anti* addition-Bromination and epoxidation followed by ring opening.
3. *Syn* addition of OsO_4 and $KMnO_4$.
4. **Elimination reactions:** Type of elimination reactions; α-eliminations; β-eliminations; γ-eliminations; δ-eliminations; Pyrolytic eliminations; and photochemical eliminations.
5. **β-eliminations:** Types of β-eliminations: E2, E1, and E1CB mechanisms.
6. **E2 Mechanism:** Evidences for E2 Mechanism; Planarity of the Transition State in E2 reactions; Types of E2 Mechanisms; ANTI and SYN eliminations
7. Orientation and stereoselectivity in E2 eliminations; E2 reactions in cyclic compounds
8. Pyrolytic *syn* eliminations: Introduction and study of Pyrolytic syn eliminations with examples.
9. α-elimination: Introduction and study of α-eliminations with examples.
10. Elimination Vs substitution.
11. **Determination of reaction mechanism: I**ntroduction to Determination of reaction mechanism. Importance of determining reaction mechanism.
12. Energy profiles of addition reactions and Energy profiles of elimination reactions
13. Transition states
14. Isolation of Products and isolation of by-products: Chlorination on toluene in the presence of hν and under $AlCl_3$; Hofmann reaction; Sommelet reaction.
15. Structure of intermediates, use of isotopes, chemical trapping and crossover experiments. Use of IR and NMR in the investigation of reaction mechanism.

NIZAM COLLEGE:DEPARTMENT OF CHEMISTRY

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester 1)

Class : M. Sc PREVIOUS **Section:** Organic Chemistry

Course/Paper: II Organic Chemistry,

Unit:conformational analysis(acyclic system) **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours required
1. Introduction to the concept of dynamic stereochemistry. Conformational diastereoisomers and conformational enantiomers	1
2. Study of conformations in ethane and 1,2-disubstituted ethane derivatives like butane	1
3. dihalobutanes, halohydrin, ethylene glycol,	1
4. butane-2, 3-diol amino alcohols and 1,1,2,2-tetrahalobutanes.	1
5. Klyne-Prelog terminology for conformers and torsion angles	1
6. slip test	1
7. **Conformations of unsaturated acyclic compounds**: Propylene, 1-Butene, Acetaldehyde Propionaldehyde and Butanone.	1
8. **Factors affecting the conformational stability and conformational equilibrium**: Attractive and repulsive interactions.	1
9. Use of Physical methodsin conformational analysis.	1
10. Spectral methods in conformational analysis.	1
11. Steric and stereoelectronic factors-examples.Conformation and reactivity.	1
12 The Winstein-Holness equation	1
13. the Curtin – Hammett principle	1
Over view of the topic	**1**
Seminar by students	1
	15hrs

NIZAM COLLEGE:DEPARTMENT OF CHEMISTRY

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester I)

Class : M. Sc previous **Section:** Organic Chemistry

Course/Paper: II- Organic Chemistry,

Unit: Natural products **No. of Hours Allotted**: 15

Topics to be covered	**No. of Hours required**
1. Introduction to Natural products	1
2.Importence of natural products as drugs	1
3.Isolation of natural products by steam distillation, solvent extract	1
4. Isolation of natural products by chemical products	1
5. General methods in structure determination of terpens. isoprene rules	1
6. Structure determinat and synthesis of terpenoil.	1
7.structure determination and synthesis of camphor	1
8.structure determination and synthesis of carotene	1
9.General methods of structure determination of alkaloids	1
10.General methods of structure determination of papaverine properties	1
11.quinine properties	1
12 Biogenesis of monoterpenes	1
13.Slip test	1
Over view of the topic	**1**
Seminar by students	1
	15hrs

Name of the Teacher: Mrs. G.Dhanalakshmi Head, Department of chemistry

Signature:

Name of the Topic	No. of hours required	Significance of the topic
Thermodynamics (15 H)		
Introduction to Thermodynamics	One hour	Important of thermodynamics in naturally occurring phenomena
Concept of Entropy, Entropy as a function of V and T, Entropy as a function of P and T.	One hour	The relationship between entropy and various parameters
Entropy change in isolated systems-Clausius inequality. Entropy change as criterion for spontaneity and equilibrium.	One hour	How entropy related to reversible and irreversible systems
Third law of thermodynamics. Evaluation of absolute entropies from heat capacity data for solids, liquids and gases.	One hour	Pure crystalline substances also still exhibited randomness due to small impurities by using III law of thermodynamics for various phases
Standard entropies and entropy changes of chemical reactions. Thermodynamic relations. Gibbs equations.	One hour	Free energy relationship between entropy and chemical reactions
Maxwell relations. Gibbs equations for non-equilibrium systems	One hour	Various form of entropy , enthalpy and free energy relationship explained through Maxwell relations
Material equilibrium. Phase equilibium. Clausius-Clapeyron equation	One hour	Various phases are exhibited equilibrium process then a relationship between temperature with various parameters
Conditions for equilibrium in a closed system. Chemical potential of ideal gases. Ideal-gas reaction equlibrium-derivation of equilibrium constant.	One hour	For ideal gases evaluate the chemical potential relationship and equilibrium constant
Temperature dependence of equilibrium constant-the Van't Hoff equation	One hour	To deduced relationship between temperature and equilibrium constant through Vant Hoff's equation
Solutions: Specifying the Solution composition. Partial molar properties-significance.	One hour	Deduce the partial molar properties of solution with particular composition and their importance
Relation between solution volume and partial molar volume, measurement of partial molar volumes- slope and intercept methods	One hour	Relationship between partial molar volume through graphical method
The chemical potential. Variation of chemical potential with T and P	One hour	Explain the relation between chemical potential with temperature and pressure at constant volume
Gibbs-Duhem equation-derivation and significance	One hour	By using chemical potential of the system to deduce the Gibbs-Duhem equation-derivation and significance
Various numerical problems	One hour	All the concepts

Electrochemistry- I		
Derivation of Nernst equation – problems	Two hours	Deduce the Nernst equation and solve problems
Chemical and concentration cells (with and without transference)	One hour	Deduce the equations for both Chemical and concentration cells
Liquid junction potential (LJP) – derivation of the expression for LJP – its determination and elimination.	One hour	Explain the importance of Liquid junction potential (LJP) and deduce the expression for LJP.
Types of electrodes. Applications of EMF measurements	One hour	Explain the significance of electrodes and their applications in measured the EMF of the various types of solutions.
Solubility product, potentiometric titrations, determination of pH using glass electrode, equilibrium constant measurements	One hour	Deduce equation for the solubility product, potentiometric titrations (acids Vs strong base etc.) pH, and equilibrium constant.
Decomposition potential and its significance. Electrode polarization – its causes and elimination. Concentration over-potential	Two hours	Explain the decomposition potential and its significance. Electrode polarization – its reasons and removal. Concentration over-potential
Concept of activity and activity coefficients in electrolytic solutions, and the mean ionic activity coefficient	One hour	Explain the theory of activity and activity mean ionic activity coefficients and deduced the equations of electrolytic solutions
Debye-Huckel theory of electrolytic solutions. Debye-Huckel limiting law (derivation not required)	One hour	Explain the theory of Debye-Huckel theory of electrolytic solutions and deduce the equation.
Calculation of mean ionic activity coefficient. Limitations of Debye-Huckel theory. Extended Debye-Huckel law	One hour	Problems solve the mean ionic activity coefficient. Explain the limitations of Debye-Huckel theory and extended Debye-Huckel law.
Theory of electrolytic conductance.	One hour	Explain the theory of electrolytic conductance of solutions with examples.
Derivation of Debye-Huckel-Onsager equation – its validity and limitations	One hour	Give details of the theory and derive the equation for Debye-Huckel-Onsager equation. Explain the strength and boundaries of the Debye-Huckel-Onsager equation
Concept of ion association – Bjerrum theory of ion association (elementary treatment)-ion association constant – Debye-Huckel-Bjerrum equation	Two hours	Explain the concept and theory of the ion association with primary treatment. Deduce the ion association constant via Debye-Huckel-Bjerrum equation.

Quantum Chemistry – 1		
A brief review of Black body radiation	One hour	Black body radiation is origin of quantum mechanics
Planck's concept of quantization- Planck's equation average energy of an oscillator	One hour	Various theories are explain to find out energy of and oscillator at lower and higher energy levels split under electromagnetic radiation of an atom or a molecule
Wave particle duality and uncertain principle-significance of these for microscopic entities and problems	One hour	The relation between frequency and mass of the microscopic particle. At a time not find out the position and momentum of a particle and problem related to both the concepts.
Emergence of quantum mechanics. Wave mechanics and Schrödinger wave equation	One hour	Classical mechanics has been failed explained the properties of microscopic particles then the origin of quantum mechanics. Separation of variable and evaluate the amplitude equation and from this deduced the Schrodinger wave equation.
Operators- Operator algebra. Commutation of operators, linear operators. Complex functions.	One hour	Introduction of operators and inter-linking of an operator with wave function. How to use mathematical operators to quantum chemistry applications
Hermitian operators. Operators and ∇^2.Eigen functions and eigenvalues. Degeneracy. Problems	One hour	Hermitian operators are how to correlate with real and orthogonality nature. Operators and ∇^2 importance. Any function become eigen function which conditions are follow the operator and problems
Linear combination of eigen functions of an operator. Well behaved functions. Normalized and orthogonal functions	One hour	The correlation between N numbers of eigen functions with an operator to obtained an eigen value function. If any wave functions are called well-behaved functions certain conditions are followed then that functions used in quantum mechanics. Explain the conditions for Normalization and orthogonal conditions.
Postulates of quantum mechanics	One hour	Physical interpretation of wave function. Observables and Operators. Measurability of operators. Average values of observables.
The time dependent Schrodinger equation. Separation of variables and the time-independent Schrodinger equation	Two hour	For the time dependent Schrodinger equation considered time independent equation and the time-independent Schrodinger equation considered time dependent equation

		and how to separation of variables.
Theorems of quantum mechanics. Real nature of the eigen values of a Hermitian operator significance	One hour	Importance of theorems of quantum mechanics. Significance of Hermitian operator and eigen value function
Orthogonal nature of the eigen values of a Hermitian operator-significance of orthogonality. Expansion of a function in terms of eigenvalues. Eigen functions of commuting operators- significance. Simultaneous measurement of properties and the uncertainty principle and problems	One hour	Two different wave function with a Hermitian operator then verify the orthogonality and commuting operator is used to eigen functions and deduce the eigen values of respective eigen functions. Applied the uncertainty principle to eigen functions and solve the problems related to eigen function value.
Particle in a box- one dimensional and three dimensional.	One hour	By using well-behaved conditions to deduce the energy and wave function equation by using boundary conditions of the particle in a one dimensional box and three dimensional box.
Plots of and ∇^2-discussion. Degeneracy of energy levels. Calculations using wave functions of the particle in a box orthogonality, measurability of energy, position and momentum, average values and probabilities. Application to the spectra of conjugated molecules.	Two hours	Graphical representation for energy levels of particle in one and three dimensional box. Using wave functions of particle one and three dimensional box to deduce normalization constants and verify the orthogonality and calculate the energy, position and momentum and probabilities of electron density. Linear polyene molecules are applicable for particle in one dimensional box.

Chemical Kinetics- I		
Theories of reaction rates: Collision theory and steric factor, Transition state theory	One hour	Explain the theories of reaction rates of both Collision and Transition state and deduce the equations.
Thermodynamic formulation of transition state theory. Potential energy surface diagram, Reaction coordinate, Activated complex. Activation parameters and their significance.	One hour	Deduce equation for the thermodynamic formulation of transition state theory and explain the Potential energy surface diagram, Reaction coordinate, Activated complex. Activation parameters and their importance
The Eyring equation. Unimolecular reactions and Lindamann's theory.	One hour	Deduce the Eyring equation and explain the Unimolecular reaction with various conditions and Lindamann's theory.
Complex reactions- Opposing reactions, parallel reactions and consecutive reactions (all first order type)	One hour	Explain the complex, opposing, parallel and consecutive reactions of first order rate constant with examples.
Chain reactions, general characteristics, steady state treatment. Example- H_2-Br_2 reaction. Derivation of rate law	Two hours	Discuss the chain reaction their features and apply the steady state treatment and apply the H_2-Br_2 reaction and it's deduce the equation.
Effect of structure on reactivity- Linear free energy relationships	One hour	Explain the linear free energy relationships with effect of structure on reactivity.
Hammett and Taft equations- substituent (σ and σ^*) and reaction constant (ρ and ρ^*) with examples	One hour	Deduce the Hammett and Taft equations with various substituent and reaction constant with different examples.
Deviations from Hammett correlations, reasons - Change of mechanism, resonance interaction	One hour	Reasons of Abnormalities of Hammett correlations and modifications of mechanism and resonance interaction.
Taft four parameter equation. Correlations for nucleophillic reactions	One hour	Explain the Taft four parameter equation and their correlation with nucleophilic reactions.
The Swain – Scott equation and the Edward equation	One hour	Deduce the equations for Swain – Scott and Edward equation
Reactions in solutions: Primary and secondary salt effects	One hour	Explain the primary and secondary salt effects
The reactivity-selectivity principle – Isokinetic temperature - Isoselectivty rule, Intrinsic barrier.	Two hour	Explain the principle of isokinetic temperature reactivity-selectivity, isoselectivity rule and intrinsic barrier.
Hammond's postulate	One hour	Explain the Hammond's postulate.

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester I)

Class : M. Sc Previous **Section:** Chemistry

Course/Paper: IV- **Paper CH 104** (ANALYTICAL TECHNIQUES and SPECTROSCOPY - I)

Unit: ASP 01: Techniques of Chromatography **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Separation Methods: Introduction to separation methods, types of separation methods, introduction to chromatographic methods– classification, stationary and mobile phases;	1
Principle of chromatography – adsorption, partition, differential migration rates, partition ratio, partition coefficient, capacity factor, selectivity factor; problems	1
Theoretical considerations: Retention time, Retention volume, adjusted retention time, adjusted retention volume, relation between partition ratio and retention time. Problems.	1
Efficiency of separation: Resolution of chromatographic peaks, diffusion. Problems on resolution. Factors effecting the separation.	1
Rate theory and Plate theory: **Rate theory** – Van de Meter's equation – multiple path effect- Eddy diffusion, Longitudinal diffusion and mass transfer.	1
Plate Theory: concept of theoretical plates in the column – equilibrium steps, resolution based on the number of theoretical plates, calculation of N efficiency, Height equivalent to theoretical plates (HETP - H), relation between N and H. Problems.	1
Gas Chromatography (GC) – Principle of GC, instrumentation, carrier gas as mobile phase – characteristics; sample injection; types of columns – Packed and Capillary / Open tubular columns – Classification of Capillary columns – WCOT, SCOT, PLOT;.	1
Stationary phases in GC – solid and liquid stationary phases; Detectors – use of detectors, signal-to-noise ratio, types of detectors – TCD, FID and ECD	1
Derivatization techniques: uses / advantages of derivatization, types of derivatization – acylation, silylation and alkylation – reagents used.	1
Programmed Temperature GC (PTGC): Methodology of PTGC, difference between GC and PTGC; **applications of GC –** methods of quantification – external and internal standard methods; Analysis of Hydrocarbons in mixture by GC	1
Applications: Assay of methyl testosterone in tablets, determination of atropine in eye drops.	1
High Performance Liquid Chromatography (HPLC): introduction, principle of HPLC, instrumentation – sample injection – loop and valve injection, requirement for high pressure, columns – guard column, stationary phases and mobile phases.	1
Classification of HPLC based on stationary phases – normal phase HPLC, reverse phase HPLC – polar, non-polar and intermediate polar stationary phases.	1
Mobile phases, types of elution – isocratic and gradient elution. Detectors – uses, types of various detectors in HPLC –UV detector, fluorescence detector and photodiode array detector..	1
Applications of HPLC - Assay of aspirin, paracetamol tablets. Discussion of chromatography techniques.	1
	15hrs

Name of the Teacher**: Dr. A.V.Aparna** Head, Department of Chemistry

Signature: Signature:

Unit: ASP 02: NMR Spectroscopy – I (^{1}H – NMR) **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Introduction to Spectroscopy, electromagnetic spectrum,Magnetic properties of nuclei	1
Principles of NMR Instrumentation, CW and pulsed FT instrumentation	1
Equivalent and non equivalent protons, enantiotopic and diastereotopic protons	1
Chemical shifts, factors affecting the chemical shifts, electronegativity and anisotropy, shielding and deshielding effects,	2
Signal integration, Spin-spin coupling: vicinal, germinal and long range - examples	1
Coupling constants and factors affecting coupling constants	1
Applications of ^{1}H NMR spectroscopy: Reaction mechanisms (cyclic bromonium ion, electrophilic and nucleophilic substitutions, carbocations and carbanions),	2
E, Z isomers, conformation of cyclohexane and decalins	1
keto-enol tautomerism, hydrogen bonding	1
proton exchange processes (alcohols, amines and carboxylic acids), C-N rotation.	1
Magnetic resonance imaging (MRI)	1
1H NMR of organic molecules and metal complexes: ethyl acetate, 2- butanone, mesitylene, paracetamol, asprin, ethylbenzoate, benzyl acetate, 2-chloro propionic acid, [HNi(OPEt3)4]+, [HRh(CN)5] (Rh I=1/2), [Pt(acac)2].	2
	15hrs

Name of the Teacher**: Dr. T.Gangadhar** Head, Department of Chemistry

Signature: Signature:

Unit: ASP 03: Rotational, Microwave and Raman Spectroscopy **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Introduction to spectroscopy, electromagnetic spectrum, Molecular Spectroscopy – types of molecular energies – Rotational, Vibrational, Electronic and Translational energies	1
Microwave Spectroscopy – Introduction, electronic, Vibrational and Rotational levels – transitions between rotational energy levels – microwave region, selection rules, instrumentation of microwave spectrometer.	1
Classification of molecules based on moment of Inertia – linear molecules, symmetric tops, spherical tops and asymmetric tops. Rigid Rotor Model - diatomic molecule as rigid rotor.	1
Rigid Rotor Model –,rotational energies of diatomic molecules, interaction of radiation with molecules, Determination of moment of inertia and bond length from rotational spectra.	1
Isotopic effect on rotational spectra, calculation of atomic mass from rotational spectra, problems.	1
Vibrational Spectroscopy – principle, Vibrational energy levels of diatomic molecules, Vibrational motion of systems that behave classically – stretched, compressed and rest levels, selection rules of IR, IR active and IR inactive molecules.	1
Restoring force, force constant, calculation of force constant, anharmonic nature of vibrations, interaction of radiation with vibrating molecules, fundamental bands, overtones, hotbands, combination and difference bands	1
Fluctuation of dipole moment due to asymmetric and bending modes of vibration, modes of CO_2 molecule.	1
Vibrations of polyatomic molecules – symmetric stretching, symmetric bending and antisymmetric stretching – vibrations of H_2O molecule.	1
Concept of group frequencies – characteristics of Vibrational frequencies of functional groups.	1
Stereochemical effects on the absorption pattern in carbonyl group, cis-trans isomerism and hydrogen bonding.	1
Isotopic effect on group frequencies, IR spectra of metal coordinated NO_3^-, SO_4^{-2}, CO_3^{-2} ions.	1
Raman Spectroscopy – Introduction, principle, selection rules, Raman Effect – Classical theory of Raman Effect **.**	1
Quantum theory of Raman Effect, Rotational and Vibrational Raman Spectra, Stokes and Anti-Stokes lines.	**1**
Complementary nature of IR and Raman Spectroscopic techniques. Discussion	**1**
	15hrs

Name of the Teacher**: Dr. A.V.Aparna** Head, Department of Chemistry

Signature: Signature:

Unit: ASP 04: Electronic spectroscopy **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Introduction to Spectroscopy, EMR, types of spectroscopy	1
Electronic spectra: Elementary energy levels of molecules	1
Selection rules for electronic spectra; types of electronic transitions in molecules	1
Beers law, lamberts law, deviations	1
Chromophores - definition, examples, Congugated dienes, trienes and polyenes	2
Unsaturated carbonyl compounds, benzene and its derivatives, Woodward-Fieser rules.	2
Woodward-Fieser rules, examples	1
Polynuclear aromatic hydrocarbons and diketones. Solvent and structural influences on absorption maxima	1
Stereochemical factors. Cis-trans isomers, and cross conjugation	1
Application of electronic spectra of metal complexes: $3d^1$ and $3d^9$ hexaaquo metal complexes.	1
Quantitative applications of electronic spectroscopy: Beer's law application to mixture analysis	2
dissociation constant of a weak acid, Charge transfer spectra	1
	15hrs

Name of the Teacher**: Dr. P.Someshwar** Head, Department of Chemistry

Signature: Signature:

Sem-2

Paper CH 201 INORGANIC CHEMISTRY

M.Sc. Chemistry Semester II Paper CH 201 Inorganic Chemistry

Hour-wise Synopsis

IC – 05: Reaction mechanisms of transition metal complexes Dr.P.Muralidhar Reddy

Topics to be covered	No. of Hours
Ligand substitution reactions-Energy profile of a reaction- Endothermic reactions-Exothermic reactions-Transition state or Activated Complex – Reaction energy-Electrophilic agent-Nucleophilic agent	1
Classification of reaction mechanism-Types of substitution reactions (SE, SN, SN^1, SN^2). Langford and Grey classification – A mechanism, D-Mechanism, Ia, Id, and Intimate mechanism.	1
Substitution reactions in octahedral complexes- Nucleophilic substitution reactions-Electrophilic substitution reactions-SN^1 mechanism-SN^{II} mechanism-Pictorial representation of SN^1 and SN^2 reaction	1
Ligand substitution reactions in octahedral complexes:Aquation or Acid hydrolysis reactions, Factors effecting Acid Hydrolysis-charge on the substrate- effect of leaving group- effect of inert ligand- steric hindrance – chelate effect	1
Base Hydrolysis,Conjugate Base (SN^1CB) Mechanism, and Evidences in favor of SN^1CB Mechanism.Pictorial representation of SN^1CB reaction	1
Substitution reactions with out Breaking Metal-Ligand bond. Anation reaction	1
Ligand Substitution reactions in Square-Planar complexes: Mechanism of Substitution inSquare-Planar complexes- Trans-effect, Trans-influence, and Trans-effect series.	1
Theories of Trans-effect - Grienberg's Polarization theory and II - bonding theory	1
Applications of Trans-effect in synthesis of Pt (II) complexes	1
Electron Transfer Reactions (or Oxidation-Reduction Reactions or Redox reactions) in Coordination compounds	1
Mechanism of One-electron Transfer Reactions – classification-Introduction of Inner SphereMechanism and Outer Sphere Mechanism	1
Atom (or group) Transfer or Ligand bridge mechanism or Inner SphereMechanism	1
Direct electron Transfer or Outer Sphere Mechanism. – Self exchange reaction and cross exchange reaction.	1
Factors affecting directelectron transfer reactions	1
Cross reactions and Marcus-Hush theory	1
	15hrs

M.Sc. Chemistry Semester II Paper CH 201 Inorganic Chemistry

Hour-wise Synopsis

IC 05: Bonding in metal complexes-II

Dr. B.Sireesha

1. **Free ion Terms and Energy levels**: Energy levels in an atom- n, l, m, m_S. Configuration of the free ion, energy state of the atom, terms, inter electronic repulsion perturbations and spin-orbit coupling perturbations, microstates.

2. **Microstates:** formulae for calculating number of microstates, general equation, equations for equivalent electrons, inequivalent electrons, calculation of microstates for p^n and d^n configurations.

3. Orbital angular momentum of the electron ***l***, and resultant orbital angular momentum Σl = L, notation of terms χ, vector coupling of orbital angular momenta, p-p configuration- p^2, p^3, p-d configuration-p^1d^1, d-d configuration- d^2.

4. Spin angular momentum of the electron $\mathbf{m_S}$, and resultant spin angular momentum Σm_S= S, two electron configurations- p^2 and d^2 cases, three electron configurations- p^3 and d^3 cases. Spin orbit coupling- theory, types- phenomenon of L-S (Russell-Saunders) coupling scheme, j-j coupling scheme.

5. **Russell- Saunders or L-S coupling scheme**: Spin orbit coupling constant J, number of J values calculation, vector coupling of orbital and spin angular moments for p^2 configurations, representation of term symbols, spin multiplicities, p^1d^1 configuration, **j-j coupling scheme**: inter-electronic repulsion parameters of some transition metal complexes.

6. **Derivation of Terms** using the allowed values of m_l and m_S values for single electron p^1 and d^1 configurations, and p^2 configuration, calculation of M_L, M_S and single electron wave functions for all microstates, summary of microstates table, assignment of Terms.

7. **Derivation of Terms** for p^3 configuration, calculation of M_L, M_S and single electron wave functions for all microstates, summary of microstates table, assignment of Terms.

8. **Derivation of Terms** for d^2 configuration, calculation of M_L, M_S and single electron wave functions for all microstates, summary of microstates table, assignment of Terms.

9. Illustration of subtraction process of array of tables for p^n and d^n configurations,. Derivation of terms symbols for a closed sub-shells, s^2, p^6, d^{10} and f^{14} configurations, ^1S. **Hole formalism**: Hole formulation, spin factoring, holes equivalent to number of unpaired electrons in half filled and completely shells.

10. Terms for all s^n, p^n and d^n configurations. **Energy ordering of terms**- Hund's rules for the determination of ground state Terms, comparison of the J-terms in d^2 and d^8 configuration. The complete profile of energy level splitting for d^2 configuration showing 45 microstates.

11. **Inter electron repulsion parameters**: Racah parameters- A, B and C, Condon-Shortley parameters- F_0, F_2 and F_4. Relation between the two parameters, Energies of the terms of d^2 configuration, Racah parameter values for some metal ions.

12. **Spin-orbit coupling parameters**: zeta ζ and lambda λ, dependence of zeta on n and *l* quantum numbers, zeta values of some 3d and 4d metal ions, relationship between ζ and λ.

13. Symmetry of atomic orbitals and spectral Terms- symmetry species of atomic orbitals and irreducible representations, symmetry species of Terms, rules for the use of g and u in irreducible representations. Determination of Ground State Term symbol for a given electronic configuration.

14. Construction of ligand field energy level diagrams, **Effect of weak cubic (octahedral and tetrahedral) fields** on S and P terms. Effect of weak cubic (octahedral and tetrahedral) fields on D terms in d^1, d^4, d^6 and d^9 configurations. Shapes of f-orbitals, splitting of f-orbitals in octahedral and tetrahedral crystal fields.

15. Effect of weak cubic (octahedral and tetrahedral) fields on F terms in d^2, d^3, d^7 and d^8 configurations. **Orgel diagrams**: definition, classification of Orgel diagrams into three sets- a) d^1, d^4, d^6 and d^9 configurations, b) d^2, d^3, d^7 and d^8 configurations and c) d^5 configuration. Use of Orgel diagrams in the assignment of electronic transitions and calculating the energy of the transitions.

M.Sc. Chemistry Semester II Paper CH 201 Inorganic Chemistry

Hour-wise Synopsis

IC 07: Metal clusters M. Radhika

Topics to be covered	No. of Hours
Carbonyl clusters: Introduction, Bonding- synergic mechanism, structures of mono & di-carbonyls	1
Factors favoring Metal-Metal bonding – Classification of Clusters – Low nuclear & high nuclear metal clusters, with examples.	1
Low NuclearityClusters : M3 and M4 clusters , structural patterns in M3(CO)12 (M=Fe,Ru,Os) and M4(CO)12 (M=Co,Rh,Ir) Clusters, No. of M-M bonds, Co ligation as terminal and bridged form	1
Metal carbonyl scrambling : Concept of fluxionality, ^{1}H-NMR importance in fluxionality, stability of the complex during scrambling, examples.	1
High Nuclearity clusters M5, M6, M7, M8 and M10 Clusters: structural patterns, , No. of M-M bonds, Co ligation as terminal and bridged form	1
Polyhedral skeletal electron pair theory and Total Electron Count theory – Capping rule : Wades rules and TEC theory explanation with many examples including both low nuclear and high nuclear complexes. Definition for Capping rule and Classification with different examples.	2
Structural patterns in [Os6(CO)18]2- , [Rh6(CO)16], {Os7(CO)21] , {Rh7(CO)16]3-, [Os8(CO)22]2-, [Os10C(CO)24]2- and [Ni5(CO)12]2-, application of Wades rules to classify these complexes as closo, nido and arachano structures.	1
Metal Halide clusters: Introduction, and classification to types in Dinuclear Metal-Metal systems – Edge sharingBioctahedra, Face sharing Bioctahedra, Tetragonal prismatic and Trigonal antiprismatic structures	1
Edge sharing Bioctahedra, Face sharing Bioctahedra : Structural aspects with examples	1
Tetragonal prismatic and Trigonal antiprismatic structures : Structural aspects with examples	1
Structure and bonding in [Re2Cl8]2-: formation of sigma, pi and delta bonds, orbitals involved, structural features and bonding of carbonyls.	1
Octahedral halides of [Mo6(Cl)8]4+ and [Nb6(Cl)12]2+. : structural aspects	1
Hoffman's Isolobal analogy and its Structural implications. : Isolobal analogy definition, symbol for analogy, different analogous fragments both in organic and inorganic chemistry, applications	1
Boranes, carboranes, : similarities, types of carboranes .STYX Rule. : definition, rules to be followed to write the short hand notation of structures of boranes.	1

M.Sc. Chemistry Semester II Paper CH 201 Inorganic Chemistry

Hour-wise Synopsis

IC 08: Biocoordination chemistry Dr. Ashwini.K

Topic to be covered	**No. of hours**
Introduction to Bio coordination chemistry, interface of biology and chemistry	**1**
Essential and non-essential metals. Role of metal ions in human health and well being, important role of each metal	**1**
Effect of metal ion concentration-deficiency symptoms and overdose effects	**1**
Principles behind the selection of these metals by nature	**1**
Oxygen transport carriers- introduction to structure of the porphyrin ring and metal centre in hemoglobin, Myoglobin .	**1**
Classification of proteins into primary, secondary and tertiary structures, mechanism of oxygen transport.	**1**
Models of oxygen binding-griffith model, weiss model, Electronic aspects of dioxygen binding	**1**
Cooperativity in oxygen transport, role of globin chain	**1**
Transport of NO and CO_2-harmful effect of CO binding	**1**
Bohr effect-oxygen binding curves, Hill constant, role of DPG	**1**
Comparision of Hb and Mb-in transport and storage of dioxygen	**1**
Photosynthesis- introduction, importance, relevance to mankind and chemistry in particular, structure of chloroplast-grana and stroma	**1**
Photolysis of water, electron transport,generation of ATP +NADPH, liberation of dioxygen, Z-scheme	**1**
Vitamin B6 models-structure and mechanism,transaminations	**1**
Mechanism of Decarboxylation and dealdolation	**1**
total	**15**

M.Sc. Chemistry Semester II CH 202 T (Organic Chemistry)

Hour-wise Synopsis

OC-05: Reaction mechanism-II Dr. A. Krishnam Raju

1. **Nucleophilic Aromatic substitution:** Introduction ; S_N1 (Ar) and S_N2 (Ar) reactions and their mechanisms
2. Benzyne mechanisms;
3. Evidence for the structure of benzyne.
4. Von Richter rearrangement.
5. Definition and types of ambident nucleophiles.
6. **Neighbouring group participation:** Criteria for determining the participation of neighbouring group. Enhanced reaction rates, retention of configuration
7. Isotopic labeling and cyclic intermediates
8. Neighbouring group participation involving Halogens
9. Neighbouring group participation involving Oxygen
10. Neighbouring group participation involving Sulphur and Nitrogen
11. Neighbouring group participation involving Aryl and Cycloalkyl groups
12. Neighbouring group participation involving σ and π- bonds.
13. Introduction to non-classical carbocations.
14. **Electrophilic substitution at saturated carbon and single electron transfer reactions.** Mechanism of aliphatic electrophilic sustitution. S_E1 and SE2 mechanisms.
15. S_E^i and SET mechanism.

PERICYCLIC REACTIONS (II SEMESTER) Dr.B.Sakram

1st hr.: Definition and characteristics of pericyclic reactions .

2nd hr.: classification of pericyclic reaction.

3rd hr.: Aromatic transition state approach (ATS) guidelines.

4th hr.: Applications of ATS approach to pericyclicreactions:application of ATS to electrocyclisation, electrocyclic ring opening reaction, selection rules.

5th hr.: Application of ATS approach to cycloaddition /cycloreversion reactions and selection rules.

6thhr.: Application of ATS approach to sigmatropic reactions and selection rules .

7th hr.: Frontier molecular orbital (FMO) approach guide lines.

8th hr.: Molecular orbital diagrams of various number of P-orbitals.

9th hr.:Application of FMO approach to Electrocyclisation/Electro cyclic ring opening reactions and selection rules.

10th hr.: Application of FMO approach to cyclo addition/Cyclorevertion reaction and selection rules.

11th hr.: Application of FMO approach to sigmatropic reaction and selection rules.

12th hr.: Conservation method/Corelation Diagram(C D) approach guide lines.

13th hr.: Applications of CD approach to Electrocyclisation/Electro cyclic ring opening reactions and selection rules.

14thhr.:Applications of CD approach tocyclo addition/Cyclorevertion reaction and selection rules.

15th hr.:Solving problems on Pericyclicreactions .

NIZAM COLLEGE: DEPARTMENT OF CHEMISTRY

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester II)

Class : M. Sc Previous **Section:** Organic Chemistry

Course/Paper: II- CH(OC) 301T: Organic Chemistry,

Unit: photochemistry **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours required
introduction	1
Photochemistry of π-π* transitions: Excited states of alkenes, cis-trans isomerisation,	1
photo stationary state. Photochemistry of 1,3-butadiene	1
Electrocyclisation rearrangement	1
sigmatropic rearrangements, di-π methane rearrangement.	1
Intermolecular reactions, photocycloadditions	1
Working of examples	1
photodimeriastion of simple and conjugated olefins.	1
Addition of olefins to α, β-unsaturated carbonyl compounds. Excited states of aromatic compounds,	1
Photoisimerisation of benzene. **Photochemistry of (n-π*) transitions Excited states of carbonyl compounds,**	1
homolytic cleavage of α- bond, Norrish type I reactions in acyclic and cyclic ketones and strained cycloalkane diones.	1
Intermolecular abstraction of hydrogen: photoreduction-influence of temperature, solvent, nature of hydrogen donor and structure of the substrate.	1
Intramolecular abstraction of hydrogen: Norrish type II reactions in ketones, esters and 1,2 diketones,	1
Addition to carbon-carbon multiple bonds, Paterno-Buchi reaction, Photochemistry of nitrites-Barton reaction.	**1**
Overview of the topic	1
	15hrs

Name of the Teacher: Mrs.P.Revathi Head, Department of chemistry

Signature:

NIZAM COLLEGE: DEPARTMENT OF CHEMISTRY

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester II)

Class : M. Sc Previous **Section:** Organic Chemistry

Course/Paper: II- CH(OC) 301T: Organic Chemistry,

Unit: Reactive intermediates and molecular rearrangements **No. of Hours Allotted**: 15

Topics to be covered	**No. of Hours required**
1. Introduction	1
2.**CARBOCATION:** Generation, detection,structure and reactions of carbocation.	1
3.**CARBANION**:Generation,detection,structure and reactions of carbanion.	1
4.**CARBENE**: Generation,detection,structure and rectations of carbene.	1
5.**NITRENE:** Generation,detection,structure and rectations of nitrene.	1
6. **FREE RADICALS**: Generation,detection,structure and rectations of free radicals.	1
7.**MOLECULAR REARRANGEMENT**: Introduction,Defenation and classification	1
8. MOLECULAR REARRANGEMENTS INVOLVING ***i)Electron deficient carbon***: a)Wagner Meerwein rearrangement b)Pinacol-pinacolone rearrangement	1
9. c)Allylic rearrangement d)Wolf rearrangement **MOLECULAR REARRANGEMENTS INVOLVING** ***ii)Electron deficient Nitrogen:*** a)Hoffmann rearrangement	1
10. b)Lossen rearrangement c)Curtius rearrangement d)Schmidt rearrange	1
11. e)Beckmann rearrangement **MOLECULAR REARRANGEMENTS INVOLVING** ***iii)Electron deficient Oxygen*****:** Baeyer Villiger Oxidation reactions	1
12. Base Catalysed Rearranments: Benzilic acid rearrangemnt Favourskii rearrangement	1
13. Transannular rearrangement Sommelett-Hauser rearrangement , Smiles rearrangment	1
Over view of the topic	**1**
Seminar by students	1
	15hrs

Name of the Teacher: Mr.G.Dhanalakshmi Head, Department of chemistry

Signature:

Name of the Topic	No. of hours required	Significance of the topic
Thermodynamics-II & Statistical Thermodynamics		
Ideal solutions. Thermodynamic properties of ideal solutions	One hour	Thermodynamic properties of ideal solutions discussion and deduce the equations
Mixing quantities. Vapour pressure - Raoult's law	One hour	Explain the Raoult's law applied to ideal solutions and deduce the equations
Thermodynamic properties of ideally dilute solutions. Vapour pressure-Henry's law	One hour	Explain the thermodynamic properties of ideally dilute solutions and derive the equation for vapor pressure through Henry's law
Nonideal systems. Concept of fugacity, fugacity coefficients. Determination of fugacity	One hour	Discussion on non-ideal systems and introduction of fugacity and deduce the equations for fugacity.
Non ideal solutions. Activities and activity coefficients. Standard-state conventions for non ideal solutions.	One hour	For non-ideal solution deduce the activity coefficient equation
Determination of activity coefficients from vapour pressure measurements.	One hour	Using activity coefficient equation calculate the vapor pressure
Activity coefficients of nonvolatile solutes using Gibbs-Duhem equation.	One hour	Apply the activity coefficient equation to Gibbs-Duhem equation
Multicomponent phase equilibrium: Vapour pressure lowering, freezing point depression and boiling point elevation	Two hours	For a multi-component phase equilibrium state to evaluate the lowering vapor pressure and depression freezing point and elevation of boiling point
Partition Functions: Concepts of distribution and probability	One hour	Explain the concept of distribution and probability using partition functions
Boltzmann distribution law	One hour	Derive the Boltzmann distribution law
Interpretation of partition functions-translational and rotational	One hour	Deduce the equations for translational and rotational partition functions
vibrational and electronic partition functions	One hour	Deduce the equations for vibrational and electronic partition functions
Relationship between partition functions and thermodynamic functions (only S & G)	Two hours	Deduce the equations for relationship between partition functions and entropy and free energy.

Photochemistry –I		
Electronic transitions in molecules. The Franck Condon principle		When a molecule exposed to light then the change in electronic transitions in molecule are explain by Franck Condon prinicple
Electronically excited molecules- singlet and triplet states		Jablonski diagram explain the electronically excited molecules change in direction to develop the singlet and triplet states
Radiative life times of excited states-theoretical treatment. Measured life times		Explain the life time measurement of excited molecules.
Quantum yield and its determination. Experimental set up of a photochemical reaction		Calculate the quantum yield of a molecule the experimental set up for any photochemical reaction
Actinometry-ferrioxalate and uranyl oxalate actinometers – problems		Explain the various types of chemical actinometers and numerical are solving by using quantum yield equation.
Derivation of fluorescence and phosphorescence quantum yields		By using steady state principle deduce the quantum yield equation for fluorescence and phosphorescence
E-type delayed fluorescence- evaluation of triplet energy splitting(ΔE_{ST})		Explain the reverse intersystem crossing of molecule with very small singlet-triplet energy gap and deduce the equation.
Photophysical processes photophysical kinetics of unimolecular reactions		For unimolecular reactions alters the transition state kinetics and apply the steady state principle to deduce the equation
Calculation of rate constants of various photophysical processes-problems, State diagrams		Discuss the numerical problems for photophysical processes therough stste diagrams
Photochemical primary processes. Types of photochemical reactions		Discuss the types of photochemical reactions for a primary processes
electron transfer, photodissociation, and addition reactions with examples		Discuss the photochemical reactions such as electron transfer, photodissociation, and addition reactions with examples
abstraction, oxidation and isomerization reactions with examples		Discuss the photochemical reactions such as abstraction, oxidation and isomerization reactions with examples
Effect of light intensity on the rates of photochemical reactions.		The intensity of the light influences the rate of the photochemical reaction due to change of photo-flux
Photosensitization. Quenching-Stern-Volmer equation		Explain the photosensitization process and quenching process then deduce the Stern-Volmer equation.
Introduction to fast reactions- Principle of flash photolysis		Explain the concept of fast reaction with examples and principle of flash photolysis.

Quantum chemistry-II		
Cartesian, Polar and spherical polar coordinates and their interrelations.		Deduce the equations and explain the relationship between Cartesian, Polar and spherical polar coordinates
Schrodinger equation for the hydrogen atom- separation into three equations.		Deduce the equations for Hydrogen atom by using separable and variable method
Hydrogen like wave functions. Radial and angular functions		Similarly deducetheequations for hydrogen type systems. Discuss the graphically by Radial and angular functions.
Quantum numbers n, l and m and their importance. The radial distribution functions		Explain the significance of quantum number and radial distribution functions
Hydrogen like orbitals and their representation. Polar plots, contour plots and boundary diagrams		Plot the various functions such as polar, contour and boundary diagrams
Many electron systems. Approximate methods. The variation method-variation theorem and its proof.		Discuss the multi-electron system using approximate method such as variation method
Trial variation function and variation integral. Examples of variational calculations. Particle in a box.		Apply the variation theorem for particle in a box and correlate energy value.
Construction of trial function by the method of linear combinations.		By using two or more wave functions to construct the trial function through linear combinations
Variation parameters. Secular equations and secular determinant.		Deduce the variation parameters and secular equations and determinant for hydrogen molecule
Bonding in molecules. Molecular orbital theory-basic ideas.		Basic ideas for bonding in molecules through molecular orbital theory
Construction of MOs by LCAO, H_2^+ ion.		Construct the molecular orbitals by using LCAO for H_2^+ ion.
The variationan integral for H_2^+ ion.		Deduce the variationan integral for H_2^+ ion
Detailed calculation of Wave functions and energies for the bonding and antibonding MOs.		Detailed calculation of Wave functions and energies for the bonding and antibonding MOs for hydrogen molecule
Physical picture of bonding and antibonding wave functions. Energy diagram.		Physical picture of bonding and antibonding wave functions. Energy diagram for hydrogen molecule
The MO wave function and the energy of H2 molecule MO by LCAO method and Valence bond method (detailed calculations not required)		Discuss the MO wave function and the energy of H2 molecule MO by LCAO method and Valence bond method
Comparison of MO and VB models		Discuss the omparison of MO and VB models

Solid state chemistry & Nanoparticles and their applications		
Electronic structure of solids, Band theory, band structure of metals, insulators and semi-conductors		Explain the Electronic structure of solids, Band theory, band structure of metals, insulators and semi-conductors with examples
Electrons, holes and Excitons. The temperature dependence of conductivity of extrinsic semi-conductors		Explain the Electrons, holes and Excitons. The temperature dependence of conductivity of extrinsic semi-conductors
Photo conductivity and photovoltaic effect – p-n junctions		Discuss the photo conductivity and photovoltaic effect and p-n junction
Occurrence of superconductivity. Destruction of superconductivity by magnetic fields – Meissner effect.		Origin of superconductivity. Discuss the destruction of superconductivity by magnetic fields by Meissner effect
Types of superconductors. Theories of super conductivity – BCS theory		Explain the various types of superconductors and theories of super conductivity – BCS theory
High temperature superconductors: Structure of defect perovskites. High Tc superconductivity in cuprates		Explain the High temperature superconductors: Structure of defect perovskites. High Tc superconductivity in cuprates
Phase diagram of Y-Ba-Cu-O system. Crystal structure of $YBa_2Cu_3O_{7-x}$.		Discuss the various phases of phase diagram of Y-Ba-Cu-O system and crystal structure of $YBa_2Cu_3O_{7-x}$.
Preparation of 1-2-3 materials. Origin of high Tc superconductivity.		Explain the preparation method for 1-2-3 materials. Introduction and discuss on high Tc superconductivity
Introduction to nanoparticles. Reduced dimensionality in solids – zero dimensional systems		Discuss the nanoscience and nanotechnology, reduced dimensionality in solids and zero dimensional systems
Fullerenes, quantum dots. One dimensional systems, carbon nano tubes		Explain the structural features of Fullerenes, quantum dots. One dimensional systems and carbon nano tubes and its applications
Preparation of nano particles –top down and bottom up methods.		Discuss the method of preparation of nanoparticles through top-down and bottom-up approaches
Preparation of nanomaterials- – sol gel methods, chemical vapor deposition method and thermolysis		Discuss the preparation of nanomaterials- various methods such as sol gel methods, chemical vapor deposition method and thermolysis
Characterization of nanoparticles – experimental methods – powder X-ray diffraction		Characterization of nanoparticles – experimental methods – powder X-ray diffraction by confirmed the phase and calculate index of the system
transmission electron microscopy (TEM), and atomic force microscopy (AFM)		Morphology and particle size of the nanomaterials through TEM and surface roughness calculate by using AFM
Optical properties of nanoparticles, Applications of nanoparticles		Discuss the optical properties of nanoparticle with different sizes and its applications in photocatalysis.

NIZAM COLLEGE : DEPARTMENT OF CHEMISTRY

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester II)

Class : M. Sc Previous **Section:** Chemistry

Course/Paper: IV- CH 204 (ANALYTICAL TECHNIQUES and SPECTROSCOPY - II)

Unit: ASP-05: **Electro and thermal Analytical Techniques** **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Introduction to electroanalytical techniques - Types and Classification of Electro analytical Methods	1
D.C Polarography: Instrumentation - Dropping mercury electrode (diagram and explanation of each component) – working of polarograph and polarogram	2
Types of current involoved in polarography – Residual current, Migration, Limiting current,	1
Two electrode assembly -Working electrode, reference electrode. Three electrode assemble – WE, RE and Auxiliary electrode	1
Ilkovic equation and its significance – consequence of Ilkovic equation	1
Applications of polarography in qualitative and quantitative analysis – mixture analysis, application to inorganic (metal ion) and organic compounds analysis	1
Determination of stability constant – derivation	1
Brief account of (i) A.C.polarography (ii) Square-wave polarography (iii) Pulse polarography (iv) Differential pulse polarography – principle, model plots, and advantages over DC polarography	2
Amperometric titrations: Principle, Instrumentation. Types and applications of amperometric titrations. Determination of SO_4^{2-}, metal ions viz., Mg^{2+}, Zn^{2+}, Cu^{2+} and other substances like Pb^{2+}, organic compounds	1
Cyclic Voltammetry: Principle, instrumentation, Applications. Cyclic voltammetric study of insecticide parathion	1
Thermal techniques-Introduction, types of thermo analytical methods – TGA, DTA, DSC, TT, TMA, DMA, etc.	1
Thermogravimetry principle and applications of thermogravimetry – instrumentation and working	1
Differential thermal analysis- principle and applications of DTA. Differential scanning calorimetry. DSC: Principle, and application of DSC	1
	15hrs

Name of the Teacher: **Dr. S. Sree Kanth** Head, Department of Chemistry

Signature: Signature:

Unit: ASP 06: **NMR spectroscopy-II (^{1}H, ^{19}F and ^{31}P NMR)** **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Introduction of NMR and recap of importants points of sem1 syllabus of NMR	1
Types of NMR spectroscopy- First order and non first order spectra, differences between first order and non first order spectra	1
Equivalent and non-equivalent protons, enantio topic and diastereotopic protons	1
Representation of NMR first order spectrum e.g., AX, AX_2,	1
Representation of NMR first order spectrum AX_3, A_2X_3, AMX	1
Representation of NMR non-first order spectrum and AB, ABC pattern	1
Methods of simplification of complex spectra: increased field strength,	1
Methods of simplification of complex spectra: deuterium exchange, Lanthanide shift reagents	1
Methods of simplification of complex spectra: double resonance techniques.	1
Discrimination of enantiomers by use of chiral NMR solvents (CSAs), chiral lanthanide shift reagents and Mosher's acid.	1
NuclearOverhauser enhancement (NOE). Fluxional molecules bullvalene, [η5-C_5H_5M], [η5-$(C_5H_5)_2$ Ti η1-$(C_5H_5)_2$] and [η4$C_8H_8Ru(CO)_3$].	1
^{19}F NMR spectroscopy: ^{19}F chemical shifts, coupling constants. Applications of ^{19}F NMR involving coupling with ^{19}F, ^{1}H and ^{31}P: 1,2 dichloro-1,1 difluoro ethane, BrF_5, SF_4, PF_5, ClF_3, IF_5, CF_3CH_2OH	1
P NMR spectroscopy: P chemical shifts, coupling constants. Applications of P NMR involving coupling with ^{31}P, ^{19}F, ^{1}H and ^{13}C: ATP, Ph_3PSe, P_4S_3, H_3PO_4, H_3PO_3, H_3PO_2, HPF_2, PF_6^-, PH_3, [Rh $(PPh_3)Cl_3$] (Rh I=1/2)	1
Introduction to solid state NMR: Magic angle spinning (MAS).Applications of solid state NMR.	2
	15hrs

Name of the Teacher: **Dr. Y. Hemasri** Head, Department of Chemistry

Signature: Signature:

Unit: ASP-07: **Mass Spectroscopy** **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Introduction to Mass spectra. Application. Principles of mass spectrometer.	1
Definitions- Molecular ion , Charge to mass ratio, Representation.Fragment ion / daughter ion., Base peak. Bar graph, tabular column	1
Bond Fissions - Homolysis, Hemi- heterolysis – eg – Methane.	1
Types of fragments-classification. Positive ions, Neutral species, odd electron species, even electron species, - Fragmentation pattern	1
Even electron Rule. Stability. Nitrogen Rule- Fragmentation pattern with two examples.	1
Isotopic peaks – relative percentage- natural abundance.	1
Importance of Isotopic peaks- Discussion with (m+1) & (m+2) peaks	1
Determination of Molecular formula – Guidelines – problems	1
Problems contd.	1
Meta stable ion peaks- Fragmentation pattern- α cleavage.	1
β- cleavage- allylic, Benzylic and vinylic	1
RDA fragmentation- Mc lafferty Fragmentation	1
Ortho effect- principles of EI, CI, FAB mass.	1
Principles of SIMS , MALDI	1
Principles of GC-MS & LC-MS	1
	15hrs

Name of the Teacher: **Dr. P. Sarita Rajender** Head, Department of Chemistry

Signature: Signature:

Unit: ASP-08: **Photoelectron & ESR spectroscopy** **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Photoelectron Spectroscopy – Introduction to electron spectroscopy, photoionization, photoemission, principle; types of PES – X-ray Photoelectron spectroscopy (XPS) and Ultraviolet Photoelectron Spectroscopy (UPS)	1
Basic instrumentation of PES – schematic diagram, terms like Ionization potential, , Kinetic energy, Binding energy of electron	1
Koopmans' Theorem: Ionization energy – types of ionization energies – vertical and adiabatic ionization energies, relation between ionization energies and molecular orbitals.	1
X-ray photoelectron spectroscopy (XPS/ESCA): Principle, instrumentation, working of electrospectrophotometer, ESCA in qualitative analysis, chemical shifts.	1
UPS – principle, instrumentation, sources used, working of the instrument, applications of UPS	1
Auger Electron Spectroscopy: Principle, Auger electron, instrumentation, comparison of XPS with AES, applications of Auger electron spectroscopy.	1
Photoelectron spectra of simple molecules – N_2, CO, O_2, F_2,– structures of PES bands, potential energy curves	1
PES of HF, NH_3, H_2O - structures of OES bands and potential energy curves.	1
Interpretation of vibrational spectral data for ionized (M^+)species; prediction of nature of molecular orbitals.	1
Electron Spin Resonance (ESR) – Principle of ESR, comparison with NMR, Instrumentation, selection rules.	1
Hyperfine and super hyperfine splitting, interpretation of Lande's 'g' factor, isotropy and anisotropy in 'g' vales, Hyperfine coupling constant.	1
Zero-field splitting, Kramer's degeneracy, Quadrapolar interactions.	1
Study of free radicals and transition metal complexes – ESR spectra and interpretation.	1
Covalency of complexes – Cu (II) Bissalcylaldimine, Bis-acetylacetanato vanadyl (II) and Hexachloro iridium (IV) complexes.	1
Discussion of PES and ESR.	1
	15hrs

Name of the Teacher: **Dr. B.Sireesha** Head, Department of Chemistry
Signature: Signature:

M.Sc. INORGANIC CHEMISTRY SPECIALIZATION

2020-2021

SEMESTER- III

M.Sc. Chemistry (Final) **Semester III**

Paper-I: CH (IC) 301T:Bonding, Group Theory and its Applications

IC-11: Group Theory, Normal mode analysis and Spectral Activity **Dr. B.Sireesha**

Hour-wise Synopsis

S.No.	Topic	Hours
1	Properties of a point group, closure rule-abelion and non-abelion groups, associative rule, inverse rule and identity rule.	1
2	Group multiplication table, the rearrangement theorem, GMT of C_3, C_4, C_{2V}, C_{2h}, C_{3V} and C_5 point groups	2
3	Sub groups-Langrange's theorem, Classes, similarity transformation. Properties of conjugate elements, definition, classes for C_{2V}, C_{3V}	2
4	Matrices and vectors, types of matrices, multiplication and direct product, matrix representation of symmetry elements-E, σ, *i*, Cn and Sn.	2
5	Matrix representation of point groups, product and square rule, Matrices of C_{2h}, C_{2V}, C_{3V} and C_{4V}, block factorization	1
6	Transformation matrices, reducible and irreducible representations, character of a representation, properties of irreducible representation, orthognality principle, construction of character table	2
7	Character tables of C_{2h}, C_{2V}, C_{3V} and C_{4V} groups	1
8	Mulliken symbolism, rules for IRs. Symmetry species for translations and rotations, standard reduction formula	1
9	The direct product, rules of direct products, normal mode analysis, Cartesian coordinate method,C2v, alternate method	1
10	Internal coordinate method C_{2V}- H_2O, IR and Raman activity	1
11	Normal mode/Internal coordinate method for C_{2h} and C_{3V} with examples	1

M.Sc. Chemistry (Final) **Semester III**

Paper-I: CH (IC) 301T:Bonding, Group Theory and its Applications

IC-11: MOT of Metal Complexes **Dr. B.Sireesha**

S.No.	Topic	Hours
1	Limitations of CFT, Adjustments of CFT to allow for covalence	1
2	Experimental evidences for metal-ligand orbital overlap – ESR and NMR studies of few metal complexes	1
3	Adjusted CFT, introduction to MOT	1
4	Symmetry classification of metal and ligand orbitals in non-cubic environment, square pyramidal, trigonal bipyramidal and square planar geometries	2
5	Concept of LGO's, LCAO concepts	1
6	Construction of LGO's for Oh, Td and Sq pl geometries	1
7	Construction of MOED –Oh metal complexes with σ orbitals, σ and π orbitals, σ, π and π* orbitals	2
8	Construction of MOED for Td metal complexes with σ and π orbitals	1
9	Construction of MOED for square planar metal complexes with σ and π orbitals	2
10	MO electronic configuration and calculation of magnetic moment	

Hour-wise Synopsis

M.Sc. Chemistry (Final) **Semester III**

Paper-I: CH (IC) 301T:Bonding, Group Theory and its Applications

IC-11: Electronic Spectroscopy of Metal Complexes **Dr. Ashwini.K**

Hour-wise Synopsis

Topic to be covered	**No. of hours**
Introduction to crystal field diagrams-construction of CFELD of Oh, Td, Square planar geometries, constructionof ligand field diagrams- effect of weak crystal field on S, P, D, f terms	**1**
Construction of Orgel diagrams- d^1,d^6,d^9,d^4; d^2, d^7,d^8,d^3; d^5 configurations, concept of hole formalism, expected electronic transitions	**1**
Construction of correlation diagram for d^2 Oh environments-strong field configurations-calculation of no.of microstates for each strong field configuration by direct product method, and method of descending symmetry. Rule of correspondence and non crossing rule	**2**
Correlation diagram for Td environment and other for orther configurations discussion	**1**
Tanabe-Sugano Diagrams-construction for d^2 and d^8 configuration, comparision of orgel and tanabe-sugano diagrams	**2**
Classification of electronic spectra –ligand field spectra and charge transfer spectra, types of electronic spectral recordings-solid, solution spectra.	**1**
Selection rules for electronic spectra-orbital selection rules-transitions between two non-degenerate states, transitions between states of different degeneracy, two electron transitions	**1**
Spin selection rules, relaxation in rules-departure from cubic symmetry, d-p mixing, vibronic coupling, magnetic dipole transitions	**1**
Nature of spectral bands- band intensities-intensity of d-d band, intensity of C-T band, band widths-variation in 10Dq,lower symmetry components	**1**
Franck condon principle, spin orbit coupling, Jahn-Teller effect,	**1**
Experimental evidence, dynamic JT effect	**1**
Spectrochemical series-factors effecting 10Dq, Nephelauxetic series	**1**
Examples of metal complexes and their detailed electronic spectral charecterisation with values	**1**
Total	**15**

M.Sc. Chemistry (Final) **Semester III**

Paper-I: CH (IC) 301T:Bonding, Group Theory and its Applications

IC-12: IR and Raman Spectroscopy **Dr. Ashwini.K**

Hour wise synopsis

Topic to be covered	**No. of hours**
Introduction to molecular spectra, nature of electro magnetic radiation, mechanism of interaction and ,Hooke's law, force constants, potential energy curve for a vibrating molecule	**1**
Selection rules-conditions for IR activity-HOMO nuclear diatomics and HETERONuclear diatomics, polyatoms	**1**
Anharmonicity of molecular vibrations and potential energy functions,	**1**
Fundamental bands, overtones, and hot bands, fermi resonance	**1**
Partial normal mode analysis-finding out the molecular point group, character table and calculating the no. of reducible representations from standard reduction formula, classifying the RR's into vibrations, rotations and assignment of IRR's for the modes.	**3**
Few more examples for normal mode analysis	**1**
Determination of coordination sites and linkage isomers like NO_2 and SCN, denticity of SO_4^{2-}, CO_3^{2-}	**1**
Distinguishing geometrical isomers- cis & trans , fac and mer isomers	**1**
Effect of coordination on ligand vibrations-mono, bi, polydentate ligands of oxygen, nitrogen, carbon and halogens-NH,H_2O,Glycine, Carbonyl and halides	**1**
Prediction of diagnostic fundamentals of geometrical isomers of metal complexes, distinguishing isomers of metal complexes	**1**
Discovery of Raman effect-Raman experiment, Raman lines-stokes, anti stokes, Rayleigh scaterring, conditions for Raman activity-polarizability	**1**
Raman spectra of CO, HCN, CO_2,NO_2,H_2O, principles of resonance Raman spectra	**1**
Structural elucidation of the active sites of Heme and non meme oxygen carriers.complementary nature of IR and Raman spectra.	**1**
Total	**15**

M.Sc. Chemistry (Final Inorganic**)** **Semester III**

Paper-III:CH(IC) 303T (Elective IIIa): Analytical Techniques - I

Unit: IC-17: Data Handling **K.Sudeepa**

Hour wise synopsis

Topics to be covered	No. of Hours required
Evaluation of Analytical Data: Introduction to Data handling, role in chemical analysis,Error-definition, classification of errors, minimization of errors.	1
Accuracy-Definition, Ways of expressing accuracy, precision-definition, ways of expressing precession	1
Numberical Problems	1
Stastical treatment of finite data- mean,median,average, deviation,standard deviation, variance, coefficient of variance	2
Numberical Problems	1
Significant figures- Definition,mathematicaloperation,addition,subtraction, division, and multiplication,Numberical problems	2
Numberical Problems	1
Students t-test, stastical Q testfor rejection of a result, confidence limit	1
Problems	1
Regression analysis- Method of least squares, problems	1
Correlation coefficient, detection limits, calculations	2
Revision	1
	15hrs

M.Sc. Chemistry (Final Inorganic**)** **Semester III**

Paper-III: CH(IC) 303T: Analytical Techniques-I

Unit: IC-18: AAS, AES, ICP-AES **Dr. P. Muralidhar Reddy**

Hour wise synopsis

Topics to be covered	No. of Hours
Atomic Absorption Spectroscopy (AAS): An Introduction to Optical Atomic Spectroscopy- atomization - Principles of AAS, Instrumentation-Flame Atomization-Electro Thermal Atomization-Graphite Furnace Technique	2
Flame AAS and furnace AAS, resonance line sources, sensitivity and detection limits in AAS.	1
Interferences –chemical and spectral, evaluation methods in AAS and application in qualitative and quantitative analysis.	2
Atomic Emission Spectroscopy (AES): Principles of AES, Instrumentation	2
Evaluation methods, Application of AES in quantitative analysis -RaiesUltima or RU lines-Advantages & disadvantages of AES - Comparison Between Atomic Absorption and Emission Spectroscopy	2
Inductively Coupled Plasma - Atomic Emission Spectroscopy (ICP-AES): Limitations of AES, Principles of plasma spectroscopy, plasma as an excitation source. Inductively coupled plasma source	2
ICP-AES – Instrumentation –sequential spectrometers- Simultaneous spectrometers-Qualitative information- Quantitative information- Application of ICP-AES, Comparison with AAS and AES	2
Flame Photometry: - Basic concept- structure of flame –Interferences - Principle, and Theory	1
Instrumentation and Applications of Flame Photometry	1
	15hrs

M.Sc. Chemistry (Final) **Semester III**

Paper CH(IC) 303T Analytical Techniques – I (Elective IIIa)
Hour-wise Synopsis

IC 19: Diffraction Methods **Dr. A.V.Aparna**

1 **X-Ray Diffraction Methods:** Introduction to diffraction phenomenon; X-rays- introduction to X-rays, their discovery, production – discharge tube, theory of generation of X-rays; instrumentation, Measurement of Intensity- photographic and counter methods.

2 Bragg's equation, Miller indices – calculation of miller indices; Deduction of Structure amplitude from intensity measurement.

3 Methods of Diffraction – powder and single crystal methods.Laue's photographic method – description of the method and detection, Bragg's X-ray spectrometric method – instrumentation and detection of diffracted X-rays.

4 Bragg's method for deduction of crystal structures – fcc, bcc and simple cubic structures. Interpretation of structures of NaCl and KCl.

5 Rotating crystal method – methodology and detection, Powder X-ray diffraction method- instrumentation, diffraction cones/rings, detection on comparison with standard spectra.

6 Indexing reflections, systematic absences, reciprocal lattice concepts; Diffraction studies – contour / electron density maps.

7 Electron density studies of platinum pthalocyanine complex – contour maps and assignment of the atoms on respective positions on contour maps.

8 Electron density studies on silyl acetate and tetra alkyl biphosphate.

9 Advantages of X-ray diffraction studies – determination of bond length, bond anghe, no. of bonds; Limitations of XRD.

10 **Electron diffraction by Gases:** Electron diffraction - introduction, principle and instrumentation.

11 Radial distribution curves; Interpretations of results for $PBrF_2S$, PF_3HS, PF_2HS.

12 Interpretation of results for $HClO_4$, silyl monothioacetate and Germyl monothioacetate; $HgCl_2$ molecule. Advantages and limitations of electron diffraction studies.

13 **Neutron diffraction:** Principle, sources used for neutron diffraction – fast neutrons – their isolation.

14 Applications of neutron diffractionin hydrogen bonding studies, combined use of XRD and Neutron diffraction studies; Advantages and limitations of neutron diffraction studies.

15 Discussion.

M.Sc. Chemistry (Final) **Semester III**

Paper-III: CH(IC) 303T: Analytical Techniques-I

Hour-wise Synopsis

IC-20: Advanced Mass spectrometry **Dr. P. Muralidhar Reddy**

Topics to be covered	No. of Hours
Mass Spectrometry basic introduction- Block diagram of mass spectrometer- Types of ionization methods- Types of ions in mass spectrometer	1
Mass Analyzers: Quadruple, Ion traps, Time of flight (TOF) mass analyzers	2
Mass Spectrometry / Mass Spectrometry: Tandem Mass Spectrometry, Instrumentation, Applications ; LC-MS-MS and GC-MS-MS	2
Hyphenated Techniques: GC-MS Principle, instrumentation, Interfaces- Direct coupling interface and open split interface.	2
Application based on gas chromatography/mass spectrometry-Analysis of metabolite of drug Imipramine.	1
LC-MS- principle, Instrumentation – Interfaces- Moving belt interface, particle beam interface, thermospray interface, Electrospray interface, atmospheric pressure chemical ionization interface.	2
ICP – MS - Principle Instrumentation, and Applications	1
Matrix-assisted laser desorption/ionization-Time of flight Mass spectrometry (MALDI-TOF-MS): Introduction	1
MALDI- TOF-MS - Principle, Matrix, Sample Preparation for MALDI-MS - Dried droplet Crystallization, Thin layer method, Sandwich Crystallization	1
MALDI- TOF-MS -Instrumentation	1
Applications of Matrix-assisted laser desorption/ionization-Time of flight Mass spectrometry in chemistry and biology	1
	15hrs

M.Sc. Chemistry (Final) **Semester III**

Paper CH(IC) 304T: Analytical Techniques - II (Elective IVa)

IC-26 : Thermal methods **Dr.S.Sreekanth**

Hour-wise Synopsis

Topics to be covered	No. of Hours
Thermogravimetric analysis (TGA): Principle, Instrumentation, working function of each component – Block diagram, types of balances, thermistors used	1
Applications of TGA: Study of oxalates (CaC_2O_4, $Mg\ C_2O_4$), nitrates ($AgNO_3$ and $Cu(NO_3)_2$)and chromates ($KCrO_4$)by TGA, Determination of carbon black in polythene	2
Differential thermal analysis (DTA): Principle, Instrumentation - block diagram, Methodology – experimental details. Differentiation from TGA	1
Applications of DTA - Differential thermogram of sulphur. Comparison of TG and DTA of manganese phosphine monohydrate	1
Differential scanning calorimetry (DSC): Principle, instrumentation, power compensated DSC instruments and Heat flow DSC instruments – Block diagrams. Working principle.	1
Methodology-DSC experiment calibration and data analysis – Factors affecting DSC curves – instrumental and sample factors – corrections or calibration to be made – standards used in calibration.	1
Applications of DSC: determination Glass transition temperatures and heat capacities. Problems based on Thermal Techniques (TGA, DTA and DSC)	2
Slip test and Revision	-
Thermometric titrations: Principle, apparatus- experimental procedure – enthalpogram, determination of end point.	1
Applications of TT : Acid base (HCl and H_3BO_3 against NaOH – advantage over pH metry), precipitation, complexometric (determination of Calcium and Magnesium ion in a mixture), redox and non-aqueous titrations	2
Combined thermal instruments: Introduction to TGA/MS and TGA/FTIR – block diagram, advantages and application. High resolution TGA, Microthermal analysis	2
Seminar by students	1
	15hrs

M.Sc. Chemistry (Final) **Semester III**

Paper CH(IC) 304T: Analytical Techniques - II (Elective IVa)

Hour-wise Synopsis

IC-26 : Surface Analysis Methods / Microscopic analysis **Dr. A.V.Aparna**

1 Introduction to surface measurements – definition of surface, sampling surfaces, surface contamination, types of surface measurements – Electron Probe, Photon Probe, ion Probe and Scanning Probe microscopy techniques.

2 **Electron Probe Techniques –** classical method – optical microscopy; development of new methods for determination of surface methods, raster scanning pattern, Scanning electron microscopy (SEM) – principle, instrumentation.

3. **SEM –** sources used, sample holders, types of samples, transducers, applications of SEM

4. **Electron Probe Techniques** Transmission Electron Microscopy (TEM) – principle, instrumentation – sources, sample holders, analyzers and transducers.

5 **TEM –** Applications of TEM, comparison of SEM and TEM

6 **Electron Probe Techniques –** Electron Probe X-ray analysis (EPXMA) – principle, instrumentation and applications.

7 **Electron Probe Techniques –** Auger Electron Spectroscopy – principle, Auger electron – emission, Auger transitions, comparison of Auuger spectroscopy with XPS and XFS.

8 **Auger Emission Spectroscopy** - instrumentation and applications of Auger Electron Spectroscopy

9 **Photon Probe Techniques –** X-ray Photoelectron Spectroscopy (XPS) – principle of XPS/ESCA, instrumentation, sources used, sample holders, hemispherical analyzers, Transducers.

10 **ESCA –** Applications of ESCA, Qualitative analysis - determination of kinetic and binding energies, chemical shifts and structures, chemical shifts and oxidation states. Quantitative analysis.

11 **Ion Probe Techniques –** definition of ion probe techniques – types – Rutherford Backscattering Spectrometry (RBS) – principle, elastic collisions, instrumentation, working, helium ion source,

12 RBS – instrumentation – particle and tandem accelerators, detectors, backscattering – measurement of energies of scattered particles, applications of RBS.

13 **Ion Probe Techniques –** Secondary Ion Mass Spectrometry (SIMS) – fundamental aspects of sputtering, principle, instrumentation – ion sources, sample chamber, mass analyzer, detector.

14 **SIMS** - static and dynamic SIMS; ion-microprobe analyzers, applications of SIMS – composition and depth measurements, surface sensitivity.

15 **Atomic Force Microscopy (AFM) –** principle, instrumentation, contact mode scanning, tapping mode operation, Applications of AFM.

15 Discussion.

M.Sc. Chemistry (Final) **Semester III**

Paper CH(IC) 304T **Analytical Techniques - II**
(Elective IVa)

Hour-wise Synopsis

IC-27: Advanced Separation Techniques **K.Sudeepa**

Topics to be covered	No. of Hours required
Introduction to separation techniques:Definition, role of separation in analysis,examples and brief review on basic separation methods	1
Principle, methodology, applications, process of solvent extraction	1
Organic reagents in Inorganic analysis - Theoretical basis for the use of organic reagents in inorganic analysis.	1
Extraction of metal ions by the use of organic reagents – acetylacetone, thionyl-trifluoroacetone, tri-n-octyl phosphine oxide.	2
Solid phase extraction- Principle, methodology, applications.	1
Numberical Problems	2
Affinity and chiral chromatography– Principle, technique, Instrumentation and applications.	1
Principles of gel – filtration Chromatography, Instrumentation	1
retention behavior, resolution, selection of gel type, applications	1
Ion exclusion– Principle and applications.	1
Instrumentation of SFC, stationary and mobile phases	2
Detectors, Advantages of SFC. Technique and applications of SFC	1
	15hrs

M.Sc. Chemistry (Final) **Semester III**

Paper CH(IC) 304T **Analytical Techniques - II**
(Elective IVa)

Hour-wise Synopsis

IC-28 : Optical Methods **Dr. A.V.Aparna**

1 **CD, ORD and Fluorescence:** Introduction to fluorescence emission, principles of florescence spectroscopy, Jablonski diagram, term diagram for florescence and phosphorescene.
2 Fluorimeter – emission and excitation filters, measurement of fluorescence intensity
3 **Characteristics of fluorescence** – stoke's shift, emission wavelength is independent of the excitation wavelength, Kasha's rule.
4 **Fluorescence quenching** – Static and dynamic collisions, their comparison.
5 Fluorescence lifetime, lifetime in singlet and triplet states; Quantum yield – its importance.
6 Fluorescence polarization, anisotropy, fluorophore, polarization spectra of fluorophore.
7 Applications of fluorescence quenching (in general).
8 Fluorescence quenching studies on ligand/drug/metal complex DNA binding studies.
9 **Circular Dichroism (CD) –** Principle polarized light, polarimeter, optical rotation, circular birefringence.
10 Circular Dichroism, cotton effect – positive and negative cotton effect, Octant rule.
11 Interpretation of CD curves, comparison of CD and absorption curves.
12 Optical Rotatory Dispersion (ORD) – specific rotation, refractive indices, ORD.
13 Experimental techniques, use of CD in conformational studies of metal complexes.
14 Study on DNA and DNA-metal complexes by CD.
15 Discussion – CD, ORD and Fluorescence.

M.Sc. INORGANIC CHEMISTRY SPECIALIZATION

SEMESTER-IV

M.Sc. Final (Inorganic Chemistry) Semester IV

Paper CH(IC) 401T :Molecular Spectroscopy of Inorganic Compounds

IC -34: IC-33: Multinuclear NMR Dr. B. Sireesha

Hour-wise Synopsis

Topic to be covered	No. of hours
Theory and principle of NMR, The magnetic properties of other nuclei, ^{13}C-NMR-chemical shifts.	**1**
^{13}C-NMR continuous wave NMR: NMR recorded in frequency domain, pulsed Fourier Transform NMR, Undecoupled NMR, broad band coupled NMR. Ex: Ethyl Phenyl acetate etc.	**1**
Broad band decoupled spectra, single frequency off resonance decoupled (SFORD) NMR, Selectively decoupled NMR spectrum: principles and applications.	**1**
Factors effecting chemical shifts in^{13}C-NMR spectroscopy- diamagnetic, paramagnetic and neighbour anisotropic terms factors-hybridization, electro-negativity of substituents, steric and vander Waals effects with suitable examples.	**1**
Factors: electron deficiency – carbonium anions, mesomeric effect – Aniline, benzonitrile, intra-molecular anisotropic effects- cyclohexane and toluene, heavy atom effect, conjugation isotropic effect, hydrogen bonding, effect of pH, solvent shifts.	**1**
Chemical and magnetic equivalence definitions, examples- $H_2P_2O_5$, ethane etc. virtual coupling in cis $[Pd(P(CH_3)_3)_3\ I_2]$, $[PdI_2(PMe_3)_2)]$.	**1**
Spin dilute systems- satellites –Pt and Sn complexes low abundance active isotopes resulting in satellite peaks. NMR time scale and its uses.	**1**
Stereochemical non-rigidity: application of NMR in identifying the fluxional behavior in molecules and complexes – with examples of PF_5, $[Rh(PR_3)_5]^{5+}$, $[Fe(Cp)_2(CO)_2]$, ΔR, the ring contribution to ^{31}P chemical shifts, taking examples of phosphorous chelates.	**2**
Interpretation of ^{1}H-NMR spectral signals $[PtHCl(PEt_3)_2]$ and coupling constants, $[Pt(CH_3)_3(NH_3)_3]$ –facial and meridonial isomers, BH_4^- coupling with ^{10}B and ^{11}B, NH_4^+ coupling with ^{14} N and ^{15} N, CH_3CN.	**1**
^{1}H-NMR –spectra of $[^{6}h(C_7H_8Mo(CO)_3]$ and $[^{7}h(C_7H_7Mo(CO)_3]$, B_2H_6 – coupling with ^{11}B and $^{29}SiH_3$-SiH_3 – satellite peaks.	**1**
^{19} F-NMR spectrum of BF_4^-, (coupling with ^{11}B, ^{10}B. H_2PF_3, $J_{P-H} > J_{P-F}$ and $J_{P-F} > J_{P-H}$ spectra. ^{31}P-NMR spectrum of $Mo(CO)_3(PPh_3)_3$ – facial and meridonial isomers, $[Rh(PPh_3)_3Cl]$ Wilkinsons catalyst – JP_b-Rh, JP_b-P_a and JPa-Rh, JPa-Pb coupling.	**1**
^{31}P-NMR spectra of trans $[PtCl_4(Pet_3)_3$-satellite Peak. $^{31}PF_2H(^{15}NH_2)_2$ when $J_{P-H} > J_{P-F}$ and $J_{P-F} > J_{P-H}$ cases-interpretation of 90 line spectrum-^{13}C-NMR spectrum of $[^{4}hC_8H_8Ru(CO)_3]$ delocalization of electron density due to 1,2 shift.	**1**
^{13}C-NMR spectrum of iron carbonyls –$Fe(CO)_5$, $Fe_2(CO)_4$ – bridging and terminal carbonyls, $Fe_3(CO)_{12}$, $FeICp(CO)_2$, $^{13}C^{15}NCo(DMG)_2$pyridine, ^{13}C and ^{1}H- NMR & ^{13}C-NMR spectrum of bonded phenyl ligand (C_6H_5).	**1**
. Revision of the topic brief discussion of questions and Assignments Questions.	**1**
Total	**15**

M.Sc. Final (Inorganic Chemistry) **Semester IV**

Paper CH(IC) 401T **Molecular Spectroscopy of Inorganic Compounds**

Hour-wise Synopsis

IC -34: Advanced NMR techniques **Dr. A.V.Aparna**

1 Introduction to NMR – Radiofrequency region – brief description of NMR spectrometer – CW and FT-NMR; Excitation of nuclei – Absorption ; Relaxation of nuclei – emission of energy – Types of relaxation methods – Spin – lattice relaxation (T_1) and Spin-Spin Relaxation (T_2).

2 Pulse Sequences – generation of pulse, measurement of pulse, types of pulses - 90°, 180° (π – pulse), 360° pulse

3 **Spin Echo Polarization –** generation of spin echo, measurements of T_1 and T_2.

4 **^{13}C – NMR techniques:** Introduction to ^{13}C – NMR, Attached Proton Test (APT) – pulse sequences and generation of signal

5 **Distortionless Polarization Transfer (DEPT) –** pulse sequences, generation of signal.

6 **Insensitive nuclei enhanced by Polarization Transfer (INEPT):** pulse sequence and signal generation.

7 **Incredible Natural Abundance Double Quantum Transfer Experiment (INADEQUATE)** – pulse sequence and signal generation.

8 Cross Polarization – theory of cross polarization.

9 **2D – NMR:** principles of 2D – NMR, types of 2D – NMR; J-resolved Spectroscopy – Homonuclear 2D J resolved spectroscopy.

10 Heteronuclear J-resolved Spectroscopy - theory and types of Heteronuclear J-resolved spectroscopy.

11 **Correlation Spectroscopy –** Homonuclear correlation spectroscopy (COSY)

12 Heteronuclear Correlation Spectroscopy (HECTOR)

13 **Cross Relaxation –** effect of cross relaxation**.**

14 Nuclear Overhauser Enhancement Spectroscopy (NOESY), 2D heteronuclear NOE (HOESY)

15 Discussion.

M.Sc. Final (Inorganic Chemistry) **Semester IV**

Paper-I: CH(IC) 401T: Molecular Spectroscopy of Inorganic Compounds

IC-35: Applications of ESR to Metal Complexes

Hour-wise Synopsis

Dr.P.Muralidhar Reddy

Topics to be covered	No. of Hours
ESR – Introduction-Principle- Resonance Condition- Presentation of spectra-First – Derivative of Absorption curve-Selection Rules	1
ESR – Instrumentation – Klystrons – Wave guide or Wavemeter - Attenuators- Sample Cavities – Crystal Detectors and Holders- Modulation Coil-Magnetic System	1
Hyperfine splitting-Application of ESR to the study of simple free radicals: methyl ($CH3^{\cdot}$), amine ($NH2\cdot$), diphenylpicrylhydrazyl,cyclopentadienyl ($C5H5^{\cdot}$), hydroxy methyl ($CH_2OH\cdot$) radicals.	2
Zero-Field Splitting (ZFS) - Effective Spin - Orbitally Non-degenerate and Degenerate States.	1
ESR Spectra of d^1-d^9 Transition Metal Complexes with examples.	1
Interpretation of g in cubic, axial and rhombohedral geometries.	1
Factors affecting g values. Calculation of g values with simple examples. Intensities of ‘$g_{\parallel}$ and $g_{\perp}$peaks.	1
Application of ESR complexes - Simple free radicals – Benzene- Naphthalene- Anthracene- cyclopentadienyl anion-Tropyl radical- 1,3 – butadiene etc.	2
Evidence for Metal-Ligand Bond Covalency- Cu(II)- Bis –Salicylaldimine. $[(NH_3)_5\ Co\ O_2\ Co\ (NH_3)_5]5+$, Cu(II)- diethyldithiophosphinate, Vanadyldithiophsphinate, Copper(II) tetraphenylporphyrin, Co(II)- phthalocyanine, K2[IrCl6].	2
Interpretation of ‘g’ and ‘A’ values from ESR spectral data in- i) MnF_6^{4-}, ii) CoF_6^{4-}, and CrF_6^{3-}.	2
ESR spectra of dinuclear Cu (II) complexes.	1
	15hrs

M.Sc. Final (Inorganic Chemistry) **Semester IV**

Paper-I: CH(IC) 401T: Molecular Spectroscopy of Inorganic Compounds

IC-36: Mossbauer Spectroscopy and Nuclear Quadrupole Resonance Spectroscopy

Topics to be covered	No. of Hours
Introduction to Mossbauer Spectroscopy – general application – Principle - Mossbauer effect – Doppler broadening -	2
Instrumentation of Mossbauer Spectroscopy, details about components and experimental procedure followed and representation of spectrum	2
Isomer shit – definition and factors responsible for shift (chemical shift)	1
Quadrupole splitting – definition and cause of splitting	1
Magnetic hyperfine splitting and Selection Rules of Mossbauer spectroscopy	1
Iron Compounds: Low-spin and High-spin Fe(II) and Fe(III) Complexes –examples of Iron compounds - π-bonding Effects in Iron complexes - Study of High-spin Low-spin Cross-over – Temperatures changes	1
Diamagnetic and Covalent Compounds - Structural aspects of Iron Carbonyls - $Fe(CO)_5$ $Fe_2(CO)_9$ $Fe_3(CO)_{12}$ and Iron-Sulfur Proteins – Fe_4S_4	1
Slip test and Revision	
Tin Compounds: Tin Halides and Organotin Compounds – example like SnF_6 and $SnBr_4$, Alkyl tin compounds etc.	1
Iodine Compounds: Isomer Shifts of ^{127}I and ^{129}I - Applications to Alkali metal iodides and Molecular Iodine. Mossbauer spectra of IF^{6-} and IF^{6+}	1
Nuclear Quadrupole Resonance Spectroscopy: Principle, nuclear quadrupole resonance experiment, Structural information from NQR spectra- $PFCl_4$, PCl_4Ph, Ga_2Cl_7 - and $TeCl_4$	2
Interpretation of nuclear quadrupole coupling constants.	1
Seminar by students	1
	15hrs

M.Sc. Final (Inorganic Chemistry) **Semester IV**

Paper-II: CH(IC) 402T: Bioinorganic Chemistry

IC-37: Metal ions Interactions with Nucleic acids and their constituents

Hour wise synopsis

Dr.B.Sireesha

S.No.	Topic	Hours
1	Introduction, nucleic bases- purines and Pyrimidines, ribose and deoxyribose sugars	1
2	Nucleosides, nucleotides, structure and bonding, nomenclature	1
3	Proton binding sites of nucleic acids and constituents	1
4	Covalent structure of polynucleotides, secondary structure of DNA	1
5	Syn and anti conformations of nucleotides	1
6	B, A and Z forms of DNA, Structural features and comparison	2
7	Major grooves and minor grooves, hydrogen bonding and base pairing	1
8	General factors influencing metal ion binding in solution-basicity of bases, nature of donor atoms and metal ions, stacking of bases, indirect Chelation, kinetic factors, pH, N(7) Vs N(1) of purines, hydrogen bonding.	2
9	Stability of phosphate metal ion complexes in solution. Metal ion binding in nucleotides	1
10	Nucleotide metal ion interactions-structures	1
11	Intramolecular equibriumconstant, K_I, concept of open and closed systems, calculation of percentage of closed isomers	1
12	Outer sphere and inner sphere isomers of M-ATP complexes	1
13	Metal ion interactions with DNA and RNA, stability of nucleotide chain. Concept of T_M.	1

M.Sc. Final (Inorganic Chemistry) **Semester IV**

Paper-II: CH(IC) 402T: Bioinorganic Chemistry

IC:38 Transport of Electrons and Metal ions **Dr. B. Sireesha**

Hour wise synopsis

S.No.	Topic	Hours
1	Iron-sulphur proteins. Introduction, significance , [1Fe-0S]-rubridoxin, [2Fe-2S] and [3Fe-4S], spectral interpretation and structural aspects	2
2	Structural aspects of [4Fe-4S] and Hipip-spectral interpretation	2
3	Blue-copper proteins- types of copper in proteins and enzymes, electron transport by cytochromes, structural aspects of Azurin	1
4	Blue-copper proteins- plastocyanin in electron transport	1
5	Metal ion transport and storage; types of transport systems, gradient and channels-principles	1
6	Iron transport system- sideropores in bacteria, structure and mechanism. Transferring in mammals, transport cycle and mechanism	2
7	Structural aspects of Ferritin-Iron storage protein	2
8	Transport of Na^+ and K^+ across the cell membrane by Na^+-K^+-ATPase, mechanism	1
9	Transport of calcium across the sarcoplasmic reticulum by Ca2+-ATPase.	1
10	Revision, Seminars and slip test	2

M.Sc. Final (Inorganic Chemistry) **Semester IV**

Paper-II: CH(IC) 402T: Bioinorganic Chemistry

IC-39: Metallo-Enzymes of Iron, Zinc and Nickel

Dr. M Radhika

Hour-wise Synopsis

Topics to be covered	No. of Hrs.
Metallo-enzymes : Introduction with different examples **Iron Enzymes: Introduction**, different types of iron enzymes and their applications in short	1
Cytochrome P450: Structural aspects: geometry, ligands present around Iron, overall structure of enzyme, application and mechanism	1
Cytochrome oxidase: Structural aspects: geometry, ligands present around Iron, overall structure of enzyme, application and mechanism (Catalytic cycle)	2
Catalase and Peroxidase: Comparison of structural details, similarities and differences between Catalase and peroxidase, application and mechanism (Catalytic cycle) and Role of the Metal Ion.	1
Zinc Enzymes Introduction, different types of zinc enzymes and their applications in short, dual role of zinc ion as structural and functional role	1
Carbonic Anhydrase : Structural aspects: geometry, ligands present around zinc, overall structure of enzyme, application and mechanism (Catalytic cycle)	1
CarboxyPeptidase : Structural aspects: geometry, ligands present around zinc, overall structure of enzyme, application and mechanism (Catalytic cycle)	1
Leucin –Aminopeptidase: Structural aspects: geometry, ligands present around zinc, overall structure of enzyme, application and mechanism (Catalytic cycle)	1
Thermolysin : Structural aspects: geometry, ligands present around zinc, overall structure of enzyme, application and mechanism (Catalytic cycle)	1
Alcohol Dehydrogenase: Structural aspects: geometry, ligands present around zinc, overall structure of enzyme, application and mechanism (Catalytic cycle) and role of zinc	1
Nickel Enzymes : different types of Ni enzymes and their applications in short,	1
Urease : Structural aspects: geometry, ligands present around Ni, overall structure of enzyme, application and mechanism (Catalytic cycle)	1
Hydrogenase : Structural aspects: geometry, ligands present around Ni, overall structure of enzyme, application and mechanism (Catalytic cycle)	1
Factor F430 : Structural aspects: geometry, ligands present around Ni, overall structure of enzyme, application and mechanism (Catalytic cycle)	1

M.Sc. Final (Inorganic Chemistry) **Semester IV**

Paper-II: CH(IC) 402T: Bioinorganic Chemistry

IC-40: Metallo-Enzymes of Cobalt, Copper Molybdenum and Manganese

Hour-wise Synopsis

Dr.P.Muralidhar Reddy

Topics to be covered	No. of Hours
Cobalt Enzymes - Cobalt in Vitamin B12 – Definitions of some terms- Anaemia- Megaloblastic Anaemia- Pernicious Anaemia- Gastric Atrophy- Causes of Vit-B12 deficiency- Dietary sources of Vit –B12	1
Recommended dietary allowances (RDA)-Absorption- Storage of Vit-B12- Industrial production of Vit – B12- Excess intake of Vit-B12-Symptoms of Vit-B12 deficiency-Function of Vit-B12.	1
Discovery of Vit-B12- Natural synthesis of Vit-B12- Research- Phase-I- Phase-II and Phase - III	1
Structural Features of Vitamin B12 with reference to coordination of Cobalt - Different Oxidation States of Cobalt-Different forms of Vit-B12	1
Various forms of Vitamin B12 and Active Enzyme forms – Isomers of Vit-B12-Properties of Vit – B12r and Vit-B12s	1
Types of Reactions Catalysed by i) Methyl Cobalamin ii)DeoxyadenosylCobalamin	1
Mechanism of the Methyl Malonyl CoA conversion to Succinyl CoA by Deoxyadenosyl Cobalamin	1
Methyl Cobalamin catalyzed reactions – Homocystine to Methionine- Acetate synthetase- Methane synthetase	1
Role of the Apoenzyme - Unique features of Cobalt to suit Vitamin B12.	1
Copper Enzymes-Types of Copper in Biological Systems. Structural and Mechanistic Aspects of Superoxide Dismutase	1
Structural and Mechanistic Aspects of Laccase and Galactose oxidase	1
Molybdenum Enzymes: Biological Roles and Mechanistic Aspects of Nitrogenase – Nitrogen cycle	1
Structural and Mechanistic Aspects of Xanthineoxidase and Sulfite oxidase.	1
Manganese Enzymes: Arginase- Structure and function	1
Manganese Enzymes: Water – oxidase - Structure and function	1
	15hrs

MSc Final (Inorganic Chemistry) **Semester IV**

Paper-III: CH(IC)403T: Medicinal Inorganic Chemistry, Spectroscopic Analysis of Drug/Metal Complexes and Applications of Nanomaterials

IC-41: Metal complexes in Clinical Chemistry

Dr.Ashwini.K

Hour-wise Synopsis

Topic to be covered	**No. of hours**
Introduction to interface between biology and inorganic chemistry. Essential and non-essential elements, history of chelation therapy	**1**
Classical examples of chelation therapy-BAL, Au for Rheumatoid arthritis.Inorganic pharmaceuticals-ligand, metal, and complexes.	**1**
Theory and mode of action of therapeutic chelating agents	**1**
Single ligand chelation therapy-Pencillamine, desferoxamine,amino polycarboxylic acids	**1**
Mixed ligand chelation therapy-BAL + DMSPA and other examples.	**1**
Limitations of chelation therapy, drawbacks and newer strategies like combinatorial therapies	**1**
Metallothioneins in detoxification- structural details, donor atoms responsible for binding, mechanism for removal of toxic metals	**1**
Antibiotics, role of metal ion in enhancing the activity of BLm, Adriamycin and tetracyclins.	**1**
Structure of Bleomycin, metal binding sites and mechanism of action	**1**
Structure, activity, mode of action of adriamycin and tetracyclins	**1**
Application of Gold compounds in the treatment of rheumatoid arthritis	**1**
Menkes disease and its treatment with copper histidine complex	**1**
Role of cobalt complexes in antiviral chemotherapy	**1**
Revision of the topic dealt, slip test	**1**
Distribution of assignments, previous year question paper discussion	**1**
Total	**15**

MSc Final (Inorganic Chemistry) **Semester IV**

Paper-III: CH(IC)403T: Medicinal Inorganic Chemistry, Spectroscopic Analysis of Drug/Metal Complexes and Applications of Nanomaterials

IC-42: Metal complexes as Drugs and Anticancer agents

Dr.M.Radhika

Hour-wise Synopsis

Topics to be covered	No. of Hrs.
Introduction to Pt(II) chemistry: chemistry of Pt metal ion, stable complexes of Pt and their geometries.	1
Thermodynamic and kinetic principles – *Cis*and*Trans* influences : Stability constants , stepwise and overall stability constants,	1
Thermodynamic and kinetic aspects. Steric and electronic tuning of reactivity.: Kinetic stability, mechanism	1
Platinum complexes in cancer therapy: introduction	1
Discovery applications and structure-effect Relationships : various experiments , discovery of cis platin	1
Cisplatin(cisPt(NH3)2Cl2) mode of action. : detailed mechanism of mode of action	1
Potential binding sites on nucleic acids and their bases andproteins.: structure of DNA and its potential binding sites	1
Drug resistance and DNA repair mechanism: How the excessive use of drug becomes resistant and how to overcome the problem , DNA repair mechanism	1
Physical effects of metal complex: Cis platinbinding to DNA, conc dependent	1
DNA binding, unwinding, shortening and bending of the doublehelix: detail explanation with diagrams and examples	2
Organic intercalatorsasdonor – acceptor pairs : explanation with different examples	1
Transition metal complexes as donor acceptor pairs.: discussion in detail	1
Non classical platinum antitumour agents: different examples which contain oter ligands on Pt other than NH2 and Cl.	2

MSc Final (Inorganic Chemistry) **Semester IV**

Paper-III: CH(IC)403T: Medicinal Inorganic Chemistry, Spectroscopic Analysis of Drug/Metal Complexes and Applications of Nanomaterials

IC-43: Spectroscopic analysis of drug/metal complexes binding to DNA

Dr.Ashwini.K

Hour-wise Synopsis

Topic to be covered	**No. of hours**
Introduction to absorption spectroscopy, fluorescence spectra , its uses to study structural properties of DNA, fluorescence titrations	**1**
DNA and Drug binding equations, types of drug binding-intercalation and groove binding	**1**
Scatchard, hounston and klontz plots and their interpretation	**1**
Cooperativity in drug binding to DNA, anticooperativity, binding isotherms for cooperativity and anticooperativity	**1**
Excluded site model-anticooperativity, stereochemical hinderance etc, fluorescence quenching studies	**1**
Salt back titrations-salt concentration dependence of formation constant of drug/metal complex with DNA	**1**
Binding analysis-obtaining equilibrium binding analysis and interpretation of binding isotherms	**1**
Effect of cations on nucleic acid equilibrium- effect of monovalent and divalent cations on DNA binding and ratios of binding	**1**
Record's polyelectrolyte theory and its importance in binding to DNA and RNA polyanions	**1**
Dialysis experiment-experimental setup, equilibrium dialysis experiment, analysis of different forms of DNA-A,B, Z forms, base , sequence specific binding of drug or metal complex	**1**
Viscosity studies—experimental setup-ostwalds viscometer, change in the viscosity of DNA solution on drug /metal complex binding	**1**
Structure of different forms of DNA, supercoiled , nicked, linear forms	**1**
Gel electrophoresis-experimental requirements, analysis of DNA based on movement in gel electrophoresis	**1**
Revision of the topic dealt, slip test	**1**
Seminars, Assignment allotment, previous years question paper discussion	**1**
Total	**15**

MSc Final (Inorganic Chemistry) **Semester IV**
Paper-III: CH(IC)403T: Medicinal Inorganic Chemistry, Spectroscopic Analysis of

Drug/Metal Complexes and Applications of Nanomaterials

IC-44: Applications of Nanomaterials

Dr.S.Sreekanth

Hour-wise Synopsis

Topics to be covered	No. of Hours
Introduction to Nanotechnology and its advantages and scope, Top-Down approach, Bottom-Up approach	1
Application of Nanotechnology in the field of electronics – Nano electronics Semiconductors, Transistors, Moore's Law, computer chips, CMOS, RTD and SET	2
Application of Nanotechnology in the field of biology -	1
Consumer and domestic applications of nanothechnology – biological motors, protein detectors, biology inspired nano applicaiton	1
Energy related application: photo-volatile cells, Energy storage nanomaterials – Solar cells – Type of cells - DSSC	1
Slip test and Revision	1
Introduction to sensors and Application in Agriculture -	1
Application of Sensors in Health, Medical and food security	1
Introduction to biosensor and there types – Composition of sensor – Applications	1
Applied nanobiotechnology and Bioimaging	1
Nanobiomedical science and its application in drug delivery and drug targeting – Cancer therapy, cancer detection,	2
Neutron capture therapy – Boron	1
Seminar by students	1
	15hrs

M.Sc. Final (Inorganic Chemistry) **Semester IV**

Paper CH(IC) 404T (Elective IVa) **Interdisciplinary Course**
Environmental and Applied Analysis

Hour-wise Synopsis

IC -49: Clinical and Pharmaceutical Analysis **Dr. A.V.Aparna**

1 Introduction to clinical and pharmaceutical analysis, importance of the analyses. Determination of Sulphanilamide by potentiometry – principle and estimation.

2 Estimation of Diclofenac by Non-aqueous titrations – non-aqueous titrations, types of solvents used, principle and estimation; Determination of calcium in tablets by comlpexometry – theory of complexometric titrations, EDTA as chelating agent and estimation of calcium.

3 Estimation of Pethidine Hydrochloride and Frusemide by UV-Vis Spectroscopy – Principle of UV-Vis spectroscopy, λ_{max} and estimation.

4 Estimation of Aspirin, paracetamol and codine in APC tablets by NMR – brief discussion about NMR, NMR spectrum and detection based on chemical shift values. Estimation of Phenobarbitone in tablets by IR – principle of IR, Functional group frequencies, IR spectrum and assignment of group frequencies.

5 Determination of pivolic acid in dipivefrin eye drops by GC – Principle of GC, Quantitative analysis – Internal standard method – estimation

6 Estimation of Hydrocortisone by HPLC – principle of HPLC, mobile phases, peparation of cream extract, estimation.

7 Impurity profiling of Propranolol by GC-MS and Famotidine by LC-MS: Hyphenated techniques, interfaces used in GC-MS and LC-MS, detection.

8 Clinical Analysis – Analysis of carbohydrates – carbohydrates, significance classification, , Glucose –fasting, random and post-pandrial. Glucose estimation by colorimetry.

9 Analysis of Protiens – definition and importance of proteins, estimation of proteins by Biuret method.

10 Lipids and their significance, cholesterol – HDL, LDL, determination of cholesterol – Zatkin's, Zak and Boyle method.

11 Metabolites – significance of metabolites, blood urea – importance and estimation.

12 Heteronuclear Correlation Spectroscopy (HECTOR)

13 Analysis of ions – importance of Na, K, Ca – their determination by flame photometry – principle and brief description about the instrument.

14 Importance and determination of bicarbonates and phosphates.

15 Harmones - Radio Immuno Assay (RIA) and ELISA - Enzyme Linked Immuno Sorbent Assay

M.Sc. Final (Inorganic Chemistry) **Semester IV**

Paper-IV: CH(ID) 404T: Interdisciplinary Course (Environmental and Applied Analysis)

IC-50: Food and Agricultural analysis

Hour-wise Synopsis **K.Sudeepa**

Topics to be covered	No. of Hours required
Introduction to applied Analysis: Introduction to Chemical analysis, role of chemical analysis in daily life , purpose of food and agricultural analysis.	1
Role of analytical methods adopted in analysis, principles and theory of titrimetry, principles of Instrumental methods.	1
Analysis of chemical additives: Definition of additive, colour additives, and its classification, Health hazards of dyes,Procedure for extraction of added dyes from sample.	1
Assay of dyes in foods: Role of separation techniques in the analysis. Sample clean up, extraction of dye, analysis of dye by Qualitative and Quantitative techniqes.	1
Chemical preservative: Definition of preservatives, Examples of preservatives natural and chemical preservatives, role of preservatives in products. Assay of Sodium benzoate, Examples of foods containg the sodium benzoate, extraction of preservative by solvent extraction and its assay.	1
Sorbic acid ,SO_2&Benzoic acid:,sorbic acid, Extraction of sorbic acid from food product,assay of sorbic acid, Examples of foods containg the SO_2, assay of sulphurdioxide by adopting Examples of foods containg the different techniqes.Examples of foods containg the Benzoic acid, Assay of Benzoic acid by UV.	1
Antioxidants: Definition, Examples of foods containg antioxidants, role of antioxidants, examples, Principle and Instrumentation of GC and assay of gallates, Assay by TLC, BHT, examples of foods containg BHT, Sample extraction, and its assay.	1
Food Adulteration: Definition, Purpose of Adulteration, List of common adulterants, Effect of Adulterants on health and microscopic examination.	1
Analysis of Soil: Constituents of Soil, importance of soil assay, sample collection, role of the nutrients in soil, types of soils.	1
Parameters in soil: Definition of pH and its effect on soil, glass membrane electrode, calibration of ph meter, Soil sample preparation and its assay, Conductivity- definition, ions responsible for conductivity, calibration of instrument and its measurement.	1
Assay of total organic matter, Assay of Nitrogen, Assay of micronutrients and toxic elements in soil by AAS- principle, preparation of soil sample, standards.Cation exchange capacity.	1
Assay of fertilizers: Background theory for fertilizers assay,assay of potassium - flame photometry principle, preparation of standards,Assay of phosphorus by bray and kutzmethod order.Micronutrients and its significance,Assay by AAS. **Assay of Pesticides**: Definition, role of pesticides, assayoforganochloro pesticide, structure, Gc instrumentation, sample preparation.	2
Determination of Malathion- structure, sample preparation, sample clean up, assay. Methyl parathion and DDT residues in vegetables and food grains- structure, sample preparation, sample clean up and assay.	1
Revision	1
	15hrs

M.Sc. Final (Inorganic Chemistry) **Semester IV**
Paper-IV: CH(ID) 404T: Interdisciplinary Course (Environmental and Applied Analysis)

IC-51: Analysis of Air and Water Pollutants

Hour-wise Synopsis **Kavitha Ramdas**

1. Introduction to air pollutants and analysis, air quality standards, sampling methods-equipments and containers used.
2. Analysis of SO_2 in air samples by UV-visible and IR spectroscopic methods.
3. Analysis of H_2S by UV -visible spectrophotometry and Non-dispersive IR spectrophotometry.
4. Analysis of NO-NOx by chemiluminescence technique and colorimetric technique- Saltzman method.
5. Analysis of CO & CO_2 by IR, AAS & GC. Analysis of hydrocarbons by GC and GC-MS methods.
6. Aromatic hydrocarbons in automobile exhaust, petrol, air.
7. Analysis of Ozone by chemiluminiscence and spectrophotometry and particulate matter analysis.
8. Introduction to water pollutants and analysis.
9. Objectives of water analysis, sampling methods, preservation and pre-concentration methods.
10. Physical analysis - colour, odour, temperature, pH, EC, redox potential, total dissolved solids (turbidimetry).
11. Chemical analysis of anions – CN^-, Cl^-, F^-, NO_2^- and NO_3^- ions by spectrophotometric method.
12. Analysis of SO_4^{-2} and PO_4^{-3} ions. Determination of dissolved oxygen in water sample.
13. Determination of BOD, COD and TOC in water samples.
14. Analysis of toxic metals: Hg, As, Pb by Atomic absorption spectroscopy and UV-visible spectrophotometry.
15. Analysis of Cd, Be, Al and Cr by Atomic absorption spectroscopy and UV-visible Spectrophotometry.

M.Sc. Final (Inorganic Chemistry) **Semester IV**
Paper-IV: CH(ID) 404T: Interdisciplinary Course (Environmental and Applied Analysis)

IC-52: Drinking Water and Sewage Water Treatment

Hour-wise Synopsis

Dr.P.Muralidhar Reddy

Topics to be covered	No. of Hours
Hardness: causes, measurement of hardness, Degree of hardness, units- types of hardness – parts per million, milligrams per litre, Degree clark, Degree French-conversion of hardness	1
Estimation of temporary and permanent hardness, Alkalinity of water and its estimation.	1
Treatment of Water for Municipal Supply: Characteristics of potable water/Domestic water,	1
WHO standards and Indian Standards.	1
Water for Domestic use and Treatment of Water for Municipal Supply - Aeration, Sedimentation with coagulation, Filtration, Sterilization and Disinfection:	1
Physical Methods-Boiling, Exposure to Sunlight, Disinfection with UV light, Chemical Methods – Ozonization, Chlorination, Breakpoint chlorination and Dechlorination.	1
Desalination of Brackish Water: Treating saline water: distillation, electrodialysis, reverse osmosis (RO).	2
Mineral Water and Purified Water - Typical Manufacturing Process, Flow Sheet Diagram of Mineral Water Manufacturing Process,	2
Purified Water-Purification methods-Distillation, Double distillation, Deionization - Co-current deionization, Counter-current deionization, Mixed bed deionization	1
Demineralization, Uses of purified water- Laboratory use, Industrial uses and other uses; Health effects of drinking purified water	1
Sewage Water Treatment: Domestic sewage - Physical, Chemical, and Biological Characteristics of Domestic Sewage, Municipal sewage	1
Sewage Composition and Contaminants and Sewage Treatment	1
Sewage Treatment - On-Site Sewage Treatment Systems and Off-Site Sewage Treatment Systems	1
	15hrs

NIZAM COLLEGE : DEPARTMENT OF CHEMISTRY

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester III)

Class : M. Scfinal year **Section:** Organic Chemistry

Course/Paper: I- CH(OC) 301T: Organic Chemistry,

Unit: Synthetic reagents I **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours required
Introduction to reactions and reagents	1
i) Protecting groups: a) Protection of alcohols by ether, silyl ether and ester formation	1
b) Protection of 1,2-diols by acetal, ketal and carbonate formation	1
c) Protection of amines by benzyloxycarbonyl, t-butyloxycarbonyl, fmoc and triphenyl methyl groups.	1
d) Protection of carbonyls by acetal, ketal and thiolacetal (Umpolung) groups	1
e) Protection of carboxylic acidsS by ester and ortho ester (OBO) formation.	1
ii)Organometallic Reagents: Preparation and application of the following in organic synthesis: 1) Organo lithium	1
2) Organo copper reagents 3) Organo boranes in C-C bond formation	1
4) Organo silicon reagents: reactions involving β-carbocations and αcarbanions, utility of trimethyl silyl halides, cyanides and triflates	1
iii)Carbonyl methylenation: a) Phosphorous ylide mediated olefination 1) Witting reaction,	1
2) Horner-Wordsworth-Emmons reaction.b) Titanium- Carbene mediated olefination 1) Tebbe reagent,	1
2) Petasis reagent 3) Nysted reagent **iv) Carbene insertions:** Rh based carbene complexes, cyclopropanations.	1
v) C-H Activation: Introduction, Rh catalysed C-H activation.	1
Over view of the topic	**1**
Seminar by students	1
	15hrs

Name of the Teacher: Dr.B.Sakram Head, Department of chemistry

Signature: Signature:

NIZAM COLLEGE : DEPARTMENT OF CHEMISTRY

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester III)

Class : M. Sc final year **Section:** Organic Chemistry

Course/Paper: I- CH(OC) 301T: Organic Chemistry,

Unit: Synthetic reagents II **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours required
Introduction to reactions and reagents	1
i) Oxidations: a) Oxidation of active C-H functions: DDQ and SeO2.	1
b) Alkenes to diols: Prevost and Woodward oxidation	1
c) Alcohol to carbonyls: CrVI oxidants (Jones reagent, PCC, PDC) IBX, DMP, CAN, TEMPO, TPAP,	1
Slip test	1
Swern oxidation d) Oxidative cleavage of 1,2-diols: Periodic acid and Lead tetra acetate.	1
Lead tetra acetate oxidation with examples. Introduction to reductions	1
a) Catalytic hydrogenation: Homogenous (Wilkinsons's catalytic hydrogenation) with examples	1
heterogeneous catalytic reduction. b) Non-metallic reductions: Diimide reduction	1
Examples of diimide reduction Dissolving metal reductions: Birch reduction.	1
d) Nucleophilic metal hydrides: LiAlH4, NaBH4,	1
Modifications LAH, SBH. e) Electrophilic metal hydrides: BH3, AlH3 and DIBAL.	1
Use of tri-n-butyl tin hydride: Radical reductions	1
Over view of the topic	**1**
Seminar by students	1
	15hrs

Name of the Teacher:Mrs.P.Revathi Head, Department of chemistry

Signature: Signature:

NIZAM COLLEGE : DEPARTMENT OF CHEMISTRY

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester III)

Class : M. Sc final year **Section:** Organic Chemistry

Course/Paper: I- CH(OC) 301T: Organic Chemistry,

Unit: ^{13}C NMR and 2D NMR spectroscopy

Topics to be covered	No. of Hours required
Introduction**,** Types of ^{13}C nmr spectra:	1
undecoupled, proton- decoupled and off-resonance decoupled (ORD) spectra.	1
^{13}C chemical shifts, factors affecting the chemical shifts,	1
chemical shifts of organic compounds	1
Calculation of chemical shifts of alkanes, alkenes and alkynes.	1
Homonuclear (^{13}C, ^{13}C J) and heteronuclear (^{13}C,^{1}H J and ^{13}C, ^{2}H J) coupling.	1
Solving of problems	1
Applications of ^{13}C-NMR spectroscopy:	1
Structure determination, stereochemistry, reaction mechanisms and dynamic processes in organic molecules.	1
^{13}CNMR spectral editing techniques:	1
principle and applications of APT, INEPT and DEPT methods.	1
Principles of 2D NMR, Classification of 2D-experiments. Correlation spectroscopy (COSY) HOMO COSY (^{1}H-^{1}H COSY) , TOCSY	1
Hetero COSY (^{1}H,^{13}C COSY,HMQC), long range ^{1}H,^{13}C COSY (HMBC),	1
Homonuclear and Heteronuclear 2D-J-resolved spectroscopy,	**1**
Over view of the topic.	1
	15hrs

Name of the Teacher:Yadagiri Head,Department ofchemistry

Signature: Signature:

NIZAM COLLEGE : DEPARTMENT OF CHEMISTRY

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester III)

Class : M. Sc final year **Section:** Organic Chemistry

Course/Paper: I- CH(OC) 301T: Organic Chemistry,

Unit: Conformational analysis (Cyclic systems) & ORD

Topics to be covered	No. of Hours required
Introduction**,**	1
Study of conformations of cyclohexane, mono, di and tri substituted cyclohexanes	1
cyclohexanone (2-alkyl and 3 -alkyl ketone effect), 2halocyclohexanones, cycloheptane	1
Stereo chemistry of bicyclo [3,3,0] octanes, hydrindanes, decalins and perhydroanthracenes.	1
Conformational structures of piperidine, NMethylpiperidine, tropane, tropine, pseudotropine, decahydroquinoline and quinolizidine.	1
Factors governing the reactivity of axial and equatorial substituents in cyclohexanes.	1
Stereochemistry of addition to the carbonyl group of a rigid cyclohexanone ring.	1
General discussion on problems	1
Optical rotation, circular birefringence, circular dichroism	1
Cotton effect. Plain curves and anomalous curves:	1
Empirical and semiempirical rules-The axial haloketone rule, the octant rule.	1
Helicity rule, Exciton chirality method.	1
. Application of the rules to the study of absolute configuration	1
Application of the rules to the study of organic molecules.	**1**
	1
	15hrs

Name of the Teacher: Head,Department ofchemistry

Signature: Signature:

NIZAM COLLEGE : DEPARTMENT OF CHEMISTRY

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester III)

Class : M. Sc final year **Section:** Organic Chemistry

Course/Paper: II- CH(OC) 13: Organic Chemistry,

Unit: Asymmetric synthesis **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours required
Introduction: Importance and need of asymmetric synthesis.	1
Definition ,classification of homomorphic ligands/faces and their defnitions with examples.	1
Prostereoisomerism: Topicity in molecules, identifing the isomers based on substitution addition criteria and symmetry criteria for ligands and faces.	1
Homotopic, stereoheterotopic (enantiotopic and diastereotopic) groups and faces- symmetry criteria	1
Prochiral nomenclature: Pro chiraility and Pro-R, Pro-S, Re and Si with examples.	1
Conditions for stereoselectivity: Symmetry and transition state criteria, kinetic and thermodynamic control. Methods of inducing enantioselectivity.	1
Analytical methods: % Enantiomeric excess and diastereomeric excess. Determination of enantiomeric excess: specific rotation, Chiral NMR; Chiralderivatizing agents, Chiral solvent, Chiral shift reagents and Chiral HPLC.	1
introduction of types of asymmetric synthesis. Chiral Substrate controlled asymmetric synthesis: Nucleophilic additions to chiral carbonyl compounds. 1, 2-asymmetric induction, Cram's rule - crams open chain , cyclic model, dipolar model	1
Limitations of crams rule Felkin-Anh model. with examples.	1
Chiral auxiliary controlled asymmetric synthesis: α-Alkylation of chiral enolates usinf S-prolinol.	1
Evan's oxazolidinone, 1, 4-Asymmetric induction and Prelog's rule for keto acids.	1
Chiral reagent controlled asymmetric synthesis: Asymmetric reductions using BINAL-H.	1
Asymmetric hydroboration using IPC_2 BH and $IPCBH_2$.	1
Chiral catalyst controlled asymmetric synthesis: Sharpless epoxidation. Asymmetric hydrogenations using chiral Wilkinson biphosphin catalyst.	**1**
Asymmetric aldol reaction: Diastereoselective aldol reaction (achiral enolate & achiral aldehydes) its explanation by Zimmerman-Traxel model.	1
	15hrs

Name of the Teacher:Dr.P.Saritha Rajender Head, Department of chemistry

Signature: Signature:

OC-14: Synthetic strategies 15hrs

1. Terminology, Target, synthon, synthetic equivalent,

2. Functional group interconversion (FGI), functional group addition. Criteria for selection of target molecule.

3. Linear synthesis, convergent synthesis and retrosynthetic analysis.

4. Synthesis involving chemoselectivity, regioselectivity,

5. Reversal of polarity and cyclizations. .

6. Order of events : S-Salbutamol, Propoxycaine..

7. One group C-C and C-X disconnections: Introduction .One group C-C disconnections in alcohols and carbonyl compounds.

8. One group C-X disconnections One group C-X disconnections in Carbonyl compounds, alcohols, ethers and sulphides.

9. Two group C-C disconnections : Introduction .Two group C-X disconnections in 1,1-difunc-tionalised, 1,2-difunctionalised and 1,3-difunctionalised compounds.

10. Two group C-X disconnections Two group C-C disconnections: Diels-Alder reaction, 1,3-difunctionalised compounds, 1,5- difunctionalised compounds.

11. Michael addition and Robinson annulation.

12. Control in carbonyl condensations: oxanamide and mevalonic acid.

13. Strategic bond: definition, guidelines for disconnection; disconnection of C-X bonds, disconnect to greatest simplification,

14. Using symmetry in disconnection, disconnection corresponding to known reliable reaction, high yielding steps recognizable starting materials.

15. Retrosynthesis of Retronecene, longifoline.

NIZAM COLLEGE:DEPARTMENT OF CHEMISTRY

LESSON PLAN FOR Semester - III

Class : M. Sc final **Section:** Chemistry

Course/Paper:Paper II– CH (OC) 302T: Modern Organic Synthesis#

OC-15: New Synthetic Reactions **No.of Hours Allotted**: **15**

Topics to be covered	No. of Hours
Metal mediated C-C and C-X coupling reactions: Introduction to Metal mediated C-C and C-X coupling reactions; General Reaction mechanism of transition metal mediated C-C and C-X reactions	2
Suzuki Coupling Reaction; Heck Coupling Reaction; Stille Coupling Reaction	1
Sonogishira cross coupling, Buchwald-Hartwig and Negishi-Kumada coupling reactions	1
C=C Formation Reactions: Importance of double bonded compounds; Introduction toC=C Formation Reactions	1
Shapiro, Bamford-Stevens andMcMurrey reactions	1
Julia-Lythgoe olefination and Peterson's stereoselective olefination	1
Multicomponent Reactions: Importance of Multicompounet reactions; Ugi and Passerini reactions	1
Biginelli, Hantzsch and Mannich reactions	1
Ring Formation Reactions: Pausan-Khand reaction, Bergman cyclisation, Nazerov cyclisation	1
Click Chemistry: Overview of Click Reactions; Criteria for Click reaction	1
Sharpless azides cycloadditions	1
Metathesis: Grubb's 1st and 2nd generation catalyst; Olefin cross coupling metathesis(OCM), ring closing metathesis(RCM), ring opening metathesis(ROM), applications	1
Other important synthetic reactions: Baylis-Hilman reaction and Eschenmoser-Tanabe fragmentation	1
Mitsunobu reaction, Stork-enamine reaction and Michael reactions	1
	15hrs

#All the reactionsstudied with their importance, detailed reaction mechanisms, examples and their applications

Name of the Teacher: **Dr. A. Krishnam Raju** Head, Department of Chemistry

Signature: Signature:

NIZAM COLLEGE : DEPARTMENT OF CHEMISTRY

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester III)

Class : M. Scfinal year **Section:** Organic Chemistry

Course/Paper: II- CH(OC) 302T: Organic Chemistry,

Unit: OC-16:New techniques and concepts in organic synthesis
No. of Hours Allotted: 15

Topics to be covered	No. of Hours required
Introduction, peptide meaning, peptide bond formation examples of resins	1
Solid phase technique, Merrifield resin,drawback of solid phase synthesis	1
Structure of DNA,RNA,Nucleosides,Nucleotides	1
Phosphotriester, phosphate ester,and phospharamidite pathway	1
Structures monosaccharide, disaccharide,oligosaccharide, process of glycosilation	1
Glycosyl donors, glycosyl acceptors oxecarbenium ion, kahne's method	1
Convergent and linear synthesis concept of PTC	1
Onium and crown ethers as PTC,applications of PTC	1
Definition of Tandem and its concept conjugate addition-aldol reaction	1
Polymerization cyclisation,electrocyclic diels alder reaction	1
Baldwin's rule terminology used in it with examples	1
Chirality natures chiral poolexamples like aminoacids, carbohydrates,etc	1
Synthesis of shikimic acid , furanomycin,S-(-)-IPSENOL	1
Absolute configuration by MOSHER'S method	**1**
Overview of the topic	1
	15hrs

Name of the Teacher: Mrs. P.Revathi Head, Department of Chemistry

Signature: Signature:

NIZAM COLLEGE:DEPARTMENT OF CHEMISTRY

LESSON PLAN FOR Semester - III

Class : M. Scfinal **Section:** Organic Chemistry

Course/Paper:Paper IIIA- CH (OC) 303T:

OC-15: Carbohydrates **No.of Hours Allotted**: **15**

Topics to be covered	**No. of Hours**
Introduction.	1
Introduction to the importance of Carbohydrates. Types of naturally occuring sugars.	1
Deoxy sugars, aminosugars, branched chain sugars mrthyl ethers and acid derivatives of sugars.	1
Determination of configuration and determination of ring size of D-glucose and D-Fructose	1
Conformational analysis of monosaccharides. $^4C_1$ and $^1C_4$ conformations of D-glucose	1
Reactions of six carbon sugars: Ferrier, Hanesian reaction and Ferrier rearrangement	1
Synthesis of amino, halo and thio sugars	1
Structure, ring size determination of sucrose and maltose.	1
. Conformational structures of sucrose, lactose.	1
. Conformational structures of maltose, cellobiose and gentobiose.	1
Structure and biological functions of starch, cellulose.	1
Structure and biological functions of glycogen and chitin.	1
Role of sugars in cell to cell recognition, blood groups.	1
Overview of the topic	1
	15hrs

#All the reactionsstudied with their importance, detailed reaction mechanisms, examples and their applications

Name of the Teacher: Head, Department of Chemistry

NIZAM COLLEGE:DEPARTMENT OF CHEMISTRY

LESSON PLAN FOR Semester - III

Class : M. Scfinal **Section:** Organic Chemistry

Course/Paper:Paper IIIA– CH (OC) 303T:

OC(CB1)-2: Nucleic acids & lipids **No. of Hours Allotted**: **15**

Topics to be covered	**No. of Hours**
Introduction.	1
Retro synthetic analysis of nucleic acids - Nucleotides, Nucleosides.	1
Retro synthetic analysis of nucleic acids - Nucleotide bases and Sugars	1
Structure and synthesis of nucleosides	1
Structure and synthesis of nucleotides	1
Primary, secondary and tertiary structure of DNA	1
Types of mRNA, tRNA and rRNA	1
Replication, transcription and translation	1
Genetic code. Protein biosynthesis. DNA finger printing.	1
DNA finger printing. Introduction of lipids.	1
Classification of lipids. Stereochemical notation in lipids	1
Chemical synthesis and biosynthesis of phospholipids and glycolipids	1
Properties of lipid aggregates, micelles, bilayers.	1
Properties of liposomes and biological membranes	1
	15hrs

[#]**All the reactionsstudied with their importance, detailed reaction mechanisms, examples and their applications**

Name of the Teacher: Head, Department of Chemistry

NIZAM COLLEGE:DEPARTMENT OF CHEMISTRY

LESSON PLAN FOR Semester - III

Class : M. Scfinal **Section:** Organic Chemistry

Course/Paper:Paper IIIA– CH (OC) 303T:

OC(CB1)-3: Proteins and Enzymes **No. of Hours Allotted**: **15**

Topics to be covered	No. of Hours
Introduction.	1
Peptide bond, classification and nomenclatue of peptides.	1
Amino acid sequence of polypeptides and proteins: terminal residue analysis and partial hydrolysis.	1
Peptide synthesis by solution phase and solid phase synthesis methods.	1
Proteins - Biological importance and classification - Primary, secondary and tertiary structure of proteins.	1
Enzymes: Definition. Classification based on mode of action.	1
Mechanism of enzyme catalysis - Lock and Key, Induced- Fit	1
Mechanism of enzyme catalysis - three point contact models	1
Enzyme selectivity – chemo, regio, illustration with suitable examples..	1
Enzyme selectivity – diastereo and enantio selectivity, illustration with suitable examples	1
Factors affecting enzyme catalysis	1
Enzyme inhibition - reversible and irreversible inhibition.	1
Enzymes in organic synthesis	1
Immobilised enzymes	1
	15hrs

[#]**All the reactionsstudied with their importance, detailed reaction mechanisms, examples and their applications**

Name of the Teacher: Head, Department of Chemistry

NIZAM COLLEGE:DEPARTMENT OF CHEMISTRY

LESSON PLAN FOR Semester - III

Class : M. Scfinal **Section:** Organic Chemistry

Course/Paper:Paper IIIA– CH (OC) 303T:

OC(CB1)-3: Coenzymes and Vitamins **No. of Hours Allotted**: **15**

Topics to be covered	**No. of Hours**
Introduction. Co-factors - cosubstrates - prosthetic groups	1
Classification — Vitamin derived coenzymes and metabolite coenzymes.	1
Structure and biological functions of coenzyme A, thiamine pyrophosphate (TPP),	1
. pyridoxal phosphate (PLP), oxidized and reduced forms of I) nicotinamide adenosine dinucleotide	1
nicotinamide adenosine dinucleotide / their phosphates (NAD), NADH, $NADP^+$ NADPH)	1
Flavin adenine nucleotide FAD, $FADH_2$	1
oxidized and reduced forms of) Flavin mononucleotide (FMN, $FMNH_2$) lipoic acid, biotin	1
oxidized and reduced forms tetrahydrofolate and ubiquinone. Adenosine triphosphate (ATP)	1
oxidized and reduced forms tetrahydrofolate and ubiquinone. Adenosine triphosphate (ATP)	1
adenosine diphosphate (ADP), S-adenosyl methionine (SAM) and uridine diphospho sugars (UDP-sugars)	1
Mechanism of reactions catalyzed by the above coenzymes.	1
Vitamins: Introduction, classification and biological importance of vitamins.	1
Structure determination and synthesis of vitamins A, B_1, and B_2	1
Synthesis of vitamins - B_6, C, E and K. Structure of vitamin B_{12}	1
	15hrs

Name of the Teacher: Head, Department of Chemistry

NIZAM COLLEGE:DEPARTMENT OF CHEMISTRY

LESSON PLAN FOR Semester - III

Class : M. Scfinal **Section:** Organic Chemistry

Course/Paper:Paper IIIB OC(CB2)-5: Forensic chemistry-I

No. of Hours Allotted: **15**

Topics to be covered	**No. of Hours**
Forensic Chemistry - Introduction - Types of cases / exhibits	1
Preliminary screening - presumptive tests (colour and spot tests)	1
Examinations procedures involving standard methods	1
Examinations procedures involving instrumental techniques	1
Qualitative and quantitative forensic analysis of inorganic and organic material - Chemical fertilizers (N,P,K) _	1
Insecticides (Endosulfan, Malathion, Carbaryl)	1
Metallurgical analysis (Fe, Cu, Zn, Au, Ag)	1
– Natural products (tobacco, tea, sugars, rubber)	1
– Industrial chemicals - Sulphuric, Nitric and Hydrochloric acids	1
Sodium, Potassium hydroxide, Ammonium nitrate, Potassium chlorate,	1
, Organic solvents like Methanol, Ethanol, Acetone, Chloroform and Ether.	1
. Organic chemicals like Acetanilide, P- Aminophenol, and Nitrobenzene etc. with reference to forensic work.	1
Overview of the topic	1
Seminar	1
	15hrs

Name of the Teacher: Head, Department of Chemistry

NIZAM COLLEGE:DEPARTMENT OF CHEMISTRY

LESSON PLAN FOR Semester - III

Class : M. Scfinal **Section:** Organic Chemistry

Course/Paper:Paper IIIB OC(CB2)-6: Forensic chemistry-I

No. of Hours Allotted: **15**

Topics to be covered	**No. of Hours**
Introduction	1
Examination of petroleum products - Distillation and fractionation	1
Various fractions and their commercial uses	1
Standard method of analysis of petroleum products	1
Analysis of petroleum products for adulteration and arson residues.	1
Chemistry of fire - Investigation and evaluation of fires – Causes of fire	1
Analysis of arson residues by conventional and instrumental methods.	1
Analysis of trace evidence - Cosmetics, Dyes, Trap related evidence materials.	1
Analysis of trace evidence - Paints, Pigments, Fibres, Oils fats.	1
Analysis of trace evidence -Greases, Industrial dusts	1
Chemicals and Plant materials.	1
	1
Overview of the topic	1
Seminar	1
	15hrs

Name of the Teacher: Head, Department of Chemistry

NIZAM COLLEGE:DEPARTMENT OF CHEMISTRY

LESSON PLAN FOR Semester - III

Class : M. Sc final **Section:** Organic Chemistry

Course/Paper:Paper IIIB OC(CB2)-7: Forensic Toxicology-I

No. of Hours Allotted: **15**

Topics to be covered	**No. of Hours**
introduction	1
History- Scope- Areas of Toxicology-	1
Role of forensic toxicologistPoisons-	1
Classification of poisons- Types of poisoning	1
Sample collection and preservation of toxicological exhibits in fatal and survival cases-	1
Discussions of case studies	1
Storage of samples- Signs and symptoms of poisoning-	1
Examples of few cases	1
Toxicological investigation - introduction	1
examination of poisoned death- Interpretation of toxicological data	1
- Courtroom testimony in toxicological cases.	1
Case Histories	1
Overview of the topic	1
Seminar	1
	15hrs

NIZAM COLLEGE:DEPARTMENT OF CHEMISTRY

LESSON PLAN FOR Semester - III

Class : M. Sc final **Section:** Organic Chemistry

Course/Paper:Paper IIIB OC(CB2)-8: Forensic Toxicology-II

No. of Hours Allotted: **15**

Topics to be covered	**No. of Hours**
introduction	1
Principles of Toxicology-	1
Introduction – Pharmacokinetics	1
Methods of transportation of toxicant- Absorption- Distribution- Storage of toxicants	1
Redistribution - Metabolism-Oxidation	1
Reduction – Hydrolysis – Conjugation	1
Excretion- Other routes of elimination	1
Toxicokinetics- one and two compartmental model	1
Toxicodynamics	1
Spectrum of undesired (toxic) effects	1
Interaction of chemicals- Tolerance	1
Dose response relationship- Developmental and reproductive toxicity-	1
Mutagenicity- Toxicity testing	1
Overview of the topic	1
	15hrs

NIZAM COLLEGE:DEPARTMENT OF CHEMISTRY

LESSON PLAN FOR Semester -IV

Class : M. Sc final **Section:** Organic Chemistry

Course/Paper:Paper IVA OC (CB3) - 9: Principles of Green chemistry

No. of Hours Allotted: **15**

Topics to be covered	**No. of Hours**
introduction	1
Principles of Green Chemistry	1
Designing a Green Synthesis using these principles	1
Prevention of Waste/by-products; maximum incorporation of the starting materials used in the synthesis into the final products (Atom Economy);	1
prevention/minimization of hazardous/toxic products;	1
designing safer chemicals	1
selection of appropriate auxiliary substances - green solvents, ionic liquids and solvent-free synthesis	1
: energy requirements for reactions - use of microwaves,	1
: energy requirements for reactions - ultrasonic energy in organic synthesis,	1
prevention of unnecessary derivatization – careful use of protecting groups;	1
use of catalytic reagents in preference to stoichiometric reagents; designing of biodegradable products	1
prevention of chemical accidents;	1
strengthening/development of analytical techniques to prevent and minimize the generation of hazardous substances in chemical processes	1
Overview of the topic	1
	15hrs

NIZAM COLLEGE:DEPARTMENT OF CHEMISTRY

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester IV)

Class : M. Scfinal year **Section:** Organic Chemistry

Course/Paper: IV- CH(OC) 301T: IVA Organic Chemistry,

Unit: OC (CB3) -10: Green Synthesis **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours required
i) Microwave Assisted Organic Synthesis (MAOS): *introduction, benefits and limitations*	1
a) Microwave assisted reactions in organic solvents: Esterification, Fries rearrangement	1
a) Microwave assisted reactions in organic solvents: Claisen rearrangement and Diels-Alder reaction	1
b)Microwave assisted Solvent-free reactions: Deacetylation, saponification of esters, alkylation of reactive methylene compounds and synthesis of nitriles from aldehydes.	1
ii)Ultrasound Assisted Organic Synthesis: introduction, applications of ultrasoundCannizaro reaction,	1
ii)Ultrasound Assisted Organic Synthesis: introduction, Reformatsky reaction and Strecker synthesis	1
iii)Organic Synthesis in Green Solvents: *introduction* **a) Aqueous Phase Reactions:** Diels-Alder Reaction, Heck reaction,	1
Hoffmann elimination, Claisen-Schmidt condensation hydrolysis and dihydroxylationreactions.	1
b)Organic Synthesis using Ionic liquids: Introduction, applications-Beckmann rearrangement	1
Organic Synthesis using Ionic liquids: Introduction, Suzuki Cross-Coupling Reaction and Diels- Alder reaction.	1
iv) Green Catalysts in organic synthesis: *introduction* **a) Phase Transfer Catalysts in Organic Synthesis:** Introduction, Williamson ether synthesis and Wittig reaction	1
Biocatalysts in Organic Synthesis: Biochemical (microbial) oxidations	1
Biocatalysts in Organic Synthesis: Reductions.	1
Over view of the topic	**1**
Seminar by students	1
	15hrs

NIZAM COLLEGE : DEPARTMENT OF CHEMISTRY

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018

Class : M. Sc final year **Section:** Organic Chemistry

Course/Paper: IVA- CH(OC) 301T: Organic Chemistry,

Unit: OC (CB3) -11: Organic Nanomaterials

No. of Hours Allotted: 15

Topics to be covered	No. of Hours required
Introduction	1
The 'top-down' approach, the 'bottom-up' approach and Nanomanipulation.	1
Molecular Devices: Photochemical devices, Liquid crystals, Molecular wires,	1
Rectifiers, Molecular switches and Molecular Muscles.	1
New Carbon family: Types of Fullerenes, Types of Carbon nanotubes (Zig-Zag, Armchair and Chiral).	1
, Types of Carbon nanotubes (Zig-Zag, Armchair and Chiral).	1
Graphenes. Growth, Chemical Synthesis	1
and optoelectronic properties of Fullerenes, CNTs (Zig Zag, Armchair and Chiral),	1
), singlewalled CNTs (SWCNTs) and multi walled MWCNTs)	1
Growth, Chemical Synthesis and optoelectronic properties of Graphenes	1
Structures of aromatics belts, nano car and molecular machines.	1
Optoelectronic molecules: OLEDs, Organic Solar Cells (Basic OLED mechanism and structures)	1
Natural Benz heterazoles and their synthetic modifications as optoelectronic molecules	1
Over view of the topic	**1**
Seminar by students	1
	15hrs

NIZAM COLLEGE : DEPARTMENT OF CHEMISTRY

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018

Class : M. Sc final year **Section:** Organic Chemistry

Course/Paper: IVA- CH(OC) 301T: Organic Chemistry,

Unit: OC (CB3) -12: Supramolecular Chemistry **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours required
Introduction	1
Supramolecular interactions (ion-ion, ion-dipole, H-bonding, cation-π, anionπ, π-π and Van der Walls interactions)	1
Supramolecular interactions Ionophore and molecular receptors.	1
Host-Guest Chemistry: Lock and key anology	1
Structures and applications of Cryptands	1
Structures and applications of Calixerenes, Cyclodextrins,	1
Structures and applications of Cyclophanes, Carcerands and hemicarcirands.	1
Self-assembly: Ladder, polygons, helices, rotaxanes	1
catanenes, Molecular necklace, dendrimers,)	1
, self-assembly capsules their synthesis, properties and applications	1
Enantioselective molecular recognition: Cyclodextrins, Crown ethers with chiral frame work,	1
Chiral receptor from Kemp's triacid	1
Chiral receptors for tartaric acid.	1
Over view of the topic	**1**
Seminar by students	1
	15hrs

NIZAM COLLEGE : DEPARTMENT OF CHEMISTRY

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021

Class : M. Scfinal year **Section:** Organic Chemistry

Course/Paper: IV- B,

Unit: CH (OC) 304T (CB4): Pesticides **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours required
Introduction	1
Defination ,Classification and importance of pesticides	1
Pest control: Different methods –chemical	1
insecticides, fungicides, herbicides,	1
rodenticides, fumigants, chitin synthesis	1
inhibitors and insect repellents.	1
Biological–pheremones: Definition and classification, synthesis of Disparlure,	1
Exobrevicomin, Endobrevicomin, frontalin and grandiso pheromones, synthetic sex attractants.	1
Insect juvenile hormones: JH-A, JH-B,Synthesis of juvabione. Structural formula of methopren	1
importance of methopren	1
Moultingharmones-structural formulae and mode of action of ecdysones	1
Antibiotics and secondary metabolites of microbial origin as insecticides and fungicides in agricultiure.	1
Structural formula and importance of Blasticidin-S, Kasugamycin, Avermectin-B, Invermectin, piercidins and phytoalexins	1
Environmental pollution from pesticides. Integrated pest management	**1**
Pesticide formulations: Dusts, Granules, Wettable powders, Emmulsions and Aerosols	1
	15hrs

NIZAM COLLEGE : DEPARTMENT OF CHEMISTRY

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021

Class : M. Scfinal year **Section:** Organic Chemistry

Course/Paper: IVB

Unit: OC (CB4) - 14: Synthetic insecticides **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours required
Introduction	1
Organochlorine insecticides- synthesis and mode of action of methoxychlor, perthan,	1
Dicofol, Heptachlor, Dieldrin and Endosulfan.	1
Organophosphorous insecticides –synthesis and mode action of Phosphoric acid derivatives, phosdrin, Dichlorophos,	1
parathion, Zolone, Aninphomethyl,	1
TEPP and Sachradan	1
Carbamate insecticides- synthesis and mode of action of carbamyl, Furadan	1
Baygon, Aldicarb	1
Zectron. and general discussions on synthetic insecticides	1
Formulation and residue analysis introduction	1
Formulation and residue analysis of organochlorine,	1
Formulation and residue analysis of organophophorous	1
Formulation and residue analysis of carbamate insecticides.	1
revision	**1**
Slip test	1
	15hrs

NIZAM COLLEGE : DEPARTMENT OF CHEMISTRY

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021

Class : M. Scfinal year **Section:** Organic Chemistry

Course/Paper: IVB

Unit: OC (CB4) - 15: Natural insecticidesand herbicides **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours required
Introduction	1
Insecticides of palnt origin –synthesis and importance of pyrethrins (I and II)	1
synthesis and importance of Rotenone and Nicotine	1
Main constituents Neem-structural formula of Azadirachtin	1
Synthesis of polygodial and warbunganol(Antifeedants)	1
Synthesis of pyrethroids: synthesis of Allethrin,	1
synthesis of Bioallethrin, Cypermethrin, Fenvalerate	1
Decemethrin and pyrithrelone synthesis	1
Concept of Bioinsecticides – Bacillus thiuringiensis	1
Concept of pro-insecticides-structure and mode of action of pro-pheremones and pre-pro-insecticides	1
iii) Herbicides – synthesis, applications and mode of action of the following a) Aryloxyalkyl carboxylic acid derivative: 2,4-D, MCPA	1
2,4,5-T and 2,4,5-TP, Carbamatespropham and chloropham,	1
Urea derivatives –Monouron and diuron, d) Aliphatic acidsDalapon,TCA, e) Aromatic acids -2,3,6-TBA,Dicomba and Amiben	1
f) Nitrogen heterocyclic dericvatives –Simazine,Atrazine,Amitrole,Maleic hydrazide Diquat and paraquat	**1**
PhenolsPCP and Dinoseb, h) Benzonitrile compounds	1
	15hrs

NIZAM COLLEGE : DEPARTMENT OF CHEMISTRY

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021

Class : M. Scfinal year **Section:** Organic Chemistry

Course/Paper: IVB

Unit: OC (CB4) -16: Fungicides, and Rodenticides **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours required
Introduction	1
Fungicides –classification	1
synthesis application and mode of action of the following classes: Carbamates ,Quinones-chloranil,	1
Dichlone and Benquinox	1
perchloromethylmercaptan derivative –captan,	1
folpet, Difolatan and Mesulfan	1
Benzimidazoles-carbendazim, Benomyl and Thiabandazole	1
Rodenticides- INTRODUCTION	1
Anticoagulents-synthesis and application of warfarin, Coumachlor	1
Vacor, Coumatetrallyl	1
Dicoumarol and Bromodiolen	1
Acute poisons- application of pindone,Ratindan,	1
SodiumFluoroacetate ,Barium fluoroacetate	1
Antu,Tetramine,pindone and castrix.	**1**
Overview of the topic	1
	15hrs

M. Sc. CHEMISTRY (ORGANIC CHEMISTRY)

IV SEMESTER SYLLABUS

Paper-1 CH (OC) 401T: Drug Design and Drug Discovery

OC- 17: Principles of Drug design and drug discovery Dr. A. Krishnam Raju

1. Introduction to drug discovery.
2. Folklore drugs
3. Stages involved in drug discovery: Disease, Drug targets, Bioassay.
4. Discovery of a lead: Screening of natural products; Screening of Synthetic compound libraries; Existing drugs as leads (me too drugs).
5. Pharmacokinetics (ADME).
6. Pharmacodynamics.
7. Nature of drug – receptor interactions and their theories: Occupancy theory; Induced – fit theory; Macromolecular perturbation theory; Two-state model of receptor activation.
8. Natural products as lead structures in drug discovery: Pharmacophore – structure pruning technique e.g., morphine.
9. Discovery of lead structure from natural hormones and neurotransmitters: Principles of design of: Agonists (e.g. Salbutamol).
10. Antagonists (e.g. Cimitidine) and
11. Enzyme inhibitors (e.g. Captopril).
12. Drug discovery without lead – serendipity- Penicillin and Librium as examples.
13. Principles of prodrug design.
14. Introduction to drug patents and
15. Clinical trials.

Paper-1 CH (OC) 401T: Drug Design and Drug Discovery

OC-18: Lead modification and SAR Studies **Dr. A. Krishnam Raju**

1. SAR: Lead modification strategies: Introduction
2. Bioisosterism,
3. Variation of alkyl substituents,
4. Chain homologation and branching,
5. Variation of aromatic substituents,extension of structure,
6. Ring expansion and ring contraction,
7. Ring variation, variation and position of hetero atoms, ring fusion,
8. Simplification of the lead, rigidification of lead.
9. Discovery of oxaminquine,
10. Discovery of salbutamol,
11. Discovery of cimitidine and
12. Discovery of captopril
13. Structure-Activity Relationship studies in sulfa drugs,
14. Structure-Activity Relationship studies in benzodiazepines, and
15. Structure-Activity Relationship studies in taxol analogs.

NIZAM COLLEGE : DEPARTMENT OF CHEMISTRY

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester IV)

Class : M. Scfinal year **Section:** Organic Chemistry

Course/Paper: I- CH(OC) 401T: Organic Chemistry,

Unit: OC-19: QSAR & CADD **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours required
Introduction to Drug design,lead molecule , serendepity	1
Introduction to SAR , QSAR	1
Physicochemical parameters: biological activity and its variation with hydrophobic constants, linear regression plot	1
Electronic effects and Hammett constant effect of donating and withdrawing nature of the substituents on biological activity.	1
Steric effects , Taft's constant, Lipinski rule of five	1
Hansch analysis, Craigs plot,Topliss scheme	1
Free Wilson approach cluster significant analysis	1
Case study 1-Pyranenamines	1
Case study 2- design of Crizotinib	1
Introduction to CADD,active site, allosteric binding site	1
Definition of docking,types of dockinglike rigid,flexible,induced fit docking of ligands	1
Structure based drug designing	1
Ligand based drug designing	1
Denovo drug designing	**1**
Seminar by students	1
	15hrs

Name of the Teacher: Mrs. P.Revathi Head, Department of chemistry

Signature: Signature:

NIZAM COLLEGE : DEPARTMENT OF CHEMISTRY

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester IV)

Class : M. Scfinal year **Section:** Organic Chemistry

Course/Paper: I- CH(OC) 401T: Organic Chemistry,

Unit: OC-19:COMBINATORAL SYNTHESIS **No. of Hours Allotted**: 15

Topics to be covered	**No. of Hours required**
Introduction	1
Combinatorial approach. Combinatorial libraries, technologies	1
Solid phase synthesis, types of resins. Linkers.	1
Reactants for solid phased synthesis.	1
Methods of Parallel synthesis: Haughton's tea bag procedure.	1
Automated parallel synthesis	1
Methods in Mixed combinatorial synthesis: general principles.	1
Furkas mix and split combinatorial synthesis,	1
Structure determination of active compounds-Deconvolution,	1
Methods in deconvolutionrecursive deconvolution, tagging and use of decoded sheets	1
. Examples of Combinatorial Chemistry.	1
Planning and designing of combinatorial synthesis	1
Spider like scaffolds, drug molecules.	1
Automation in Combinatorial chemistry	**1**
High throughput screening.	1
	15hrs

NIZAM COLLEGE : DEPARTMENT OF CHEMISTRY

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester IV)

Class : M. Scfinal year **Section:** Organic Chemistry

Course/Paper: II- CH(OC) 21: Organic Chemistry,

Unit: Drugs acting on metabolic process,cell wall,and specific enzymes

No. of Hours Allotted: 15

Topics to be covered	No. of Hours required
Classification of drugs, Chemotherapeutic agents and Pharmacodynamic agents. Introduction to macromolecular targets.	1
Classification of targets of drug targets – Drugs acting on metabolic process, cell wall and specific enzymes , Drugs acting on genetic material DNA /RNA and immune system ,Drugs acting on receptors and ion channels	1
:Drugs acting on Antifolates; Identification ,Sulphonamides . activity in *in-vivo* and *in-vitro* .	1
Synthesis of sulfomethoxazole, sulfodoxine, sulfaguanidine and dapsone. Diaminopyrimidines –trimethoprim.	1
Folate Metabolism – Sites of inhibition by Sulphonamides and Diaminopyrimidines – trimethoprim.	1
Drug Synergism . Sulphones –Anti leprotic – synthesis.	1
:Bacterial cell wall structure (Gram-ve &gram +ve) . biosynthesis of Pencillins and cephalosporins. Synthesis of pencillin-G and cephalosporin-C	1
Mechanism of action of β-Lactam antibiotics to inhibit transpeptidation.	1
Resistance to pencillins, identification of broad spectrum penicillins – cloxacillin, methicillin, ampicillin, amoxicillin and carbenicillin.	1
Resistance to cephalosporins. identification of broad spectrum cephalosporins. Cephalothin , cephadroxyl.cephalochlor &cephalexin Synthesis of cephalexin and cycloserine	1
. Bacterial resistance, β-Lactamase inhibitors- Structuress and mode of action of clavulanic acid , sulbactum and YTR-830	1
Drugs acting on enzymes- Introduction of H2 and H1 receptors.	1
H2- Receptor antagonist -H^+/K^+ -ATPase inhibitors. Omeprazole –Synthesis	1
. Mode of Action of . Omeprazole.	**1**
Asymmetric aldol reaction: Diastereoselective aldol reaction (achiral enolate & achiral aldehydes) its explanation by Zimmerman-Traxel model.	1
Carbonic anhydrase inhibitors- Diuresis , Equilibrium of H2CO3, Synthesis and mode of action of Acetazolamide	**15hrs**

Name of the Teacher:Dr.P.Saritha Rajender Head, Department of chemistry

Signature: Signature:

OC-22: Drugs acting on genetic material and immune system

1. **Drugs acting on genetic material**: Introduction, classification and mechanism of action.
2. DNA-intercalating agents: Anticancer and antimalarial agents. Structural formulae of Daunomycin, Adriamycin and Amsacrine
3. Synthesis of Amscarine, Nitracrine, Quinacrine and Chloroquine.
4. DNA- Binding and nicking agents: : Antiprotozoal drugs
5. Synthesis of Metronidazole, Dimetridazole and Tinidazole.
6. DNA-Alkylators: Synthesis of Cyclophosphamide and Bisulphan
7. DNA-Polymerase inhibitors: Antiviral agents- Synthesis of Acyclovir and AZT.
8. DNA-Topoisomerase inhibitors: Anti bacterial agents.Synthesis of Ciprofloxacin and Norfloxacin.
9. Structural formulae ofloxacin and Lomefloxacin.
10. Inhibitors of transcribing enzymes: Anti-TB and antileprosy agents-structural formulae of Rifamycins and partial synthesis of Rifampicin.
11. Drugs interfering with translation process: Antibacterial drugs- Structural formulae of Erythromycin, 5-Oxytetracycline and Streptomycin.
12. Synthesis of Chloromycetin Drugs acting on immune system: Introduction to immune system.
13. Immunosupressing agentstructural formula of Cyclosporin.
14. Immunoenhancers-use of vaccines
15. strucrural formula of levamisol.

NIZAM COLLEGE : DEPARTMENT OF CHEMISTRY

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester IV)

Class : M. Scfinal year **Section:** Organic Chemistry

Course/Paper: II- CH(OC) 21: Organic Chemistry,

Unit: OC-23: Drugs acting on receptors and ion channels

No. of Hours Allotted: 15

Topics to be covered	No. of Hours required
Introduction to nervous system: structure of neuron, nerve transmission.	1
Definition and examples of agonist, antagonist, neurotransmitters and receptors	1
Drugs acting on receptors:Adrenergic receptors - Introduction and classification.	1
α-Adrenergic-receptor agonists and antagonists	1
Synthesis and biological activity of Nor-adrenaline, Methyl L dopa and Tetrazosin.	1
β-Adrenergic-receptor - agonists and antagonists – Synthesis and pharmacological activity of Salbutamol, Tetrabutalin, Propranolol and Atenolol	1
Cholinergic-receptors: Introduction and classification. Cholinergic-receptor agonists and antagonists-	1
Structural formulae of Nicotine, Atropine and Tubocurarine. Synthesis of Acetyl choline and Succinyl choline	1
Dopamine receptors: Introduction and classification. Dopamine- receptor agonists and antagonists- Biosynthesis of Dopamine. Synthesis of L-Dopa and Chlorpromazine.	1
Serotonin receptors: Introduction and classification. Serotonin receptor agonists and antagonists-synthesis and pharmacological activity of Serotonin and Metoclopramide	1
)Histamine receptors: Introduction and classification. Histamine receptor agonists and antagonists-	1
synthesis and biological action of Histamine, Chloropheneramine, and Ranitidine.	1
Hormones and their receptors: Introduction to estrogen receptors, Structural formulae of Tamoxifen	1
Drugs acting on ion channels: Introduction to ion channels, drugs acting on Ca^{2+}, Na^{+} and Cl^{-} channels and their mode of action	**1**
Structural formulae of Tetracaine and synthesis and of Nifedipine, Diltiazem, Tetracine and 4-Aminopyridine	1
	15hrs

OC-32:Chiraldrugs 15hrs

1. Introduction to chiral drugs. Three-point contact model.
2. Eutomer, Distomer and eudesmic ratio. Pfeiffer's rule.
3. Role of chirality on biological activity: Distomers – a) with no side effects
4. b)with undesirable side effects c) both isomers having independent therapeutic value
5. d)combination products having therapeutic advantages.
6. e) metabolic chirality inversion.
7. Synthesis and pharmacological activity of S-Ibuprofen, S- Metaprolol.
8. Synthesis and pharmacological activity of Ininavir sulfate, Levocetrazine.
9. Synthesis and pharmacological activity of 2S-Verapamil, S,S-Ethambutol.
10. Synthesis and pharmacological activity of (+)Lomefloxacin, Fluvastatin.
11. Synthesis and pharmacological activity of Dextropropoxyphen, (+)Ephedrine.
12. Synthesis and pharmacological activity of (+)Griseofulvin, Dexormaplatin.
13. Synthesis and pharmacological activity of R-Indacrinone, Nateglinide.
14. Synthesis and pharmacological activity of Oxybutynin hydrochloride.
15. Synthesis and pharmacological activity of S,S- Captopril and S,S,S- Enalaprilate

Course/Paper - IV

CH(CPI)404 T (ELECTIVE-IIIA) Advanced Heterocyclic Chemistry

Unit: CPI - 49: Non aromatic heterocyclics & Aromaticity

Topics to be covered	No. of Hours required
Different types of strains, interactions and conformational aspects of non-aromatic heterocycles	1
Synthesis, reactivity and importance of Azirines, Aziridines	2
Synthesis, reactivity and importance of Oxiranes, Oxaziridines	2
Synthesis, reactivity and importance of Diazirenes, Diaziridines	2
Synthesis, reactivity and importance of Thiiranes, Azetidines	2
Synthesis, reactivity and importance of Oxetanes, thietanes	2
Aromaticity introduction, Aromatic and anti aromatic compounds, Criteria for aromaticity	1
Huckel's 4n+2 electron rule for benzene and non benzenoid aromatic compounds	1
Cyclopropenium ion, cyclopentadienyl ion, cycloheptatrienium ion, azulene and annulenes	2
	15hrs

Unit: CPI - 50: Five and six membered heterocyclics with two hetero atoms

Topics to be covered	No. of Hours required
Synthesis, reactivity, aromatic character & importance: Pyrazole, Imidazole	3
Synthesis, reactivity, aromatic character & importance: Oxazole, Isoxazole	3
Synthesis, reactivity, aromatic character & importance:Thiazole, Isothiazole	3
Synthesis, reactivity, aromatic character & importance: Pyridazine	1
Synthesis, reactivity, aromatic character & importance: Pyrimidine	1
Synthesis, reactivity, aromatic character & importance: Pyrazine	1
Synthesis, reactivity, aromatic character & importance: Oxazine, thiazine	1
Synthesis, reactivity, aromatic character & importance: benzimidazole, benzoxazole and benzthiazole	2
	15hrs

Unit – CPI - 51: Heterocyclics with more than two hetero atoms **No. of Hours Allotted**: 15

Topics to be covered	**No. of Hours required**
Synthesis, reactivity, aromatic character and importance of the following Heterocycles: 1,2,3- triazoies, 1,2,4-triazoles	2
Synthesis, reactivity, aromatic character and importance of Tetrazoles	1
Synthesis, reactivity, aromatic character and importance of 1,2,4-oxadiazole, 1 ,3,4-oxadiazole, 1,2,5- oxadiazole	2
Synthesis, reactivity, aromatic character and importance of 1,2,3-thiadiazoles, 1,3,4- thiadiazoles, 1,2,5- thiadiazoles	2
Synthesis, reactivity, aromatic character and importance of 1,2,3-triazine, 1,2,4- triazine, 1,3,5- triazine	2
Synthesis, reactivity, aromatic character and importance of tetrazines	2
Synthesis and importance of purines and pteridines	2
Syntheis of Caffeine, theobromine and theophylline	2
	15hrs

NIZAM COLLEGE : DEPARTMENT OF CHEMISTRY

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester IV)

Class : M. Scfinal year **Section:** Organic Chemistry

Course/Paper: IIIA- CH(OC) 301T: Organic Chemistry,

Unit: Large ring and other heterocycles **No. of Hours Allotted**: 15

Topics to be covered	**No. of Hours required**
1. Introduction and nomenclature to heterocyclic compounds	1
2.AZEPINES: Synthesis, structure, stability and reactivity of Azepines	1
3.OXEPINES: Synthesis, structure, stability and reactivity of Oxepines	1
4.THIEPINES: Synthesis, structure, stability and reactivity of Thiepines.	1
5.DIAZEPINES: Synthesis of Diazepines, Rearrangement of 1,2-Diazepines	1
6.Synthesis and Reactivity of Benzoazepines.	1
7.Synthesis and Reactivity of Benzodiazepines	1
8.Synthesis and Reactivity of Benzooxepines	1
9.Synthesis and Reactivity of Benzothiepines.	1
10.Synthesis and Reactivity of Azocines	1
11.Synthesis and Reactivity of Azonines	1
12.Synthesis and Reactivity of Selenophenes, Tellerophenes	1
13.Synthesis and Reactivity of Phospholes, Boroles	1
Over view of the topic	**1**
Seminar by students	1
	15hrs

NIZAM COLLEGE : DEPARTMENT OF CHEMISTRY

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester IV)

Class : M. Scfinal year **Section:** Organic Chemistry

Course/Paper: IIIB **OC (CB2) 21: Organic Polymers - I**

No. of Hours Allotted: 15

Topics to be covered	No. of Hours required
1. Introduction	1
Classification of Polymers – according to origin, structure, intermolecular interactions	1
Types of polymerization – addition, condensation, radical, ionic and coplymerization with mechanism,	4
Ziegler-Natta polymerization with mechanism.	1
Stereochemistry of polymers	1
Plasticity – types of plastics.	1
Molecular mass of polymers.	1
. Resins and plastics – Polystyrene and styrene copolymers	1
, poly(vinyl chloride/vinyl acetate)and related polymers,	1
10.Synthesis and Reactivity of Azocines	1
acrylic polymers, polyesters, phenol-formaldehyde polymers,	1
polyurethanes and epoxide polymers with examples	1
Natural and synthetic rubbers.	1
Over view of the topic	**1**
Seminar by students	1
	15hrs

NIZAM COLLEGE : DEPARTMENT OF CHEMISTRY

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester IV)

Class : M. Sc final year **Section:** Organic Chemistry

OC (CB2) 22: IIIB Organic Polymers - II

No. of Hours Allotted: 15

Topics to be covered	No. of Hours required
Functional polymers : Electrically conducting polymers: Introduction, basic principles	1
Brief description of polyanilines, polypyrroles, polyacetylenes	1
Brief description of polythiophenes and their applications	4
Photoconductive polymers: Liquid crystal polymers, smectoc	1
nematicamd cholesteric structures, ion-exchange polymers – cationic,	1
ion-exchange polymers- anionic exchange polymers and their uses	1
. iii) Smart materials: Uses in sensing device and communication networks	1
. iv)Biodegradable polymers: Definition, classification	1
Brief description polyhydroxyalkanoates, polycaprolactones,	1
Brief description polyactic, polyvinyl alcohol and their applications.	1
Membranes: Filtration, micro, ultra, nano filtration	1
. Separation of gases-Permeselectivity and gas permeability representative polymers.	1
) Liquid separation-dialysis, electroosmosis and reverse osmosis. Fire retarding polymers	1
) photonic polymers. Polymers in biomedical application, artificial organs and controlled drug delivery	**1**
Over view of the topic	1
	15hrs

NIZAM COLLEGE : DEPARTMENT OF CHEMISTRY

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester IV)

Class : M. Sc final year **Section:** Organic Chemistry

OC (CB2) 22: III B Dyes-I **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours required
Synthetic and Natural dyes : Introduction	1
nomenclature and classification of synthetic dyes	1
Color and constitution - chromospheres and auxochromeswith suitable examples,	4
Witt's theory, Armstrong's theory	1
Baeyer's theory, Nietzki's theory	1
Waston's theory, Modern theories	1
Valence Bond Theory and Molecular orbital theory.	1
Chemistry and synthesis of triphenyl methane dyes [malachite green,	1
Chemistry and synthesis of , rosaniline, para aniline blue, crystal violet methyl violet,	1
, hydroxytriphenyl methane dyes, Aurin, chrome violet],	1
Azo dyes - types of azo dyes, synthesis of acidic and basic azo dyes,	1
mono azo, di azo, tri azo and poly azo dyes	1
Chemistry and synthesis of cyanine dyes	1
) Natural dyes – structure determination and synthesis of alizarine, Quinazarin and Indigo	**1**
Over view of the topic	1
	15hrs

NIZAM COLLEGE : DEPARTMENT OF CHEMISTRY

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester IV)

Class : M. Scfinal year **Section:** Organic Chemistry

PAPER III B OC (CB2) 24: Dyes–II and Pigments

No. of Hours Allotted: 15

Topics to be covered	No. of Hours required
a)Introduction to Fluorescence dyes	1
Interaction of organic molecules with electromagnetic radiation.	1
. Energy diagram. Activation and deactivation of organic molecules by light.,	1
Fluorescence and delayed fluorescence	1
Effect of molecular structure on fluorescence	1
General properties of fluorescent dyes and their requirements.	1
Triplet-triplet absorption of organic molecules. Fluorescent quantum yields and factors affecting them..	1
Synthesis of Fluorescent aromatic hydrocarbons.,	1
Synthesis of Fluorescent heteroaromatic compounds	1
, b)**Introduction to laser dyes**. Synthesis of Oligophenylenes. Oxazoles and benzoxzoles,	1
Stilbenoid compounds Coumarin laser dyes, Rhodamine laser dyes,	1
c) **Pigments:** Introduction, Structures of Porphyrins , Bile pigments	1
. Synthesis of Haemin and Chlorophyll.	1
) Synthetic pigments – preparation of phthalocyanines	**1**
Over view of the topic	1
	15hrs

M.Sc. Chemistry Semester IV Paper IVA CH (OC) 404T

Organic Chemistry Hour-wise Synopsis Dr. J. Mohan babu

OC(CB3)-25: Biosynthesis of natural products

1. Biosynthesis of secondary metabolites: Introduction
2. Difference between Laboratory synthesis and biosynthesis.
3. Methods for determination of biosynthetic mechanism. Isolation and identification of Biosynthetic precursors
4. Feeding experiments – use of radioisotopes Measurement of incorporation – absolute incorporation, specific incorporation
5. Identification of the position of labels in labeled natural products by chemical degradation and spectral methods.
6. Major biosynthetic pathways: Acetate-Malonate pathway: Biosynthesis of aromatic compounds
7. Acetate-Malonate pathway : Examples
8. Shikimic acid pathway ; Biosynthesis of essential amino acids – phenylalanine
9. tyrosine and tryptophan, carboxylic acid derivatives
10. flavonoids
11. morphine alkaloids
12. Mevalonic acid pathway : Biosynthesis of terpenes
13. mono,sesqui terpenes
14. di, tri (β-amyrin) and carotenoids
15. steroids – cholesterol.

NIZAM COLLEGE : DEPARTMENT OF CHEMISTRY

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester IV)

Class : M. Sc final year **Section:** Organic Chemistry

Course/Paper: IVA- **OC(CB3)-26: Structure determination of natural products-I**

No. of Hours Allotted: 15

Topics to be covered	No. of Hours required
INTRODUCTION	1
Determination of structure of morphine,	1
Determination of structure and stereochemistry of morphine,	1
Determination of structure of reserpine	2
stereochemistry of reserpine	2
Determination of structure of abietic acid,	2
stereochemistry of abietic acid,	2
Determination of structure and stereochemistry of cholesterol	2
Determination of structure and stereochemistry of rotenone	2
	15hrs

NIZAM COLLEGE : DEPARTMENT OF CHEMISTRY

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester IV)

Class : M. Sc final year **Section:** Organic Chemistry

Course/Paper: IVA- **OC(CB3)-27: Structure determination of natural products-I**

No. of Hours Allotted: 15

Topics to be covered	No. of Hours required
Introduction	1
Spectroscopic techniques IR, UV,	1
^{1}Hnmr, ^{13}Cnmr	1
COSY, HETEROCOSY, NOESY, 2DINADEQUATE	1
MS in the structure elucidations of natural products, Examples, flavones, biflavones, flavanones,	1
isoflavones, coumarins, quinolines, isoquinolines.	1
Study of the solved problems: Mass, IR, ^{1}H, ^{13}C NMR, HOMOCOSY, HECTOR, DEPT, 2D-INADEQUATE and NOE of Geraniol, INEPT of **menthol**, APT of **appericine**	3
Heteronuclear 2D-J resolved spectrum of **stricticine**,	1
NOESY of **buxaquamarine**,	1
HETEROCOSY of **strictanol**,	1
2D-INADEQUATE of **α-picoline** and **β-methyl tetrahydran furan**.	2
Overview of the topic	1
	15hrs

Elective-4A Paper-IV CH (OC) 404(CB3)T: Advanced Natural Products

OC(CB3)-28: Total stereoselective synthesis of natural products. Dr.A.Krishnam Raju

1. Introduction and importance of stereoselective total synthesis of natural products.
2. Importance of Dynemicin A and Plan of synthesis
3. Synthesis of Dynemicin A
4. Importance of Prostaglandins, Classification and nomenclature of Prostaglandins
5. Corey's synthesis of prostaglandins E2
6. Corey's synthesis of prostaglandins F2α
7. Corey's synthesis of paeoriflorin
8. Introduction to Carbohydrates: Family of Aldohexoses: Writing the stereochemical structures of D-hexoses.
9. Sharpless synthesis of L-hexoses
10. Importance and Isolation of Taxol
11. Nicolaous synthesis of taxol
12. Importance of indolizomycin
13. Danishefsky synthesis of indolizomycin
14. Importance and Takasago synthesis of menthol
15. Importance and Hoffmann-LaRoche synthesis of Biotin

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LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester IV)

Class : M. Sc final year **Section:** Organic Chemistry

Paper IVB OC(CB4)-29 : Pharmacokinetics

Unit: Pharmacokinetics.

No. of Hours Allotted: 15

Topics to be covered	No. of Hours required
Introduction and importance of ADME studies of drugs	1
. Routes of administration . i)Absorption: Definition, absorption of drugs across the membranes	1
Physico chemical factors affecting the drug absorption (emphasis on pH partition hypothesis and Drug Dissolution).	1
Methods of determination of drug absorption	1
Methods of determination of drug absorption	1
Bioavailability. ii)Distribution: Apparent volume of drug distribution.	1
Factors affecting distribution, plasma protein binding.	1
iii) Metabolism: Sites of drug metabolism,	1
metabolic rate constant, bioactivation	1
biotransformation of drugs (phase I and phase II reactions)	1
iv)Elimination: Types of elimination	1
overall apparent elimination rate constant	1
and half-life, concept of clearance	1
Over view of the topic	**1**
Seminar by students	1
	15hrs

NIZAM COLLEGE : DEPARTMENT OF CHEMISTRY

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester IV)

Class : M. Sc final year **Section:** Organic Chemistry

Paper IVB OC(CB4)-29: **Pharmacodynamics.**: Organic Chemistry,

Unit: Pharmacodynamics. **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours required
Introduction	1
targets for drug action, receptor concept	2
Pharmacological binding terms	1
Twostatereceptor model,	1
, receptor families- structure and signal transduction mechanisms	1
channel linked proteins, gating mechanism,.	2
G-protein coupled receptors	1
G-protein and their role,	1
Targets for G-proteins, Kinase linked receptors	1
, receptors that regulate gene transcription.	1
. Theories of concentration -response relationship	1
. Theories of concentration - dose-response curves	1
Over view of the topic	**1**
	15hrs

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LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester IV)

Class : M. Sc final year **Section:** Organic Chemistry

Course/Paper: IVB

Unit: OC(CB4)-30**:** Principles of Therapeutics **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours required
1. Introduction	1
Plasma Drug concentration vs Time profile,Definition and explanation of various terms: MEC, MSC, MTC, AUC(graph).	2
Peak plasma concentration, time of peak concentration Therapeutic range	2
Steady state concentration, onset of action, onset of time, duration of action, intensity of action. LD50, ED50. Therapeutic objective.	1
Dosage regimen, Design of dosage regimes: Dose size, dosing frequency, drug accumulation during multiple dosing, time to reach steady-state during multiple dosing, average concentration and body content on multiple dosing to steady state	2
loading dose, maintenance dose, maintenance of drug within the therapeutic range,	1
design of dosage regimen from plama concentration.	1
Kinetics of fixed dose, fixed time interval regimes.	1
Modification to dosage regime:	1
Dosing of drugs in obese patients, dosing of drugs in Neonates, infants & children	2
dosing of drugs in geriatrics (elderly), dosing of drugs in Hepatic disease, dosing of drugs in renal disease.	2
overview	1
	15hrs

NIZAM COLLEGE : DEPARTMENT OF CHEMISTRY

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester IV)

Class : M. Sc final year **Section:** Organic Chemistry

Paper IVB OC(CB4)-31: Drug Interactions.

Unit: Drug Interactions.

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No. of Hours Allotted: 15

Topics to be covered	No. of Hours required
Introduction	1
Introduction, classification, Mechanisms of drug interactions	1
pharmacokinetic interactions(alteration of gastrointestinal absorption, compexation and adsorption,	2
alteration of distribution, alteration of metabolism and alteration of excretion	1
pharmacodynamicinteractions (antagonistic effects	1
alteration of receptor site interaction and antibiotic combinations).	1
Influence of alcohol(Anti biotics, Anti coagulants	1
Influence of alcohol of Anti histamines, Anti psychotic drugs	1
Influence of alcohol of sedatives and Hypnotics	1
smoking(Theophylline, Diazepam, a Tri cyclic antidepressants),	1
food (Bronchodaliators, Diuretics, ACE Inhibitors	1
food (Anti coagulants,Tetracyclines) on drug action.	1

NIZAM COLLEGE
DEPARTMENT OF CHEMISTRY

LESSON PLAN

FOR THE ACADEMIC YEAR
2020-2021 onwards

M. Sc. Chemistry (Second Year)
Spl: Pharmacoinformatics

Semester-III
Course/Paper - I

CH(CPI)301 T : Database Management, Sources and Scripting Languages

Unit: CPI - 09**:** Chemical Information Sources and Searches

Topics to be covered	No. of Hours required
Introduction to information sources	1
searching strategies, tactics for searches	2
Advantages and Limitations of computer searching	1
Keyword based general bibliographic searches, Chemical connectivity and structure searches (2D)	2
Chemical structure, property and shape based searches (3D), Searching for the synthesis (or) reactions of specific compounds or classes of compounds, Searching of chemical abstracts	2
Types of Publications: Journals, Technical reports, Patents, Conference Papers, Dissertations, Electronic Publications	2
Types of databases: Public databases - NCBI, RCSB, CSD, Expasy, Swiss-Prot and Paid databases - CAT'STN and SciFinder	2
Web-based cross platform solutions for Cheminformatics: BLAST, ClustalW, SAVES, ProSA	3
	15hrs

Unit: CPI - 10: Database Design and Management

Topics to be covered	No. of Hours required
Computers & it's components, Operating System (Windows & Linux)	1
Introduction to DBMS, Database concepts	2
Database models and ER diagrams	2
Normalization	1
Introduction to SQL, DDL, DML, DCL, and TCL;	2
Creation of databases, Searching database using SQL	1
Built-in-functions, String manipulation, improving query performance (where, 'Group By', having Clause)	1
cursors, stored procedures	1
Introduction to MySQL, configuring and running MySQL on Linux	2
Data Processing, Information systems and computing	1
Data presentation for computing, Distributed processing	1
	15hrs

Unit: CPI - 11: Data Sequencing and Mining

Topics to be covered	No. of Hours required
Introduction to Data Mining	2
working principles of Data Mining	2
Architecture form of data Mining	1
Difference between Data Mining and Machine learning techniques	2
Supervised and unsupervised learning methods and its application to QSAR	3
Data Visualization: Visualizing Data mining models, Decision Tree	2
Data warehousing: Data mining and analytic technology	2
Comparing different Models using visualization	1
	15hrs

Unit: CPI – 12 : Scripting Languages

Topics to be covered	No. of Hours required
Introduction to Shell scripting	1
Common Linux commands (Bash)	1
Basic shell Programming: addition, subtraction, loops, conditional-loops, un-conditional loops, Linux text editors (Vi)	1
Perl: Introduction, basics, sequences	2
Perl: uses, implementation issues, changes from other languages	2
advantages, and disadvantages	1
Strings: operations, support with Perl, advantages	2
accessing MySQL database using Perl, getting id, Sequence from a Database Object	2
matching a sequence in a Database Object, Subroutines	1
Introduction to Bio-Perl, Perl for Cheminformatics / Bioinformatics	2
	15hrs

Course/Paper - II

CH(CPI)302 T : Computational Chemistry, Molecular Modeling &Its Applications.

Unit: CPI – 13 : Computational Chemistry -I

Topics to be covered	No. of Hours required
Introduction to Molecular Modeling	1
Single molecule calculations, assemblies of molecules and reactions of molecules	2
Co-ordinate systems: Cartesian and Internal Co-ordinates, Z-matrix	1
Potential energy surface - Conformational search; Global minimum, Local minimum	2
Conformational analysis of ethane	1
Force field - Features of Molecular Mechanics	1
Bonded and Non-bonded interactions, Bond Stretching, Angle Bending	2
Torsional Terms (Improper Torsions, out of Plane Bending Motions, Cross Terms)	2
Non Bonded Interactions (Electrostatic Interactions, Van-der Waals interactions)	2
Hydrogen Bonding Interactions	1
	15hrs

Unit: CPI – 14 : Computational Chemistry -II

Topics to be covered	No. of Hours required
Force Field Equation in Energy minimization (Energy as function of r, θ, ω)	2
Introduction to Derivative Minimization Methods (First Order Minimization)	2
Types of energy minimization Methods; Steepest Descent, Conjugate Gradient	3
Conformational Search procedures - Geometry optimization procedures	2
Molecular Dynamics: Introduction, description of Molecular Dynamics	2
basic elements of Monte-Carlo method, differences between Molecular Dynamics and Monte-Carlo method	2
Qualitative exposure to Molecular Dynamics Simulations	2
	15hrs

Unit: CPI – 15 : Drug Design Methods I - Ligand Based

Topics to be covered	No. of Hours required
Lead Molecule, Structure Activity Relationship (SAR)	1
Quantitative Structure Activity Relationship (QSAR), Distinguish between SAR and QSAR	1
Physicochemical parameters: Electronic effects, Hydrophobicity,	1
Physicochemical parameters: Steric Factors Taft's Steric function, Molar Refractivity, Verloop Steric factor	1
Molecular Descriptor analysis: Craig plot, Topliss scheme	2
Bioisosteres - Hansch model, Free-Wilson model for QSAR equations	2
Regression analysis: Multi Linear Regression and Partial Least Square (terms: n, SD, r, r2, r2%, F)	2
Examples for linear and non-linear equations	2
3D QSAR: CoMFA and CoMSIA	2
Differences between 2D and 3D QSAR	1
	15hrs

Unit: CPI – 16 : Drug Design Methods II - Structure Based

Topics to be covered	No. of Hours required
Database similarity searches, Pair-wise alignment: Global sequence analysis (Needleman-Wunsch),	1
Local Sequence Alignment (Smith Waterman), Multiple Sequence Alignment	1
Homology Modeling: Query sequence, Template selection,	1
Alignment, Backbone Modeling, Loop Modeling, Side chain Modeling,	2
Model optimization, Energy minimization	2
Model Evaluation: Ramachandran Plot, Verify 3D, Errata and ProSA	2
Active site Identification - Docking	1
Docking Algorithms: Genetic Algorithm, Incremental construction	2
Molecular Interactions, Scoring functions	1
Virtual Screening: Ligand Based and Structure Based	1
De novo ligand design and its limitations	1
	15hrs

Course/Paper - III

CH(CPI)303 T: Elective-3A: Synthetic Reagents, Advanced NMR, Conformational Analysis and ORD

Unit: CPI – 17 : Synthetic Reagents-I

Topics to be covered	No. of Hours required
i) Protecting groups: a) Protection of alcohols by ether, silyl ether and ester formation	2
b) Protection of 1,2-diols by acetal, ketal and carbonate formation	1
c) Protection of amines by benzyloxycarbonyl, t-butyloxycarbonyl, fmoc and triphenyl methyl groups.	1
d) Protection of carbonyls by acetal, ketal and thiolacetal (Umpolung) groups	1
e) Protection of carboxylic acidsS by ester and ortho ester (OBO) formation.	1
ii) Organometallic Reagents: Preparation and application of the following in organic synthesis: 1) Organo lithium 2) Organo copper reagents	1
3) Organo boranes in C-C bond formation	1
4) Organo silicon reagents: reactions involving β-carbocations and αcarbanions, utility of trimethyl silyl halides, cyanides and triflates	2
iii)Carbonyl methylenation: a) Phosphorous ylide mediated olefination 1) Witting reaction, 2) Horner-Wordsworth-Emmons reaction.	2
b) Titanium- Carbene mediated olefination 1) Tebbe reagent	1
2) Petasis reagent 3) Nysted reagent **iv) Carbene insertions:** Rh based carbene complexes, cyclopropanations.	1
v) C-H Activation: Introduction, Rh catalysed C-H activation.	1
	15hrs

Unit: CPI – 18 : Synthetic Reagents-II

Topics to be covered	No. of Hours required
i) Oxidations: a) Oxidation of active C-H functions: DDQ and SeO2.	2
b) Alkenes to diols: Prevost and Woodward oxidation	1
c) Alcohol to carbonyls: Cr(VI) oxidants (Jones reagent, PCC, PDC) IBX, DMP, CAN, TEMPO, TPAP, Swern oxidation	2
d) Oxidative cleavage of 1,2-diols: Periodic acid and Lead tetra acetate.	1
ii) Reductions	1
a) Catalytic hydrogenation: Homogenous (Wilkinsons's catalytic hydrogenation) and heterogeneous catalytic reduction.	2
b) Non-metallic reductions: Diimide reduction	1
c) Dissolving metal reductions: Birch reduction.	2
d) Nucleophilic metal hydrides: $LiAlH_4$, $NaBH_4$, Modifications LAH, SBH.	1
e) Electrophilic metal hydrides: BH3, AlH3 and DIBAL.	1
f) Use of tri-n-butyl tin hydride: Radical reductions	1
	15hrs

Unit: CPI – 19: ^{13}C NMR and 2D NMR spectroscopy

Topics to be covered	No. of Hours required
i) Introduction**,** Types of ^{13}C NMR spectra (undecoupled, proton- decoupled and off-resonance decoupled (ORD) spectra).	2
^{13}C chemical shifts, factors affecting the chemical shifts, chemical shifts of organic compounds	2
Calculation of chemical shifts of alkanes, alkenes and alkynes.	1
Homonuclear (^{13}C, ^{13}C J) and heteronuclear (^{13}C,^{1}H J and ^{13}C, ^{2}H J) coupling.	1
Applications of ^{13}C-NMR spectroscopy: Structure determination, stereochemistry, reaction mechanisms and dynamic processes in organic molecules.	2
^{13}CNMR spectral editing techniques:	1
principle and applications of APT, INEPT and DEPT methods.	1
ii) Principles of 2D NMR, Classification of 2D-experiments. Correlation spectroscopy (COSY) HOMO COSY (^{1}H-^{1}H COSY) , TOCSY	2
Hetero COSY (^{1}H,^{13}C COSY,HMQC), long range ^{1}H,^{13}C COSY (HMBC),	1
Homonuclear and Heteronuclear 2D-J-resolved spectroscopy,	1
NOESY and 2D-INADEQUATE experiments and their applications.	1
	15hrs

Unit: CPI – 20: Conformational analysis (Cyclic systems) & ORD

Topics to be covered	No. of Hours required
Study of conformations of cyclohexane, mono, di and tri substituted cyclohexanes	2
cyclohexanone (2-alkyl and 3-alkyl ketone effect), 2-halo-cyclohexanones, cycloheptane	2
Stereo chemistry of bicyclo[3,3,0]octanes, hydrindanes, decalins and perhydro-anthracenes.	2
Conformational structures of piperidine, N-Methyl-piperidine, tropane, tropine, pseudotropine, decahydroquinoline and quinolizidine.	3
Factors governing the reactivity of axial and equatorial substituents in cyclohexanes.	1
Stereochemistry of addition to the carbonyl group of a rigid cyclohexanone ring	1
Optical rotation, circular birefringence, circular dichroism Cotton effect.	1
Plain curves and anomalous curves.	1
Empirical and semi-empirical rules-The axial halo-ketone rule, the octant rule, Helicity rule, Exciton chirality method.	1
Application of the rules to the study of absolute configuration and organic molecules	1
	15hrs

Course\Paper-III:

CH(CPI)303 T:Elective 3B: Advanced Natural Products

Unit: CPI-21: Biosynthesis of natural products

Topics to be covered	No. of Hours required
Biosynthesis of secondary metabolites: Introduction, Difference between Laboratory synthesis and biosynthesis	2
Methods for determination of biosynthetic mechanism. Isolation and identification of Biosynthetic precursors, Feeding experiments	2
use of radioisotopes Measurement of incorporation – absolute incorporation, specific incorporation	2
Identification of the position of labels in labeled natural products by chemical degradation and spectral methods	2
Major biosynthetic pathways: 1) Acetate-Malonate pathway: Biosynthesis of aromatic compounds	2
2) Shikimic acid pathway ; Biosynthesis of essential amino acids – phenylalanine, tyrosine and tryptophan, carboxylic acid derivatives, flavonoids and morphine alkaloids	3
3) Mevalonic acid pathway : Biosynthesis of terpenes – mono, sesqui, di, tri (β-amyrin) and carotenoids, steroids – cholesterol	2
	15hrs

Unit: CPI-22: Structure determination of natural products by chemical methods.

Topics to be covered	No. of Hours required
Determination of structure and stereochemistry of morphine	3
Determination of structure and stereochemistry of reserpine	3
Determination of structure and stereochemistry of abietic acid	3
Determination of structure and stereochemistry of cholesterol	3
Determination of structure and stereochemistry of rotenone	3
	15hrs

Unit: CPI-23: Structure determination and stereochemistry of natural products by spectral methods.

Topics to be covered	No. of Hours required
Spectroscopic techniques IR, UV	2
1Hnmr, 13Cnmr	2
COSY, HETEROCOSY, NOESY, 2D-INADEQUATE	2
MS in the structure elucidations of natural products, Examples, flavones, biflavones, flavanones, isoflavones, coumarins, quinolines, isoquinolines.	2
Study of the following solved problems: Mass, IR, 1H, 13C NMR, HOMOCOSY, HECTOR, DEPT, 2D-INADEQUATE and NOE of Geraniol, INEPT of menthol, APT of apparicine	3
Heteronuclear 2D-J resolved spectrum of stricticine	1

NOESY of buxaquamarine	1
HETEROCOSY of strictanol	1
2D-INADEQUATE of α-picoline and β-methyl tetrahydran furan	1
	15hrs

Unit: CPI-24: Total stereo selective synthesis of natural products**.**

Topics to be covered	**No. of Hours required**
Nicalou's synthesis of Dynemicin A	2
Corey's synthesis of prostaglandins (E2, F2α) and paeoriflorin	3
Sharpless synthesis of L-hexoses	2
Nicolaous synthesis of taxol	2
Danishefsky synthesis of indolizomycin	2
Takasago synthesis of menthol	2
Hoffmann-LaRoche synthesis of Biotin	2
	15hrs

Course\Paper-IV

CH(CPI)304 T:ELECTIVE 4A: Modern Organic Synthesis

Unit: CPI - 25 : Asymmetric Synthesis

Topics to be covered	No. of Hours required
Introduction: Brief revision of classification of stereo selective reactions	1
Prostereoisomerism: Topicity in molecules Homotopic, stereo-heterotopic (enantiotopic and diastereotopic) groups and faces-symmetry criteria.	1
Prochiral nomenclature: Pro chiraility and Pro-R, Pro-S, Re and Si. Conditions for stereo selectivity: Symmetry and transition state criteria, kinetic and thermodynamic control. Methods of inducing enantio-selectivity.	2
Analytical methods: %Enantiomeric excess and diastereomeric ratio. Determination of enantiomeric excess: specific rotation, Chiral NMR; Chiral derivatizing agents, Chiral solvent, Chiral shift reagents and Chiral HPLC.	2
Chiral Substrate controlled asymmetric synthesis: Nucleophilic additions to chiral carbonyl compounds. 1, 2- asymmetric induction, Cram's rule and Felkin-Anh model.	2
Chiral auxiliary controlled asymmetric synthesis: α-Alkylation of chiral enolates, Evan's oxazolidinone, 1, 4-Asymmetric induction and Prelog's rule.	2
Chiral reagent controlled asymmetric synthesis: Asymmetric reductions using BINAL-H. Asymmetric hydroboration using IPC2 BH and IPCBH2.	2
Chiral catalyst controlled asymmetric synthesis: Sharpless epoxidation. Asymmetric hydrogenations using chiral Wilkinson biphosphin catalyst.	2
Asymmetric aldol reaction: Diastereoselective aldol reaction (achiral enolate & achiral aldehydes) its explanation by Zimmerman-Traxel model.	1
	15hrs

Unit: CPI - 26 : Synthetic strategies

Topics to be covered	No. of Hours required
Introduction: Terminology, Target, synthon, synthetic equivalent, functional group inter-conversion (FGI), functional group addition. Criteria for selection of target. Linear and convergent synthesis.	2
Retrosynthetic analysis and synthesis involving chemoselectivity, regioselectivity, reversal of polarity and cyclizations.	2
Order of events: S-Salbutamol, Propoxycaine.	1
One group C-C and C-X disconnections: Introduction .One group C-C disconnections in alcohols and carbonyl compounds. One group C-X disconnections in Carbonyl compounds, alcohols, ethers and sulphides.	2
Two group C-C and C-X disconnections : Introduction, Two group C-X disconnections in 1,1-difunctionalised, 1,2-difunctionalised and 1,3-difunctionalised compounds.	2
Two group C-C disconnections: Diels-Alder reaction, 1,3-difunctionalised compounds, 1,5-difunctionalised compounds, Michael addition and Robinson annulation.	2
Control in carbonyl condensations: oxanamide and mevalonic acid.	1

Strategic bond: definition, guidelines for disconnection; disconnection of C-X bonds, disconnect to greatest simplification, using symmetry in disconnection, disconnection corresponding to known reliable reaction, high yielding steps and recognizable starting materials. Retrosynthesis of Retronecene, longifoline.	3
	15hrs

Unit: CPI - 27 : New Synthetic reactions

Topics to be covered	No. of Hours required
Metal mediated C-C and C-X coupling reactions: Suzuki, Heck, Stille, Sonogishira cross coupling, Buchwald-Hartwig and Negishi-Kumada coupling reactions.	3
C=C Formation Reactions: Shapiro, Bamford-Stevens, McMurrey reactions, Julia-Lythgoe olefination and Peterson's stereoselective olefination.	3
Multicomponent Reactions: Ugi, Passerini, Biginelli, Bergman and Mannich reactions.	2
Ring Formation Reactions: Pausan-Khand reaction, Nazerov cyclisation.	1
Click Chemistry: Click reaction, 1,3-dipolar cycloadditions.	1
Metathesis: Grubb's 1st and 2nd generation catalyst, Olefin cross coupling metathesis (OCM), Ring Closing Metathesis (RCM), Ring Opening Metathesis (ROM), applications.	2
Other important synthetic reactions: Baylis-Hilman reaction, Eschenmoser-Tanabe fragmentation, Mitsunobu reaction, Stork-enamine reaction and Michael reactions.	3
	15hrs

Unit: CPI - 28 : Chiral Drug

Topics to be covered	No. of Hours required
Introduction to chiral drugs. Three-point contact model	1
Eutomer, Distomer and eudesmic ratio. Pfeiffer's rule.	1
Synthesis and pharmacological activity of Menthol, S-Naproxen, S-Ibuprofen (anti inflamatory)	1
Synthesis and pharmacological activity of S-Timolol, oxazolidone, Captopril, Enalapril, Diltiazam (Calcium antagonist)	2
Synthesis and pharmacological activity of Indinavir sulphate (HIV-1-protease inhibitor)	2
Synthesis and pharmacological activity of Ethambutal (anti-tubercular). Cloxacillin, Cephalexin (Antibiotic)	2
Synthesis and pharmacological activity of Oxybutynine hydrochloride (Antispasmodic Agent), Dexormaplatin (Antitumour Agent)	2
Synthesis and pharmacological activity of indacrinone (Diuretic), Griseofulvin, (Antifungal)	2
Synthesis and pharmacological activity of Levocitrizine (Antihistamine) and Meteprolal (β1- blocker)	2
	15hrs

Course\Paper-IV

CH(CPI)304 T:ELECTIVE 4B: Intellectual Property Rights

Unit: CPI - 29 : Introduction

Topics to be covered	No. of Hours required
Introduction to Legal Rights and obligations	2
Concept of Property	1
Kinds of Property	1
General concept and Significance of Intellectual Property (IP)	2
Intellectual Property Rights (IPR),	1
Intellectual property, Introduction to IPR	2
contents of IPR and their protection	1
Recent Developments, IP Organisations	2
Introduction to Patents	1
Trademarks, Copyrights, Trade secrets,	1
Industrial designs and Geographical indications	1
	15hrs

Unit: CPI - 30 : International Organizations & Treaties

Topics to be covered	No. of Hours required
Paris Convention for the Protection of Industrial Property	1
Berne Convention for the Protection of Literary and Artistic Works	2
Patent Cooperation Treaty (PCT) which facilitates obtaining of patents in several countries by filing a single application	2
World Trade Organization (WTO), Trade Related Aspects of Intellectual Property (TRIPS)	2
Madrid system for the international registration of marks	2
The Hague system for the international deposit of industrial designs	2
Budapest treaty on the international recognition of the deposit of microorganisms for the purpose of patent procedure	2
International convention for the protection of new varieties of plants	2
	15hrs

Unit: CPI - 31 : Patent Search

Topics to be covered	No. of Hours required
What is a patent search.	1
Who needs a patent search	1
Patent Search Types and Methodologies,	2
Novelty Searches, Validity Searches	2
Infringement Searches, State-of the-art searches	2
Searching in Patent Databases: Free search databases: USPTO, EPSPACE, WIPO, Free Patents Online, Fresh Patents and JSPTO	2
Paid search databases: Micropat, Delphion, DialogPro, Patent Optimiser, Aureka and PatentCafe,	2
Structure based search: STN search, SciFinder	1
	15hrs

Unit: CPI - 32 : IP Reports Generation

Topics to be covered	No. of Hours required
Novelty search reports	1
Infringement search reports	1
Prior-art search reports	1
Patent invalidation reports	1
Competitive search reports	1
Business analysis reports	1
Patent Filing and Drafting	2
Patent filing procedures	2
Indian patent act	1
patent drafting	2
PCT applications, provisional and complete specifications	2
	15hrs

LABORATORY COURSES

Course\Paper-V:
CH(CPI)351 P : Molecular Modeling Lab **No. of Hours Allotted**: 15 weeks x 9 hrs

Topics to be covered	No. of Weeks required
Dos and Linux commands; Shell Scripting : if, if else, for, do while	1
Perl Scripting : if, if else, for, while; Perl scripting for accessing MySQL database objects using DDL, DML, DCL	1
Creating Database : Creation of tables and Insertion of rows using MySQL	1
Perl scripting for Sequence analysis : a. Translate DNA sequence into RNA sequence b. Finding common Ktup (k = 1, 2, 3) between two sequences c. Local and global alignment of two sequences (DNA/RNA/Protein) d. Multiple sequence alignment	2
Drawing and minimizing molecules in modeling software, calculating physicochemical parameters.	2
2D QSAR Studies (COX 1 and 2, DHFR inhibitors).	1
3D QSAR: Pharmacophore model generation and pharmacophore match searching in database.	2
Homology Modeling: Retrieving Query Sequence, Finding Template, Pair-wise alignment, 3D model generation, energy minimization and structure validation.	2
Molecular Docking of COX 1 and 2, DHFR inhibitors into respective receptors.	3
	15 Weeks

Course\Paper-VI:
CH(CPI)352 P : Synthesis, Isolation and Mixture separation of Organic Compounds
No. of Hours Allotted: 15 weeks x 9 hrs

Topics to be covered	No. of Weeks required
Synthesis of Drugs: Benzocaine (Anaesthetic)	1
Antipyrine (Antipyretic)	1
Clofibrate(Anti-lipidemic)	1
Sulphonamide (antibacterial)	1
2-phenyl-Indole, Quinoxalinone, Isoniazid (Anti-Tubercular)	1
Benzillic acid rearrangement, Beckmann rearrangement and stereo selective reduction of ethyl acetoacetate by bakers yeast.	2
2. Isolation of Herbal Drugs: 1.Piperine from black Pepper 2. Caffeine from tea leaves 3. Cineole from Eucalyptus leaves	2
3. Mixture Separation	
a) Solid - Solid - 3 mixtures	2
b) Solid - Liqutd – 3 mixtures	2
c) Liquid - Liquid – 3 mixtures	2
	15 Weeks

(Semester-IV)

Course/Paper - I

CH(CPI) 401 T: Pharmacokinetics

Unit: CPI - 33: Biopharmaceutics

Topics to be covered	No. of Hours required
Introduction to Biopharmaceutics, definition of pharmacokinetics	2
pharmacodynamics, ADME processes	1
Rate, Rate Constants and order of reactions- zero order kinetics, first order kinetics, mixed order kinetics	2
Routes of administration: Enteral (oral, sublingual, buccal, rectal) perenteral (intravenous, intramuscular and subcutaneous), topical (dermal, trans dermal, ophthalmic, intranasal), advantages and disadvantages.	2
Plasma drug concentration vs time profile: pharmacokinetic parameters (Peak plasma concentration, time of peak concentration, AUC), pharmacodynamic parameters (MEC, MSC, Therapeutic range, onset of action, onset of time, duration of action, intensity of action)	2
Dissolution: Definition and theories of drug dissolution, Diffusion layer model, Danckwert's model & interfacial barrier model.	3
Factors influencing dissolution, dissolution tests for tablets and capsules (basket apparatus, paddle apparatus, flow through cell apparatus).	1
In vitro - in vivo correlation of dissolution.	2
	15hrs

Unit: CPI-34: Drug Absorption and Distribution

Topics to be covered	No. of Hours required
Absorption: Structure of cell membrane	1
Mechanism of drug absorption- Passive diffusion, Pore-transport, facilitated diffusion	1
active transport, ionic or electrochemical diffusion,	1
ion-pair transport, endocytosis	1
Factors influencing drug absorption: Dosage form, pH (pH partition hypothesis) Lipophilicity, Gastric emptying	2
Bioavailability: Objectives of bioavailability studies,	1
absolute verses relative bioavailability	1
Plasma level- time studies (single dose and multiple dose)	1
Concept of steady state concentration.	1
Distribution: Volume of distribution	1
Apparent volume of drug distribution and its determination	1
Factors affecting drug distribution	1
Plasma protein binding	2
	15hrs

Unit: CPI-35: Drug Metabolism and Excretion

Topics to be covered	No. of Hours required
Definition of biotransformation, drug metabolizing organs, drug metabolizing enzyme. Chemical pathways of drug biotransformation- Phase-I reactions and Phase-II reactions.	2
Phase-I reactions: A) Oxidative reactions, Cytochrome-P450 Oxidation-reduction cycle i) Aromatic hydroxylation (Acetanilide),	1
ii) Aliphatic hydroxylation (Ibuprofen), iii) N-Dealkylation (Diazepam),	1
iv) Oxidative deamination (Amphetamine), v) N-Hydroxylation (Paracetamol), vi) S- oxidation (Phenothiazine).	1
B) Reductive reactions- i) Reduction of carbonyls (Chioral hydrate) ii) N-Compounds (Nitrazepam). c) Hydrolytic reactions (Asprin).	1
Phase-II reactions: (Real detoxication pathways). i) Conjugation with D-Glucoronic acid (Benzoic acid), ii) Conjugation with Sulfate moieties (Paracetamol), iii) Conjugation with α-Amino acids (Salicylic acid). iv) Acetylation (p-Amino Salicylic acid), v) Methylation (Histamine).	3
Factors affecting biotransformation of drugs i) physiochemical properties of drugs, ii) chemical factors, iii) biological factors, Bioactivation and tissue toxicity.	2
Excretion of drugs. Definition of excretion, Types of excretion- (Renal and non-renal excretion).	1
The process of Renal excretion of drugs-Glomerular filteration, Active tubular secretion and active or passive tubular reabsorption, concept of clearance, factors effecting renal excretion, nonrenal routes of excretion, biliary excertion, salivary excretion and pulmonary excretion.	3
	15hrs

Unit: CPI-36: Pharmacokinetic Models

Topics to be covered	No. of Hours required
Definition, classification of models(mammillary and caternary)	1
One Compartment open model (I.V bolous, IV infusion, Extravascular administration)	2
Two Compartment open model (I.V bolous, IV infusion, Extravascular administration)	2
Application of these models to determine the various pharmacokinetic parameters	3
Calculations and non- compartmental approaches to pharmaco kinetics	2
Non-linear pharmaco kinetics: causes of nonlinearity	2
Michaels-Menten kinetics- characteristics	2
basic kinetic parameters	1
	15hrs

Course/Paper-II

CH(CPI)402 T : Principles of Drug Discovery, Drug Targets and chemistry of Pharmacology

Unit: CPI - 37: Principles of Drug Discovery and SAR Studies

Topics to be covered	No. of Hours required
Introduction to drug discovery. Folklore drugs, stages involved in drug discovery- disease, drug targets, bioassay	2
Discovery of a lead - screening of natural products and synthetic compound libraries.	1
Natural products as lead structures in drug discovery – Pharmacophore - structure pruning technique e.g. morphine	2
Discovery of lead structure from natural hormones and neurotransmitters	1
Principles of design of agonists (Salbutamol), antagonists (cimitidine) and enzyme inhibitors (captopril).	1
Drug discovery without lead – serendipity - Penicillin and Librium as examples. Principles of Prodrug design; Existing drugs as leads (me too drugs). Introduction to drug patents and Clinical trials.	2
SAR Introduction; 1. Binding role of hydroxy group, Amino group, aromatic ring, double bond, ketones and amides.	2
2. Variation of substituents- alkyl substituents, aromatic substituents, extension of structure, chain extension, ring expansion/contraction, ring variation, ring fusion.	2
3. Simplification of the structure, rigidification, conformational blockers, X-ray crystallographic studies. Ex: A case study of Oxaminquine (schistosomiasis), Sulpha drugs (antibacterial), and Benzodiazepines (Hypnotics).	2
	15hrs

Unit: CPI-38: General Principles of Pharmacology and drug Targets, drugs acting on ANS and CNS

Topics to be covered	No. of Hours required
Nature and sources of drugs - Routes of administration of drugs – Classification. Drug absorption – bioavailability - Drug distribution.	1
Biotransformation and excretion drugs - Biological half-life and its significance/toxicity - Mechanism of action including drug receptor - Interactions and factors influencing them - Dose response relationship.	1
Introduction to macromolecular targets- Enzymes, cell wall, Cell membrane, Genetic material (DNA/RNA) Ion Channels, and drug classification. Structural architecture of Human Cell structure and Bacterial Cell wall,	1
Pharmacology of Drugs Acting on ANS and CNS, Introduction, classification of ANS and CNS. Structure of neuron. definitions of Somatic and autonomic nervous systems	1
Importance of acetyl choline – Biosynthesis. pathway of Cholinergic signalling systems .Uptake process – choline esterase. Cholinergic agonist-Acetyl choline. Degeneration- alzhemer. carbachol- synthesis &activity. Choline Esterase inhibitors. phsostigmine.	1
Cholinergic agonist – Atropine. Local Anaesthetics. Architecture of Na+ ion channel on nerve membrane. H and M gates. Synthesis and mode of	1

action of procaine	
Adrenergic Receptors- α /β 1 & 2 receptors - Occurrence- Effect of activation and its Physiological effect.	1
Biosynthesis of Adrenalin and Nor adrenalin – α1and α2 receptors importance of α2 and NE. Synthesis of NE and E. Adrenergic Stimulants - Methyl DOPA – synthesis and mode of action.	1
Adrenergic antagonist- Mode of action and synthesis of Doxazocin. Anti Ulcer agent Synthesi and Mode of action. CNS neurotransmitters. Classification of CNS stimulants, Analeptic – Nikethamide; Psycho motor stimulants – amphetamine.	1
Anti Depresants; imipramine – synthesis and mode of action.	1
Hypnotics and Anxiolytics- Classification . Chlorpromazine – synthesis and mode of action as anti psychotic agent	1
Anti-epileptic Agents-Brief description about epilepsy – types of epilepsy-Phenytoin – synthesis and mode ofaction.	1
General Anesthetics: Classification - Inhalation anaesthetic- Haloethanes synthasis and mode of action.	1
(I.V. anasthetic) – Thiopentone; Synthesis and mode of action.	1
Neurodegenerative disorders – classification – Importance of Acetyl Choline and Dopamine. Parkinsons Disease- Symptoms. Synthesis of Levo Dopa, Mode of action. Alzhemer Disease-loss of Neurons- Donepezil.	1
	15hrs

Unit – CPI-39: Drugs Acting on Cardio Vascular and Respiratory System

Topics to be covered	**No. of Hours required**
General considerations-Pharmacology of drugs used in the treatment of congestive heart failure	1
Anti-arrythmics - Classification with examples, Anti-hypertensives, ACE inhibitors (captopril), beta1-blockers (Propranolol)	2
Drugs acting on Ion channels - Ca^{2+}, Na^{+} and Cl^{-} channels and their mode of action	1
Structural formulae of Tetracaine and synthesis and of Amlodipine, Nifedipine, Diltiazem, Tetracine and 4-Aminopyridine	2
α-Adrenoreceptor stimulant (Clonidine), α- Adrenoreceptor blocking agent (Prazocin), Anti-hyperlipedemic (Clofibrate).	2
Pharmacology of Drugs affecting Respiratory System: Drugs used in the treatment of disorders of Respiratory Function and Bronchial Asthma	2
Broncho dilators - i) β–adrenergic agents (Albuterol) ii) Phosphodiestarase inhibitors (Aminophylline)	1
Anticholinergic agents (Atropine), Corticosteroids (Beclomethasone)	1
Inhibitors of mediator release (Cromolyn Sodium), Anti-tussives (Codeine) and Expectorants (Guaifenesin)	1
Pharmacology of Drugs affecting Gastro intestinal System - H+/K+-ATPase inhibitors (omeprazole)	1
Pharmacology of purgatives/laxatives (Dulcolax), Anti-diarrhoeals (Lopramide)	1
	15hrs

Unit: CPI-40: Drugs acting on metabolic process, cell wall, genetic material and immune system

Topics to be covered	No. of Hours required
a)Drugs acting on metabolic process: Antifolates - Discovery and mechanism of action of sulphonamides, Structure of sulfomethoxazole, and dapsone. Diaminopyrimidines - trimethoprim, and drug synergism.	3
b)Drugs acting on cell wall: β-Lactam antibiotics - mechanism of action of penicillins and cephalosporins. Resistance to pencillins, broad spectrum penicillins - ampicillin and amoxicillin. β-Lactamase inhibitors - Structural formulae and mode of action of clavulanic acid and sulbactum.	3
Drugs acting on genetic material: Introduction, classification and mechanism of action.	1
a)DNA-intercalating agents-Anti-cancer and Anti-malarial agents. Structural formulae of Daunomycin, Amsacrine and Chloroquine.	1
b) DNA- Binding and nicking agents: Antiprotozoal drugs, Metronidazole, and Tinidazole. **c) DNA-Polymerase inhibitors:** Antiviral agents - AZT.	2
d)DNA-Topoisomerase inhibitors: Anti bacterial agents. Structural formulae of Ciprofloxacin and Norfloxacin	1
e)Inhibitors of transcribing enzymes: Anti-TB and anti-leprosy agents, structural formulae of Rifamycins.	1
f)Drugs interfering with translation process: Antibacterial drugs, Structural formulae of Erythromycin, 5-Oxytetracycline and Streptomycin.	1
Drugs acting on immune system: Introduction to immune system. Immuno-supressing agent - structural formula of Cyclosporin. Immunoenhancers-use of vaccines and structural formula of levamisol.	2
	15hrs

Course/Paper - III

Course\CH(CPI)403 T: ELECTIVE 3A: Pharmaceutical Analysis

Unit: CPI - 41: Spectral Methods in Pharmaceutical Analysis

Topics to be covered	No. of Hours required
Ultraviolet and Visible Spectroscopy: Introduction, principle, instrumentation, calibration	1
UV spectra of some representative drug molecules : Steroid enones, Ephedrine [the benzoid chromophore], ketoprofen [extended benzene chromophore], Procaine [amino group auxochrome], Phenyleprine [hydroxyl group auxochrome].	1
Application of UV-Vis Spectrophotometry to Pharmaceutical quantitative Analysis: Assay of Frusemide in tablet, Assay of Penicillin by derivatization.	1
Assay of Drugs by i) Direct UV method ii) Suitable Chromogens and iii) Charge transfer Complexes and Difference spectrophotometry, Derivative Spectra	1
Applications of UV-Visible Spectrophotmetry in Pre-formulation and formulation	1
Infrared Spectroscopy - Introduction, principle, instrumentation, Sample preparation methods	1
Application of IR Spectrophotomety in Structure Elucidation, interpretation of IR spectra of Paracetamol, aspirin, dexamethasone and phenoxymethyl pencillin potassium.	1
Examples of IR Spectra of Drug molecules, IR Spectrophotometry as a fingerprint technique	1
Near IR analysis (NIRA) : Introduction, Examples of NIRA application	1
Examples of NIRA application – determination of particle size in United states Pharmacopia grade Aspirin, determination of blend uniformity, determination of active ingredients in multi- component dosage forms, moisture determination	1
Nuclear Magnetic Resonance Spectroscopy – Introduction, principle, instrumentation, general application.	1
1H NMR : Application of NMR to Structure Confirmation in some drug molecules, 1H NMR spectral analysis of Benzocaine, Phenacetin, Clofibrate and phenylephrine	2
13C NMR : 13C NMR spectrum of Salbutamol sulphate, Two Dimensional NMR Spectra – Proton- proton correlation spectrum of Tranexamic acid, Application of NMR to uantitative analysis	2
	15hrs

Unit: CPI - 42: Chromatography in Pharmaceutical Analysis-I

Topics to be covered	No. of Hours required
Chromatography – Introduction to chromatography, principle – physical basis of chromatography – adsorption and partition coefficients, stationary and mobile phases, classification of chromatographic methods	1
Thin Layer Chromatography (TLC): principle, adsorbents, preparation of TLC plates, drying of plates, sample application – spotting, solvents for	1

development, choice of solvents	
Visualization and detection of spots – UV light, Iodine chamber etc., preparative TLC, applications of TLC – qualitative identification tests, Limit tests; **HPTLC** - Introduction to HPTLC, principle, advantages over TLC	1
High performance TLC (HPTLC):, instrumentation, steps involved in HPTLC – sample preparation, selection of chromatographic layer, plates, prewashing, condition of plates, sample application, preconditioning, mobile phases	1
HPTLC – chromatographic development, detection of spots, scanning and documentation, Applications of HPTLC – assay of rifampicin, isoniazide and pyrazinamide	1
High Performance Capillary Electrophoresis: Introduction to electrophoresis, electrokinetic phenomenon, Electro-Osmotic Flow (EOF), migration of ionic and neutral species in CE	1
CE – Instrumentation , types of electrophoresis – Zone and Capillary electrophoresis, stationary and mobile phases, electrodes, control of separation – migration time, electrodispersion	1
Applications of CE – Separation of Atenolol and related impurities based on charge, assay of NSAIDs by CE and separation of anions based on ionic radius	1
Micellar Electrokinetic Chromatography (MECC): introduction, principle, separation mechanism - combination of electrophoresis, electro-osmosis and chromatography	1
MECC – Partition – micellar phase and pseudo stationary phase, surfactants – micelle-separation of anionic, cationic and neutral micelles, detection – electropherogram, application of MECC- determination of flavonoids	1
Gas Chromatography (GC): Introduction, principle, theoretical considerations-retention time, retention volume, plate theory – equilibrium plates, calculation og no. of theoretical plates, resolution, Rate theory – Van De Meter's equation – Eddy Diffusion, Longitudinal Diffusion, Mass transfer; Instrumentation, stationary and mobile phases – carrier gas, detectors	1
GC: selectivity of liquid stationary phases – Kovat's indices, Mc Reynolds Constants; Derivatization in GC; Applications of GC – External and Internal standard methods	1
Quantitative applicants of GC: determination of manufacturing residues – detection of pivalic acid in dipivefrin eye drops, determination of residual solvents – purge trap GC, applications of GC in bio-analysis. **HPLC** – introduction and principle	1
High Performance Liquid Chromatography (HPLC) - instrumentation, stationary and mobile phases, elution methods, detectors, structural factors governing elution of drugs, qualitative analysis of drugs by HPLC	1
Assay of hydrocortisone in cream, assays involving specialized techniques – assay of adrenaline by anionic ion-pairing agent	1
	15hrs

Unit: CPI - 43: Chromatography in Pharmaceutical Analysis-II

Topics to be covered	No. of Hours required
Potentiometric Titrations: - Introduction, principle, instrumentation.	1
Assay of Aspirin, Assay of Iron(II) succinate in ferromynS tablets, Introduction to ISE	1
Determination of fluoride in tablets and solutions by Flouride Ion Selective Electrode. Fundamentals of radioactivity	1
Measurement of radioactivity, Radiopharmaceuticals - requirements, radiochemical methods	1
Isotope dilution analysis IDA, Radioimmuno , assay RIA-Thyroxin, and thyroid stimulating Hormone	1
Introduction to thermal methods, classification,application of drug phenacetin	1
Detection of polymorphisim and pseudopolymorphisim in pharmaceutical by DSC/DTA.	1
Introduction to electro-analytical techniques, classification	2
Polarography, theory, polarogram	2
applications of polarography in analysis of Antibiotics, Alkaloids	1
applications of polarography in analysis Trace metals and metal containing drugs	1
applications of polarography in analysis Blood serum and cancer diagnosis, insecticides,	1
applications of polarography in analysis Vitamins, Hormones.	1
	15hrs

Unit: CPI-44: Titrimetry, Chemical and Extraction methods in Pharmaceutical Analysis

Topics to be covered	No. of Hours required
Introduction - Qualitative analysis, quantitative analysis, classical methods of analysis, Types of chemical reactions and primary and secondary solutions.	1
Acid-base titrations ,Terminology, indicator principle, direct acid-base titrations in the aqueous phase, Indirect titrations in aqueous phase, estimation of alcohols and hydroxyl values by reaction with acetic anhydride.	1
Non-aqueous titrations -Theory, types of non-aqueous solvents, titrations of weak acids, Analysis of phenylephrine using perchloric acid.	1
Argentimetric Titrations – Principle, procedure for assays of Sodium chloride, potassium chloride, thiamine hydrochloride and carbromal.	1
Complexometric Titrations – Principle, types of complexometric titrations, metallochromes used, criteria of complexation and detection, effect of pH on complexation, estimation of metal ions, stability of metal complexes.	1
Redox Titrations - principle, types of redox titrations, assays of ferrous salts, hydrogen peroxide, sodium perborate and benzoyl peroxide by titration with $KMnO_4$.	1
Iodometric Titrations – principle, Assay of phenolglycerol injection.	1
Ion-pair Titrations - titrations using indicator dyes, titrations using iodide as a lipophilic anion	1
Diazotization Titrations – principle, assay of sulphanilamide.	2
Karl-Fischer Titrations - principle and procedure.	1
Introduction to extraction methods.	1

Commonly used excipients in formulations – (i) tablets and capsules (ii) suspensions and solutions (iii) creams and ointments. Solvent Extraction methods - extraction of organic bases and acids utilizing their ionized and un-ionized forms.	1
Partition between organic solvents and ion pair extraction.	1
Solid phase extraction – Introduction, methodology, types of adsorbents used in Solid phase extraction – (i) Lipophilic silica gels (ii) Polar surfaced modified silica gels.	1
	15hrs

Course/Paper - III

Course\CH(CPI)403 T: ELECTIVE 3B: Bioorganic Chemistry

Unit: CPI-45: Carbohydrates

Topics to be covered	No. of Hours required
Introduction to the importance of Carbohydrates.	2
Types of naturally occurring sugars.	1
Sonogishira cross coupling, Buchwald-Hartwig and Negishi-Kumada coupling reactions	1
C=C Formation Reactions: Importance of double bonded compounds; Introduction to C=C Formation Reactions	1
Shapiro, Bamford-Stevens andMcMurrey reactions	1
Julia-Lythgoe olefination and Peterson's stereoselective olefination	1
Multicomponent Reactions: Importance of Multi-component reactions; Ugi and Passerini reactions	1
Biginelli, Hantzsch and Mannich reactions	1
Ring Formation Reactions: Pausan-Khand reaction, Bergman cyclisation, Nazerov cyclisation	1
Click Chemistry: Overview of Click Reactions; Criteria for Click reaction	1
Sharpless azides cycloadditions	1
Metathesis: Grubb's 1st and 2nd generation catalyst; Olefin cross coupling metathesis(OCM), ring closing metathesis(RCM), ring opening metathesis(ROM), applications	1
Other important synthetic reactions: Baylis-Hilman reaction and Eschenmoser-Tanabe fragmentation	1
Mitsunobu reaction, Stork-enamine reaction and Michael reactions	1
	15hrs

Unit: CPI-46: Nucleic acids and Lipids

Topics to be covered	No. of Hours required
Nucleic acids: Retro synthetic analysis of nucleic acids	1
Nucleotides, Nucleosides, Nucleotide bases and Sugars	2
Structure and synthesis of nucleosides and nucleotides	2
Primary, secondary and tertiary structure of DNA. Types of mRNA, tRNA and rRNA	2
Replication, transcription and translation. Genetic code. Protein biosynthesis. DNA finger printing	2
Lipids: Introduction and classification of lipids. Stereochemical notation in lipids	2
Chemical synthesis and biosynthesis of phospholipids and glycolipids	2
Properties of lipid aggregates, micelles, bilayers, liposomes and biological membranes	2
	15hrs

Unit: CPI-47: Proteins and Enzymes

Topics to be covered	No. of Hours required
Proteins: Introduction. Peptide bond, classification and nomenclature of peptides	1
Amino acid sequence of polypeptides and proteins: terminal residue analysis and partial hydrolysis	1
Peptide synthesis by solution phase and solid phase synthesis methods	1
Proteins - Biological importance and classification - Primary, secondary and tertiary structure of proteins	2
Enzymes: Definition. Classification based on mode of action	2
Mechanism of enzyme catalysis - Lock and Key, Induced- Fit and three point contact models	3
Enzyme selectivity –chemo, regio, diastereo and enantio selectivity– illustration with suitable examples	2
Factors affecting enzyme catalysis	1
Enzyme inhibition - reversible and irreversible inhibition	1
Enzymes in organic synthesis. Immobilised enzymes	1
	15hrs

Unit: CPI-48: Coenzymes and Vitamins

Topics to be covered	No. of Hours
Coenzymes: Introduction, Co-factors - cosubstrates - prosthetic groups	1
Classification-Vitamin derived coenzymes and metabolite coenzymes	1
Structure and biological functions of coenzyme A, thiamine pyrophosphate (TPP), pyridoxal phosphate (PLP)	1
oxidized and reduced forms of i) nicotinamide adenosine dinucleotide / their phosphates (NAD), NADH, NADP+ NADPH)	1
ii) Flavin adenine nucleotide FAD, FADH2 and iii) Flavin mononucleotide (FMN, FMNH2) lipoic acid, biotin, tetrahydrofolate and ubiquinone.	2
Adenosine triphosphate (ATP) and adenosine diphosphate (ADP), S-adenosyl methionine (SAM) and uridine diphospho sugars (UDP-sugars) Mechanism of reactions catalyzed by the above coenzymes	2
Vitamins: Introduction, classification and biological importance of vitamins	1
Structure determination and synthesis of vitamins A, B1, and B2	3
Synthesis of vitamins - B6, C, E and K. Structure of vitamin B12	3
	15hrs

Course/Paper - IV

Course\CH(CPI)404 T: ELECTIVE 4A: Advanced Heterocyclic Chemistry

Unit: CPI - 49: Non aromatic heterocyclics & Aromaticity

Topics to be covered	No. of Hours required
Different types of strains, interactions and conformational aspects of non-aromatic heterocycles	1
Synthesis, reactivity and importance of Azirines, Aziridines	2
Synthesis, reactivity and importance of Oxiranes, Oxaziridines	2
Synthesis, reactivity and importance of Diazirenes, Diaziridines	2
Synthesis, reactivity and importance of Thiiranes, Azetidines	2
Synthesis, reactivity and importance of Oxetanes, thietanes	2
Aromaticity introduction, Aromatic and anti aromatic compounds, Criteria for aromaticity	1
Huckel's 4n+2 electron rule for benzene and non benzenoid aromatic compounds	1
Cyclopropenium ion, cyclopentadienyl ion, cycloheptatrienium ion, azulene and annulenes	2
	15hrs

Unit: CPI - 50: Five and six membered heterocyclics with two hetero atoms

Topics to be covered	No. of Hours required
Synthesis, reactivity, aromatic character & importance: Pyrazole, Imidazole	3
Synthesis, reactivity, aromatic character & importance: Oxazole, Isoxazole	3
Synthesis, reactivity, aromatic character & importance:Thiazole, Isothiazole	3
Synthesis, reactivity, aromatic character & importance: Pyridazine	1
Synthesis, reactivity, aromatic character & importance: Pyrimidine	1
Synthesis, reactivity, aromatic character & importance: Pyrazine	1
Synthesis, reactivity, aromatic character & importance: Oxazine, thiazine	1
Synthesis, reactivity, aromatic character & importance: benzimidazole, benzoxazole and benzthiazole	2
	15hrs

Unit: CPI - 51: Heterocyclics with more than two hetero atoms

Topics to be covered	No. of Hours required
Synthesis, reactivity, aromatic character and importance of the following Heterocycles: 1,2,3- triazoies, 1,2,4-triazoles	2
Synthesis, reactivity, aromatic character and importance of Tetrazoles	1
Synthesis, reactivity, aromatic character and importance of 1,2,4 -oxadiazole, 1 ,3,4-oxadiazole, 1,2,5- oxadiazole	2
Synthesis, reactivity, aromatic character and importance of 1,2,3 -thiadiazoles, 1,3,4- thiadiazoles, 1,2,5- thiadiazoles	2
Synthesis, reactivity, aromatic character and importance of 1,2,3 -triazine, 1,2,4- triazine, 1,3,5- triazine	2

Synthesis, reactivity, aromatic character and importance of tetrazines	2
Synthesis and importance of purines and pteridines	2
Syntheis of Caffeine, theobromine and theophylline	2
	15hrs

Unit: CPI - 52: Larger ring and other hetero cyclics

Topics to be covered	**No. of Hours required**
Introduction and nomenclature to heterocyclic compounds	1
AZEPINES: Synthesis, structure, stability and reactivity of Azepines	1
OXEPINES: Synthesis, structure, stability and reactivity of Oxepines	1
THIEPINES: Synthesis, structure, stability and reactivity of Thiepines.	1
DIAZEPINES: Synthesis of Diazepines, Rearrangement of 1,2-Diazepines	1
Synthesis and Reactivity of Benzoazepines.	1
Synthesis and Reactivity of Benzodiazepines	1
Synthesis and Reactivity of Benzooxepines	1
Synthesis and Reactivity of Benzothiepines	1
Synthesis and Reactivity of Azocines	1
Synthesis and Reactivity of Azonines	1
Synthesis and Reactivity of Selenophenes	1
Synthesis and Reactivity of Tellerophenes	1
Synthesis and Reactivity of Phospholes	1
Synthesis and Reactivity of Boroles	1
	15hrs

Course/Paper - IV

Course\CH(CPI)404 T: ELECTIVE 4B: Green chemistry and Organic materials

Unit: CPI - 53: Principles of Green chemistry

Topics to be covered	No. of Hours required
Green chemistry: Introduction, Designing a Green Synthesis using these principles	1
Prevention of Waste/by-products; maximum incorporation of the starting materials used in the synthesis into the final products (Atom Economy)	2
prevention/minimization of hazardous/toxic products; designing safer chemicals	2
selection of appropriate auxiliary substances - green solvents, ionic liquids and solvent-free synthesis	2
energy requirements for reactions - use of microwaves, ultrasonic energy in organic synthesis	2
prevention of unnecessary derivatization – careful use of protecting groups	1
use of catalytic reagents in preference to stoichiometric reagents	1
designing of biodegradable products; prevention of chemical accidents	2
strengthening/development of analytical techniques to prevent and minimize the generation of hazardous substances in chemical processes	2
	15hrs

Unit: CPI - 54: Green Synthesis

Topics to be covered	No. of Hours required
i) Microwave Assisted Organic Synthesis (MAOS): introduction, benefits and limitations	1
a) Microwave assisted reactions in organic solvents: Esterification, Fries rearrangement, Claisen rearrangement and Diels- Alder reaction	2
b)Microwave assisted Solvent-free reactions: Deacetylation, saponification of esters, alkylation of reactive methylene compounds and synthesis of nitriles from aldehydes	2
ii)Ultrasound Assisted Organic Synthesis: introduction, applications of ultrasound-Cannizaro reaction, Reformatsky reaction and Strecker synthesis	2
iii)Organic Synthesis in Green Solvents: introduction	1
a) Aqueous Phase Reactions: Diels-Alder Reaction, Heck reaction, Hoffmann elimination, Claisen-Schmidt condensation hydrolysis and diydroxylation reactions	2
b)Organic Synthesis using Ionic liquids: Introduction, applications-Beckmann rearrangement Suzuki Cross-Coupling Reaction and Diels- Alder reaction	2
iv) Green Catalysts in organic synthesis: introduction a) Phase Transfer Catalysts in Organic Synthesis: Introduction, Williamson ether synthesis and Wittig reaction	2
b) Biocatalysts in Organic Synthesis: Biochemical (microbial) oxidations and reductions	1
	15hrs

Unit: CPI - 55: Organic nanomaterials

Topics to be covered	No. of Hours required
Introduction: The 'top-down' approach, the 'bottom-up' approach and Nanomanipulation	1
Molecular Devices: Photochemical devices, Liquid crystals, Molecular wires, Rectifiers, Molecular switches and Molecular Muscles	2
New Carbon family: Types of Fullerenes, Types of Carbon nanotubes (Zig-Zag, Armchair and Chiral), Graphenes	2
Growth, Chemical Synthesis and optoelectronic properties of Fullerenes, CNTs (Zig Zag, Armchair and Chiral), singlewalled CNTs (SWCNTs) and multi walled MWCNTs)and Graphenes	3
Structures of aromatics belts, nano car and molecular machines	2
Optoelectronic molecules: OLEDs, Organic Solar Cells (Basic OLED mechanism and structures)	3
Natural Benz heterazoles and their synthetic modifications as optoelectronic molecules	2
	15hrs

Unit: CPI - 56: Supramolecular chemistry

Topics to be covered	No. of Hours required
I**ntroduction**: Supramolecular interactions (ion-ion, ion-dipole, H-bonding, cation-π, anion-π, π-π and Van der Walls interactions),Ionophore and molecular receptors	3
Host-Guest Chemistry: Lock and key anology, Structures and applications of Cryptands,Spherands, Calixerenes, Cyclodextrins, Cyclophanes, Carcerands and hemicarcirands	4
Self-assembly: Ladder, polygons, helices, rotaxanes, catanenes, Molecular necklace, dendrimers, self-assembly capsules their synthesis, properties and applications	4
Enantioselective molecular recognition: Cyclodextrins, Crown ethers with chiral frame work, Chiral receptor from Kemp's triacid. Chiral receptors for tartaric acid	4
	15hrs

SEMESTER -IV
PRACTICALS

Course\Paper-V: CPI – 451P: Quantitative Analysis of Pharmaceuticals

No. of Hours Allotted: 15 weeks x 9 hrs

Topics to be covered	No. of Hours required
Assay of pharmaceuticals - Redox titrations Assay of analgin in tablets by iodometry Assay of ascorbic acid in raw material by iodometry Assay of ascorbic acid in tablets by cerimetry Determination of hydrogen peroxide in medicament by Permanganometry	2
Assay of pharmaceuticals - Complexometric titrations Assay of Calcium in Calcium gluconate Assay Zinc in Bacitracin zinc **Assay of pharmaceuticals - Non-aqueous titrations:** Assay of diphenylhydramine hydrochloride in tablets Assay of ephedrine hydrochloride in capsules Assay of Ibuprofen in tablets	2
Assay of pharmaceuticals – Potentiometry/Conductometric Potentiometric estimation of Sulphanilamide Potentiometric estimation of Atropine Conductometric estimation of analysis Amidazophen (aminophenazone) Conductometric estimation of analysis Asprin	2
Assay of pharmaceuticals - UV-Visible Spectrophotometry Assay of Riboflavin in tablets Assay of Diazepam in tablets Assay of Nimuselide in nimuselide tablets	1
Assay of pharmaceuticals – by other methods Dissolution profile of paracetamol & ampicillin Determination of Sodium and potassium ions in pharmaceuticals by flamephotometry Determination of Quinine sulphate & Riboflavin by florimetry.	2
1) Identification of unknown organic compounds by interpretation of IR, UV, 1H -NMR, 13C-NMR and mass spectral data Asprin, p-Chloroacetophenone, clofibrate, Ibuprofen, Phenylacetic acid, p-MethylBenzoylchloride, L-Dopa, Benzocaine	3
2) Thin layer chromatography: Determination of purity of a given sample, monitoring the progress of chemical reactions, identification of unknown organic compounds by comparing the Rf values of known standards.	1
3. Separation by column chromatography: Separation of a mixture of *ortho* and *para* nitroanilines using silicagel as adsorbant and chloroform as the eluent. The column chromatography should be monitored by TLC.	2
	15 weeks

Course\Paper-VI: CPI - 452P: PROJECTWORK **No. of Hours Allotted**: 15 weeks x 9 hrs

M.Sc. FINAL (Physical Chemistry)

2018-19

Dr. Ashok kumar Baswa

M.Sc. SEMESTER - III PHYSICAL CHEMISTRY SPECIALIZATION

CLASS NUMBER	LESSON PLAN **UNIT** PAPER – II CH (PC) 302T :PC-16:Lasers in Chemistry
1	General principles of laser action.
2	Stimulated emission. Rates of absorption and emission.
3	Characteristics of laser light. Laser pulses and their characteristics.
4	Pulse production, Q-switching.
5	Pulse modification, mode-locking. Practical lasers.
6	Solid-state lasers, gas lasers,
7	chemical and excimer lasers. Examples.
8	Applications of lasers in chemistry: Femtochemistry.
9	The pump-probe technique. Time-resolved spectroscopy.
10	Photodissociation of ICN. Formation and dissociation of CO-hemoglobin complex.
11	Conversion of ethylene to cyclobutane. Bond selectivity in chemical reactions – the reaction between hydrogen atoms and vibrationally excited HDO molecules.
12	Lasers and multiphoton spectroscopy
13	Principles.
14	Two-photon spectra of diphenyloctatetraene. Lasers in fluorescence spectroscopy
15	Lasers in Raman spectroscopy.

CLASS NUMBER	LESSON PLAN **UNIT** ELECTIVE 3A PAPER III CH(PC) 303T(CB1) PC(CB1)-3 : Types of materials, conducting organics and NLO materials
1	Introduction-Classification of materials
2	metals, ceramics, polymers, composites.
3	semiconductors and biomaterials
4	Glassy state – glass formers and glass modifiers, applications
5	Ceramics – criteria for determining the crystal structure of ceramic materials
6	Examples of ceramic crystal structures
7	Composites – particle reinforced and fibre reinforced composites.
8	Preparative methods of solid materials - Ceramic method (Solid State method),
9	co-precipitation as a precursor, solutions and gels (Zeolite synthesis),
10	crystallization from melts: Czochralski method, Kyropolous method
11	vapour phase transport method, ion-exchange and interaction reactions.
12	Techniques of single crystal growth – growth from solutions – growth from melts – growth from vapour.
13	Non-linear optical (NLO) behavior– basic concepts second and third harmonic generation
14	examples of organic , inorganic and polymer NLO materials.
15	Conducting organics – Fullerenes, doped fullerides, fullerenes as superconductors

M.Sc. SEMESTER - IV PHYSICAL CHEMISTRY SPECIALIZATION

CLASS NUMBER	LESSON PLAN **UNIT** ELECTIVE –4B (ID PAPER) PAPER-IV CH(PC) 404T(CB4): Engineering Chemistry PC(CB4) -29: Water And Waste Water Treatment
1	Introduction to Engineering Chemistry
2	Review of Hardness
3	causes, measurement of hardness,
4	units- types of hardness
5	estimation of temporary and permanent hardness
6	numerical problems
7	Boiler troubles- scales and sludge formation, caustic Embrittlement, priming and foaming.
8	Soda-lime process, zeolite process
9	Ion exchange process. Treating saline water
10	distillation, electrodialysis, reverse osmosis
11	Municipal water supply: sedimentation, filtration, sterilization.
12	Waste water treatment: physical, chemical and biological treatment
13	Sewage water , COD and BOD
14	numerical problems
15	Lesson with Power point presentation

CLASS NUMBER	LESSON PLAN **UNIT** ELECTIVE –4B (ID PAPER) PAPER-IV CH(PC) 404T(CB4): Engineering Chemistry PC(CB4) -30: Corrosion And Its Control
1	Introduction to Corrosion
2	Problem and theories of corrosion
3	Chemical and electrochemical corrosion
4	corrosion reactions, factors affecting corrosion
5	nature of metal, purity of metal, electrochemical series, over voltage, nature of oxide film, nature of corrosion product,
6	of environment, effect of temperature, effect of pH, effect of oxidant, humidity
7	control methods, design and material selection, cathodic protection
8	sacrificial anode, impressed current cathode.
9	Surface coating methods: Surface preparation, metallic coatings
10	application of metal coatings: hot dipping, galvanizing
11	tinning, cladding, electroplating and electroless plating
12	chemical conversion coatings.
13	Organic surface coatings-paints, constituents of paints and their functions
14	methods of application of paints, failure of paint films, varnishes,
15	enamels, lacquers

CLASS NUMBER	LESSON PLAN UNIT ELECTIVE –4B (ID PAPER) PAPER-IV CH(PC) 404T(CB4): Engineering Chemistry PC(CB4) -31: Energy Sources
1	Introduction to Energy sources - Conventional energy resources
2	Chemical fuels, classification, (solids, liquids, gaseous)
3	Solid fuels: coal, analysis of coal, proximate and ultimate analysis and their significance.
4	Liquid fuels: petroleum, refining of petroleum
5	cracking, reforming of petrol
6	Synthetic petrol - Bergius and Fischer Tropsch's process
7	knocking, anti knocking agents, octane number
8	Diesel fuel: Cetane number. Other liquid fuels: LPG, biodiesel, kerosene, fuel oil, benzol, tar, power alcohol.
9	Gaseous fuels: natural gas, coal gas, producer gas, oil gas, water gas, biogas
10	Combustion: Calorific value and its determination, bomb calorimeter. HCV and LCV values of fuels
11	Numerical problems
12	analysis of flue gas by Orsats method. Rocket fuels, solid propellants, liquid propellants, monopropellants, bipropellants.
13	Non conventional energy resources: Nuclear fuels- nuclear reactor
14	nuclear fission, nuclear fusion, sources of nuclear fuels, disposal of radio active wastes, reprocessing of nuclear fuels.
15	solar, hydro, wind, tidal energies. Bio fuels, H_2 as a non polluting fuel.

COMMERCE

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021(SEMESTER V)

CLASS: M. COM

COURSE/PAPER: ADVANCED MANAGERIAL ACCOUNTING

UNIT: FINANCIAL STATEMENT ANALYSIS NO. OF HOURS ALLOTTED: 12

TOPICS TO COVERED	NO.OF HOURS
Financial Statements: Meaning – Objectives – Types – Uses – Limitations.	2
Financial Statements Analysis: Meaning – Objectives – Techniques – Uses – Limitations.	3
Ratio Analysis: Meaning – Types – Du Pont Analysis	3
Funds Flow Analysis: Meaning – Preparation of Funds Flow Statement	2
Cash Flow Analysis: Meaning – Preparation of Cash Flow Statement as per Accounting Standard No.3	2

Name of the Teacher: Dr. C V Ranjani Head, Department of Commerce Signature:

Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-18(SEMESTER V)

CLASS: M.COM

COURSE/PAPER: ADVANCED MANAGERIAL ACCOUNTING

UNIT: **HUMAN RESOURCE ACCOUNTING AND RESPONSIBILITY ACCOUNTING**NO. OF HOURS ALLOTTED: 9

TOPICS TO COVERED	NO.OF HOURS
Human Resources Accounting: Concept – Objectives – Approaches – Limitations	3
Responsibility Accounting: Concept – Steps – Responsibility Centre – Types of Responsibility Centers	3
Preparation of Responsibility accounting reports	3

Name of the Teacher: Dr. C V Ranjani Head, Department of Commerce Signature:

Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-18(SEMESTER V)

CLASS: M.COM

COURSE/PAPER: ADVANCED MANAGERIAL ACCOUNTING

UNIT: INFLATION ACCOUNTING AND INCOME MEASUREMENT NO. OF HOURS ALLOTTED: 12

TOPICS TO COVERED	NO.OF HOURS
Inflation Accounting: Concept – Limitations of historical cost based financial statements.	3
Methods of Inflation Accounting: Current Purchasing Power Method – Current Cost Accounting Method	4
Income Measurement: Income Concepts - Measurement and Reporting of Revenues, Expenses, Gains and Losses	3
Analysis of Changes in Gross Profit	2

Name of the Teacher: Dr. C V Ranjani Head, Department of Commerce Signature:

Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-18(SEMESTER V)

CLASS: M.COM

COURSE/PAPER: ADVANCED MANAGERIAL ACCOUNTING

UNIT: FINANCIAL MEASURES OF PERFORMANCE:

NO. OF HOURS ALLOTTED: 12

TOPICS TO COVERED	NO.OF HOURS
Financial Measures of Performance: Introduction –	2
Return On Investment (ROI): Concept – Uses and Limitations	2
Economic Value Added (EVA): Concept – Significance of EVA – Measurement of EVA	3
Balanced Score Card (BSC): Concept – Objectives – Perspectives of BSC	2
Multiple Scorecard Measures to a Single Strategy	3

Name of the Teacher Dr. C V Ranjani Head, Department of Commerce Signature:
Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-18(SEMESTER V)

CLASS: M.COM

COURSE/PAPER: ADVANCED MANAGERIAL ACCOUNTING

UNIT: MANAGERIAL DECISION MAKING: NO. OF HOURS ALLOTTED: 14

TOPICS TO COVERED	NO.OF HOURS
Introduction: Cost concepts for decision making – Marginal Costing and Decision Making.	3
Pricing decisions: Normal price - Minimum price – Depression price - Special price	3
Product decisions: Profit planning - Level of Activity - Dropping a product line	2
Introducing a new product line - Product/Sales mix decisions	3
Make or Buy decisions - Key/Limiting Factors	3

Name of the Teacher: Dr. C V Ranjani Head, Department of Commerce Signature:

Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-18(SEMESTER V)

CLASS: M. COM

COURSE/PAPER: STRATEGIC MANAGEMENT

UNIT: OVERVIEW OF STRATEGIC MANAGEMENT NO. OF HOURS ALLOTTED: 12

TOPICS TO COVERED	NO.OF HOURS
Strategy – Concept –MintzbergModels of strategy- Levels of Strategy - . Strategy, Ethics and Social	2
Strategic Management: Process-Benefits –Guidelines for effective Strategic Management	3
Strategic ManagementResponsibility	3
Need for good corporate Governance	2
Corporate Citizenship	2

Name of the Teacher: Dr. C V Ranjani Head, Department of Commerce Signature:

Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-18(SEMESTER V)

CLASS: M. COM

COURSE/PAPER: STRATEGIC MANAGEMENT UNIT: ENVIRONMENTAL ANALYSIS NO. OF HOURS ALLOTTED: 13

TOPICS TO COVERED	NO.OF HOURS
Internal Analysis: Competitive Advantage – Competencies -SWOT Analysis – Resources,	3
Capabilities and Core Competence- Resource Base View of a firm – Key Success Factors – ValueChain Analysis Bench Marking	3
External Analysis: Components of External Analysis – Segments of General Environment	3
Industry‘s dominant factors- Porter‘s Five Forces Model –PEST Analysis – Industry Driving forces –Strategic group mapping	4

Name of the Teacher: Dr. C V Ranjani Head, Department of Commerce Signature:

Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-18(SEMESTER V)

CLASS: M.COM

COURSE/PAPER: STRATEGIC MANAGEMENT

UNIT: CRAFTING STRATEGY NO. OF HOURS ALLOTTED: 12

TOPICS TO COVERED	NO.OF HOURS
Vision and Mission – Significance- Characteristics- Objectives – Types – Setting of Objectives -	3
Factors affecting Strategy – Generic Strategies (Overall Low Cost Provider, focused low cost, Broad Differentiation, focused differentiation, Best-Cost Provider)	4
Other Strategy Choices – Strategic Alliances – Mergers and Acquisitions – Vertical Integration – Outsourcing –Offensive	3
Strategies – first mover advantages and disadvantages-diversification –modernization Turnaround.	2

Name of the Teacher: Dr. C V Ranjani Head, Department of Commerce Signature:

Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-18(SEMESTER V)

CLASS: M.COM

COURSE/PAPER: STRATEGIC MANAGEMENT

UNIT: EXECUTING STRATEGY (IMPLEMENTATION OF STRATEGY):

NO. OF HOURS ALLOTTED: 12

TOPICS TO COVERED	NO.OF HOURS
Nature – Organizational Issues (Annual Objectives, Policies, Resource Allocation. Structure,	2
Restructuring, Reengineering, e-reengineering, performance pay, change, conflict, culture	2
H R issues leadership. Marketing, Finance and Accounting Issues:	3
Segmentation, Targeting Positioning, Marketing Mix.	2
Finance and Accounting: financing, investment, dividend, budgets.Performance Evaluating (ROI, EVA, and MVA)- Balanced Score Card	3

Name of the Teacher Dr. C V Ranjani Head, Department of Commerce Signature:

Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-18(SEMESTER V)

CLASS: M.COM

COURSE/PAPER: STRATEGIC MANAGEMENT

UNIT: EVALUATION OF STRATEGY:: NO. OF HOURS ALLOTTED: 10

TOPICS TO COVERED	NO.OF HOURS
Strategic Evaluation – Significance – Criteria – Barriers and overcoming barriers.–	3
Strategic Control and Operation Control-Types of Strategic Controls	2
Process of operation Control Evaluation	2
techniques for strategic and operational control	3

Name of the Teacher: Dr. C V Ranjani Head, Department of Commerce Signature:
Signature

CBCS

LESSON PLAN FOR THE ACADEMIC YEAR December 2017 (SEMESTER VI)

CLASS: B.Com (e-Commerce)

COURSE/PAPER: COMPUTERISED ACCOUNTING **PAPER CODE:** DSC-IVF

PPW: 5(3T+2P) **Max. Marks: 35T+15P**

Total Allotted Hours: 64hrs

Theory Hours : 38hrs Practical Hours : 26hrs

UNIT	Topics Covered	Number of Lectures	Methodology/ Instructional techniques
I	**INTRODUCTION**	**13 L**	
	1 Introduction to Computerized Accounting 2 Fundamentals of Accounting 3 Nature and Scope of Accounting 4 Accounting Principles 5 Difference b/w Manual and Computerized Accounting 6 Advantages and Disadvantages 7 Features of Accounting Package 8 Basic books, Journals, Ledgers 9 Double entry system	**7 Theory**	Lecture, PowerPoint presentation, hand outs
	1 Gateway of Tally application 2 Creating of Company, Alter, Delete 3 Creating of Groups, Ledgers, Vouchers 4 Altering of Groups ,Ledgers, Vouchers 5 Creating day Book 6 Creating Cash book 7 Creating bank book 8 Creating Balance Sheet 9 Creating Trial balance 10 Creating Profit and Loss Account 11 Shortcut keys	**6 Labs**	PowerPoint, Practical Lab work
	Student Activity 1. Applying the concepts of the integrated structure of computerized accounting software in solving business problems 2. Working with statistical and accounting data 3. Shortcuts of Tally software 4. Creating a company, groups , ledgers and vouchers		Maintain record work

UNIT	Topics Covered	Number of Lectures	Methodology/ Instructional techniques
II	ACCOUNTS WITH INVENTORY	**13 L**	
	1. About inventory Inventory information menu, stock group 2. About stock group and stock subgroup 3. Stock Categories 4. Inventory vouchers 5. Stock items 6. Godowns and location 7. Types of vouchers	**7 Theory**	Lecture, PowerPoint presentation, Handouts
	1. Creation of Stock group , Altering, displaying 2. Creation of Groups and subgroups 3. Creation of Stock items 4. Creating of unit measures 5. Creating Inventory vouchers 6. Creating sales and purchase order 7. Inventory statements and reports 8. Shortcut keys	**6 Labs**	PowerPoint, Practical Lab work
	Student Activity 1. Purchase order, Sales order, Deliver note, Receipt note 2. Maintain bill wise report 3. Reversing journals 4. Interest Calculation 5. Invoices		Maintain record work

UNIT	Topics Covered	Number of Lectures	Methodology/ Instructional techniques
III	FINAL ACCOUNTS OF BUSINESS ORGANISATIONS	**10L**	
	1. Trading accounts 2. Importance of Trading accounts 3. Preparation of Trading Accounts 4. Closing entries relating to trading accounts 5. Receipt and payment account 6. Difference b/w receipt and payment and income and Expenditure account 7. Steps to prepare receipt and payment and income and Expenditure account 8. Final accounts and problems 9. Competitive strategies 10. Corporate strategies 11. Classification of Assets and Liabilities 12. Adjustment entries 13. term partnership and personal liability 14. the unlimited liability of the partner in partnership deed 15. Introduce the student to the preparation of partnership account 16. Introduce the student to the connect of appropriation of net profit 17. Valuation of Goodwill , Need , Factors to be 18. considered while valuing Goodwill , methods	**10 Theory**	Lecture, PowerPoint presentation, Handouts
	Student Activity Creating of Partnership account, Partnership balance sheet,		Maintain record work, Illustration

UNIT	Topics Covered	Number of Lectures	Methodology/ Instructional techniques
IV	COST AND MANAGEMENT ACCOUNTING	**14 L**	
	1. Meaning – Nature and Scope of Management Accounting –Relationship between Financial Accounting – Cost Accounting and Management Accounting – Role of Management Accountant in the Present Scenario. 2. Meaning and concept of Financial Analysis – Types of Financial Analysis – Methods of Financial Analysis – Problems on Comparative statements – Common Size statements – Trend Analysis. 3. Meaning – Utility and limitations – Classification of Ratios – Calculation and interpretation of Solvency – Turnover – Profitability & Liquidity ratios. 4. Meaning – Concept of Fund and Funds Flow Statement – Uses and significance of fund flow Statement – Procedure for preparing FFS – Schedule of changes in working capital – Statement of sources and application of funds. 5. Concept – Comparison Between Fund Flow and Cash Flow Statements – Uses and significance of CFS – Preparation of Cash Flow Statement as per Accounting Standards 6. Limitations of cash flow and fund flow statement	**7 Theory**	Lecture, Illustration, PowerPoint presentation, Handouts
	Lab Work: 1. Calculation and interpretation of solvency ratios 2. Calculation and interpretation of turnover ratios 3. Calculation and interpretation of profitability ratios 4. Calculation and interpretation of liquidity ratios 5. Calculation of funds from operation and funds lost in operation 6. Calculation of cash from operating investing and financing activities 7. Preparation of Cash Flow Statement as per Accounting Standards.	**7 Labs**	Illustration, Practical Lab work
	Student Activity 1. Prepare Statement of changes in working capital 2. Prepare funds from operation		Illustration ,Maintain record work

UNIT	Topics Covered	Number of Lectures	Methodology/ Instructional

			techniques
V	TAX ACCOUNTING	**14 L**	
	1. overview of income taxes 2. related laws and regulations 3. individual income tax forms and schedules 4. Introduction to VAT 5. basic rules for the application of the VAT system 6. Settlement of taxes and tax liabilities. 7. Tax return 8. Distinguish specific calculation of VAT rates. 9. VAT activation and classification 10. VAT computation 11. Fundamental instrument in the VAT system. 12. Input VAT on capital goods 13. Different types of VAT Supplies 14. VAT transactions 15. Composite VAT	**7Theory**	Lecture, PowerPoint presentation, Handouts
	1. entry-level positions in income tax preparation 2. Prepare tax reports 3. Filing a value added tax report. 4. Books outgoing invoices 5. Implementation of VAT in Tally 6. VAT adjustment entry 7. Enabling Value Added Tax (VAT)	**7 Labs**	PowerPoint, Practical Lab work
	Student Activity 1. Compare specific calculation for individual business areas. 2. Generate and print VAT as well as Composite VAT Computation report 3. Creating VAT Ledger 4. Creating Sales Invoice with Selection of VAT Class during Entry 5. Creating Sales Invoice with Multiple VAT Rates		Illustration Maintain record work

CBCS

LESSON PLAN FOR THE ACADEMIC YEAR December- 2017 (SEMESTER VI)

CLASS: B.Com (General)

COURSE/PAPER: COMPUTERISED ACCOUNTING **PAPER CODE:** DSC-IVF

PPW: 5(3T+2P) **Max. Marks: 35T+15P**

Total Allotted Hours: 64hrs

Theory Hours: 38hrs Practical Hours : 26hrs

UNIT	Topics Covered	Number of Lectures	Methodology/ Instructional techniques
I	**INTRODUCTION**	**13 L**	
	10 Introduction to Computerized Accounting 11 Fundamentals of Accounting 12 Nature and Scope of Accounting 13 Accounting Principles 14 Difference b/w Manual and Computerized Accounting 15 Advantages and Disadvantages 16 Features of Accounting Package 17 Basic books, Journals, Ledgers 18 Double entry system	**7 Theory**	Lecture, PowerPoint presentation, hand outs
	12 Gateway of Tally application 13 Creating of Company, Alter, Delete 14 Creating of Groups, Ledgers, Vouchers 15 Altering of Groups ,Ledgers, Vouchers 16 Creating day Book 17 Creating Cash book 18 Creating bank book 19 Creating Balance Sheet 20 Creating Trial balance 21 Creating Profit and Loss Account 22 Shortcut keys	**6 Labs**	PowerPoint, Practical Lab work
	Student Activity 5. Applying the concepts of the integrated structure of computerized accounting software in solving business problems 6. Working with statistical and accounting data		Maintain record work

	7. Shortcuts of Tally software 8. Creating a company, groups , ledgers and vouchers		

UNIT	Topics Covered	Number of Lectures	Methodology/ Instructional techniques
II	ACCOUNTS WITH INVENTORY	**13 L**	
	8. About inventory Inventory information menu, stock group 9. About stock group and stock subgroup 10. Stock Categories 11. Inventory vouchers 12. Stock items 13. Godowns and location 14. Types of vouchers	**7 Theory**	Lecture, PowerPoint presentation, Handouts
	9. Creation of Stock group , Altering, displaying 10. Creation of Groups and subgroups 11. Creation of Stock items 12. Creating of unit measures 13. Creating Inventory vouchers 14. Creating sales and purchase order 15. Inventory statements and reports 16. Shortcut keys	**6 Labs**	PowerPoint, Practical Lab work
	Student Activity 6. Purchase order, Sales order, Deliver note, Receipt note 7. Maintain bill wise report 8. Reversing journals 9. Interest Calculation 10. Invoices		Maintain record work

UNIT	Topics Covered	Number of Lectures	Methodology/ Instructional techniques
III	FINAL ACCOUNTS OF BUSINESS ORGANISATIONS	**10L**	
	19. Trading accounts 20. Importance of Trading accounts 21. Preparation of Trading Accounts 22. Closing entries relating to trading accounts 23. Receipt and payment account 24. Difference b/w receipt and payment and income and Expenditure account 25. Steps to prepare receipt and payment and income and Expenditure account 26. Final accounts and problems 27. Competitive strategies 28. Corporate strategies 29. Classification of Assets and Liabilities 30. Adjustment entries 31. term partnership and personal liability 32. the unlimited liability of the partner in partnership deed 33. Introduce the student to the preparation of partnership account 34. Introduce the student to the connect of appropriation of net profit 35. Valuation of Goodwill , Need , Factors to be 36. considered while valuing Goodwill , methods	**10 Theory**	Lecture, PowerPoint presentation, Handouts
	Student Activity Creating of Partnership account, Partnership balance sheet,		Maintain record work, Illustration

UNIT	Topics Covered	Number of Lectures	Methodology/ Instructional techniques
IV	COST AND MANAGEMENT ACCOUNTING	**14 L**	
	7. Meaning – Nature and Scope of Management Accounting –Relationship between Financial Accounting – Cost Accounting and Management Accounting – Role of Management Accountant in the Present Scenario. 8. Meaning and concept of Financial Analysis – Types of	**7 Theory**	Lecture, Illustration, PowerPoint presentation, Handouts

	Financial Analysis – Methods of Financial Analysis – Problems on Comparative statements – Common Size statements – Trend Analysis. 9. Meaning – Utility and limitations – Classification of Ratios – Calculation and interpretation of Solvency – Turnover – Profitability & Liquidity ratios. 10. Meaning – Concept of Fund and Funds Flow Statement – Uses and significance of fund flow Statement – Procedure for preparing FFS – Schedule of changes in working capital – Statement of sources and application of funds. 11. Concept – Comparison Between Fund Flow and Cash Flow Statements – Uses and significance of CFS – Preparation of Cash Flow Statement as per Accounting Standards 12. Limitations of cash flow and fund flow statement		
	Lab Work: 8. Calculation and interpretation of solvency ratios 9. Calculation and interpretation of turnover ratios 10. Calculation and interpretation of profitability ratios 11. Calculation and interpretation of liquidity ratios 12. Calculation of funds from operation and funds lost in operation 13. Calculation of cash from operating investing and financing activities 14. Preparation of Cash Flow Statement as per Accounting Standards.	**7 Labs**	Illustration, Practical Lab work
	Student Activity 3. Prepare Statement of changes in working capital 4. Prepare funds from operation		Illustration ,Maintain record work
UNIT	**Topics Covered**	**Number of Lectures**	**Methodology/ Instructional techniques**
V	TAX ACCOUNTING	**14 L**	
	16. overview of income taxes 17. related laws and regulations 18. individual income tax forms and schedules 19. Introduction to VAT 20. basic rules for the application of the VAT system 21. Settlement of taxes and tax liabilities. 22. Tax return 23. Distinguish specific calculation of VAT rates. 24. VAT activation and classification 25. VAT computation	**7Theory**	Lecture, PowerPoint presentation, Handouts

	26. Fundamental instrument in the VAT system. 27. Input VAT on capital goods 28. Different types of VAT Supplies 29. VAT transactions 30. Composite VAT		
	8. entry-level positions in income tax preparation 9. Prepare tax reports 10. Filing a value added tax report. 11. Books outgoing invoices 12. Implementation of VAT in Tally 13. VAT adjustment entry 14. Enabling Value Added Tax (VAT)	**7 Labs**	PowerPoint, Practical Lab work
	Student Activity 6. Compare specific calculation for individual business areas. 7. Generate and print VAT as well as Composite VAT Computation report 8. Creating VAT Ledger 9. Creating Sales Invoice with Selection of VAT Class during Entry 10. Creating Sales Invoice with Multiple VAT Rates		Illustration Maintain record work

NIZAM COLLEGE: DEPARTMENT OF COMMERCE

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021

(SEMESTER)

CLASS: M.COM

COURSE/PAPER: SECURITIES ANALYSIS AND PORTFOLIO MANAGEMENT

UNIT: SECURITY ANALYSIS NO. OF HOURS ALLOTTED: 15

TOPICS TO COVERED	NO.OF HOURS
Fundamental Analysis: Meaning - Economy Analysis	1
Economic Forecasting - Forecasting Techniques	1
Industry Analysis - Concept of Industry - Industry Life Cycle - Industry Characteristics	2
Company Analysis - Financial Statements - Analysis of Financial Statements	2
Technical Analysis: Meaning - Dow Theory	1
Basic Principles of Technical Analysis - Trends and Trend Reversal	2
Eliot Wave Theory - Mathematical Indicators - Market Indicators	2
Efficient Market Theory: Random Walk Theory - The Efficient Market Hypothesis	2
Forms of Market Efficiency - Tests of Efficient Market Hypothesis	2

Name of the Teacher: K SRINIVAS
Signature:

Head, Department of Commerce
Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-18 (SEMESTER)

CLASS: M.COM

COURSE/PAPER: SECURITIES ANALYSIS AND PORTFOLIO MANAGEMENT

UNIT: VALUATION OF SECURITIES NO. OF HOURS ALLOTTED: 18

TOPICS TO COVERED	NO.OF HOURS
Share Valuation: Concept of Present Value	1
Share Valuation Model – One Year Holding Period – Multiple Year Holding Period	3
Share Valuation Model– Constant Growth Model – Multiple Growth Model	3
Share Valuation Model— Multiplier Approach to Share Valuation	2
Bond Valuation: Bond Returns – Coupon Rate – Current Yield – Spot Interest Rate	3
Yield to Maturity – Yield to Call	3
Bond Prices – Bond Risks – Bond Duration	3

Name of the Teacher: K SRINIVAS Head, Department of Commerce

Signature : Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-18 (SEMESTER)

CLASS: M.COM

COURSE/PAPER: SECURITIES ANALYSIS AND PORTFOLIO MANAGEMENT

UNIT: CAPITAL MARKET THEORY NO. OF HOURS ALLOTTED: 14

TOPICS TO COVERED	NO.OF HOURS
Capital Market Theory: Assumptions - Capital Asset Pricing Model	1
Efficient Frontier with Riskless Lending and Borrowing	2
Capital Market Line – Security Market Line – SML Vs. CML	2
Pricing of Securities with CAPM – Limitation of CAPM	2
Arbitrage Pricing Theory: The Law of One Price – Assumptions	1
Arbitrage Pricing for one Risk Factor – Two Factor Arbitrage Pricing	3
Multiple Arbitrage Pricing – Limitations of APT	2

Name of the Teacher: K SRINIVAS
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Head, Department of Commerce
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LESSON PLAN FOR THE ACADEMIC YEAR 2017-18 (SEMESTER)

CLASS: M.COM

COURSE/PAPER: SECURITIES ANALYSIS AND PORTFOLIO MANAGEMENT

UNIT: PORTFOLIO PERFORMANCE EVALUATION NO. OF HOURS ALLOTTED: 17

TOPICS TO COVERED	NO.OF HOURS
Portfolio Performance Evaluation: Need for Evaluation – Evaluation Perspective	1
Meaning of Portfolio Evaluation – Measuring Portfolio Return	2
Risk Adjusted Returns	2
Sharpe Ratio	2
Treynor Ratio	2
Differential Return	2
Security Market Indexes: Meaning – Different Averages and Indexes Exist	1
The Construction of Indexes – Maintenance Problems with Security Market Indexes	3
Stock Market Index Revision	2

Name of the Teacher: K SRINIVAS
Signature :

Head, Department of Commerce
Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-18 (SEMESTER)

CLASS: M.COM

COURSE/PAPER: SECURITIES ANALYSIS AND PORTFOLIO MANAGEMENT

UNIT: PORTFOLIO REVISION NO. OF HOURS ALLOTTED: 14

TOPICS TO COVERED	NO.OF HOURS
Portfolio Revision: Need for Revision – Meaning of Portfolio Revision – Constraints in Portfolio Revision	2
Portfolio Revision Strategies – Formula	2
Portfolio Revision Strategies –Constant Rupee Value Plan	2
Portfolio Revision Strategies – Constant Ratio Plan	2
Portfolio Revision Strategies –Dollar Cost Averaging	2
Benefits and Risk of Global Investing	1
Factors Influencing International Investing	1
Foreign Exchange Risk	2

Name of the Teacher: K SRINIVAS Head, Department of Commerce :

Signature: Signature :

NIZAM COLLEGE: DEPARTMENT OF COMMERCE

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021(SEMESTER V)

CLASS: B.COM

COURSE/PAPER: PRINCIPLES OF MARKETING

UNIT: INTRODUCTION NO. OF HOURS ALLOTTED: 10

TOPICS TO COVERED	NO.OF HOURS
Meaning and Definition of Marketing	2
Scope – Evolution of Marketing Concept	2
Production concept - Product concept	2
Marketing Myopia – Selling Concept	2
Marketing Concept - Societal Marketing Concept	2
Marketing Mix - Direct Marketing	2

Name of the Teacher: K MAHENDAR Head, Department of Commerce Signature:

Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-18(SEMESTER V)

CLASS: B.COM

COURSE/PAPER: PRINCIPLES OF MARKETING

UNIT: MARKETING ENVIRONMENT NO. OF HOURS ALLOTTED: 10

TOPICS TO COVERED	NO.OF HOURS
Micro Environment , Company – Suppliers -	2
Marketing Intermediaries – Customers – Competitors - Publics	3
Macro Environment Demographic – Economic –	2
Natural – Technological – Political - Legal -Cultural - Social	3

Name of the Teacher: K MAHENDAR Head, Department of Commerce

Signature:Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-18(SEMESTER V)

CLASS: B.COM

COURSE/PAPER: PRINCIPLES OF MARKETING

UNIT: MARKETING SEGMENTATION NO. OF HOURS ALLOTTED: 8

TOPICS TO COVERED	NO.OF HOURS
Concept of Target Market	2
Market Segmentation	2
Concept- Bases- Benefits	2
Product Positioning- Concepts- Bases	2

Name of the Teacher: K MAHENDAR Head, Department of Commerce Signature:
Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-18(SEMESTER V)

CLASS: B.COM

COURSE/PAPER: PRINCIPLES OF MARKETING

UNIT: CONSUMER BEHAVIOUR

NO. OF HOURS ALLOTTED: 13

TOPICS TO COVERED	NO.OF HOURS
Consumer Behavior- Nature	3
Scope – Importance – Factors – Economic	2
Psychological- Cultural- Social and Personal	2
Steps in consumer Decision Process	2
Post Purchase Behavior -	2
Cognitive Dissonance	2

Name of the TeacherK MAHENDAR Head, Department of Commerce Signature:

Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-18(SEMESTER V)

CLASS: B.COM

COURSE/PAPER: PRINCIPLES OF MARKETING

UNIT: SERVICES MARKETING NO. OF HOURS ALLOTTED: 14

TOPICS TO COVERED	NO.OF HOURS
Concept- Reasons for Growth of Services	2
Importance of Services in Economy	3
Nature and Scope of Services	2
Classifications of Services- Features of Services	3
Service Marketing Mix	2
Strategies for Service Marketing -Service Quality – Its Determinants	2

Name of the Teacher: K MAHENDAR Head, Department of Commerce Signature:

Signature:

NIZAM COLLEGE: DEPARTMENT OF COMMERCE

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021(SEMESTER V)

CLASS: B.COM

COURSE/PAPER: RETAIL MARKETING

UNIT: INTRODUCTION NO. OF HOURS ALLOTTED: 12

TOPICS TO COVERED	NO.OF HOURS
Retail Definitions - Retailer	2
Retailing and Marketing	2
Functions of a Retailer	2
Place of retailing in a distribution channel	2
Classification of Retailers - Types of Retailers	2
Service Retailing-Retail Mix	2

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Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-18(SEMESTER V)

CLASS: B.COM

COURSE/PAPER: RETAIL MARKETING

UNIT: RETAIL PRODUCT AND RETAIL PRICE NO. OF HOURS ALLOTTED: 8

TOPICS TO COVERED	NO.OF HOURS
Retail Product - Break Down of the Retail Product	2
Service, Quality, Merchandise, Brand Name, Features and Benefits, Atmospherics	2
Retail Pricing	1
Factors Affecting the Pricing Decisions	2
Types of retail pricing	1

Name of the Teacher: K MAHENDAR Head, Department of Commerce Signature:

Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-18(SEMESTER V)

CLASS: B.COM

COURSE/PAPER: RETAIL MARKETING

UNIT: RETAIL PROMOTION AND RETAIL DISTRIBUTION NO. OF HOURS ALLOTTED: 11

TOPICS TO COVERED	NO.OF HOURS
Retail Promotion	2
Communication - Stages in Communication	2
Advertising - Sales Promotion – Publicity	2
Store Atmosphere - Retail Distribution	2
Channels and Channel Flows (Physical Flow - Manufacturer/Producer - Intermediary/Wholesaler – Retailer - Service Flow – Information - Payments - Promotion Flows)	3

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Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-18(SEMESTER V)

CLASS: B.COM

COURSE/PAPER: RETAIL MARKETING

UNIT: CONTEMPORARY ISSUES IN RETAILING

NO. OF HOURS ALLOTTED: 12

TOPICS TO COVERED	NO.OF HOURS
Non Store Retailing	2
Electronic Retailing – The Emergence of World Wide Web	1
Advantages of E-Tailing -Franchising	2
Need and Importance - Foreign Direct Investment In India	2
Information Technology in Retailing	2
Rural Retailing	1
Visual Merchandising and Store Design - Mall Management	2

Name of the Teacher K MAHENDAR Head, Department of Commerce Signature:

Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-18(SEMESTER V)

CLASS: B.COM

COURSE/PAPER: RETAIL MARKETING

UNIT: INFORMATION TECHNOLOGY IN RETAILING NO. OF HOURS ALLOTTED: 12

TOPICS TO COVERED	NO.OF HOURS
Introduction – MKIS	2
Components of Marketing Information System (Internal Records - Marketing Intelligence - Marketing Research)	2
Application of IT – Areas Where IT Impacts	2
Inventory Control - Point of Sale	2
Sales Analysis - Planning & Forecasting	2
Collaborative Planning	2

Name of the Teacher: K MAHENDAR Head, Department of Commerce Signature:

Signature:

NIZAM COLLEGE: DEPARTMENT OF COMMERCE

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (SEMESTER IV)

CLASS:M.COM(FINAL)

COURSE/PAPER:BUSINESS AND CORPORATE TAXATION

UNIT:ASSESSMENT OF PARTNERSHIP FIRMS NO. OF HOURS ALLOTTED:10

TOPICS TO COVERED	NO.OF HOURS
Meaning of Partnership Firm - Conditions for Assessment as a firm U/S 184 and 185 - Treatment of interest and remuneration paid to partners U/S 40(b)	2
Computation of Total Income - Assessment of Partners of Firm	2
Change in constitution of Firm Succession of one firm by another firm - Assessment of dissolved or discontinued firm	2
Problems	4

Name of the Teacher: Sonakshi Jaiswal
Signature :

Head, Department of Commerce
Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-18 (SEMESTER IV)

CLASS:M.COM(FINAL)

COURSE/PAPER:BUSINESS AND CORPORATE TAXATION

UNIT:ASSESSMENT OF PARTNERSHIP FIRMS NO. OF HOURS ALLOTTED:10

TOPICS TO COVERED	NO.OF HOURS
Partnership Firm Assessed as Association of Persons (AFAOP) -	2
Computation of Total Income - Allocation of PFAOP's - Total Income - Treatment of share of income received by partners of PFAOP	3
Problems	5

Name of the Teacher: Sonakshi Jaiswal
Signature :

Head, Department of Commerce
Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-18 (SEMESTER IV)

CLASS:M.COM(FINAL)

COURSE/PAPER:BUSINESS AND CORPORATE TAXATION

UNIT: ASSESSMENT OF COMPANIES-I: NO. OF HOURS ALLOTTED:10

TOPICS TO COVERED	NO.OF HOURS
Meaning of Company - Types of Companies - Computation Procedure - Taxable income	3
Deductions - Tax Liability - MAT - Carry Forward and set off of losses - Tax on Distributed Profits	3
Tax on income distributed to Unit holders - Tax on income receipt from venture capital companies and funds	4

Name of the Teacher: Sonakshi Jaiswal
Signature :

Head, Department of Commerce
Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-18 (SEMESTER IV)

CLASS:M.COM(FINAL)

COURSE/PAPER:BUSINESS AND CORPORATE TAXATION

UNITASSESSMENT OF COMPANIES – II & OTHER TAXES: NO. OF HOURS ALLOTTED:10

TOPICS TO COVERED	NO.OF HOURS
Companies: Computation of total income of companies - Determination of Tax Liability	2
Problems	3
Other Taxes: Security Transaction Tax - Tonnage Tax	2
Problems	3

Name of the Teacher: Sonakshi Jaiswal
Signature :

Head, Department of Commerce
Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-18 (SEMESTER IV)

CLASS:M.COM(FINAL)

COURSE/PAPER:BUSINESS AND CORPORATE TAXATION

UNIT: ASSESSMENT OF CO-OPERATIVES AND TRUSTS NO. OF HOURS ALLOTTED:10

TOPICS TO COVERED	NO.OF HOURS
Cooperative Societies: Meaning - Deduction u/s 80(p) - Other deductions - Computation of Tax	2
Problems	3
Trusts: Definition – Creation – Registration - Types of Trusts - Tax Exemptions - Accumulation of income - Income not exempted - Assessment of Trust	3
Problems	2

Name of the Teacher: Sonakshi Jaiswal
Signature :

Head, Department of Commerce
Signature:

NIZAM COLLEGE: DEPARTMENT OF COMMERCE

CLASS:M.com PREVIOUS

COURSE/PAPER: PRINCIPLES OF MARKETING

UNIT: INTRODUCTION NO. OF HOURS ALLOTTED:10

TOPICS TO COVERED	NO.OF HOURS
Meaning and Definition of Marketing - Scope of Marketing - Evolution of Marketing Concepts - Production Concept	1
- Product Concept - Marketing Myopia - Selling Concept - Marketing Concept - Societal Marketing Concept	2
Objectives of Marketing - Role of Marketing in Economic Development - Rural Marketing - Rural Markets Vs Urban Markets	2
- Marketing Management Tasks - Marketing Mix-- Direct Marketing - Online Marketing -.	3
Marketing Challenges and Opportunities – Marketing of Services	2

Name of the Teacher: PROF GANGADHAR Head, Department of Commerce Signature :

Signature:

CLASS:M.com PREVIOUS

COURSE/PAPER: PRINCIPLES OF MARKETING

UNIT: MARKETING ENVIRONMENT NO. OF HOURS ALLOTTED:10

TOPICS TO COVERED	NO.OF HOURS
Micro Environment (Company-Suppliers-Marketing Intermediaries- Customers-Competitors-Publics) -	4
- Macro Environment (Demographic-Economic-Natural- Technologica1-Political	3
Legal (Consumer Protection Act 1986) and Regulatory Cultural-Social) - International Marketing- GATT & WTO	3

Name of the Teacher: PROF GANGADHAR Head, Department of Commerce Signature :

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CLASS:M.com PREVIOUS

COURSE/PAPER:PRINCIPLES OF MARKETING

UNIT: MARKET SEGMENTATION: NO. OF HOURS ALLOTTED:10

TOPICS TO COVERED	NO.OF HOURS
Concept of Target Market - Diffused Market - Concentrated Market - Clustered Market	3
Market Segmentation: Concept - Bases-Benefits-Requirements for Effective Segmentation	3
- Market Segmentation Analysis for Consumer and Service - Product Positioning: Concepts – Bases	4

Name of the Teacher: PROF GANGADHAR Head, Department of Commerce Signature :

Signature:

CLASS:M.com PREVIOUS

COURSE/PAPER: PRINCIPLES OF MARKETING

UNIT :CONSUMER BEHAVIOUR NO. OF HOURS ALLOTTED:10

TOPICS TO COVERED	NO.OF HOURS
Consumer Behavior - Nature-Scope-Importance - Factors influencing Consumer Behavior - Economic - psycbologica1-Cultural-Social and Personal - Models of Consumer Behavior - Marshallian-Maslow Freudian-Howard-Sheth	5
Steps in consumer Decision Process - Post Purchase Behavior - Cognitive Dissonance - Organizational Buyer - Industrial Markets-	2
Reseller Market-Government Market. Characteristics of Organizational Buyer - Organizational Buying Process - Organizational Buyer Vs Consumer Behavior.	3

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CLASS:M.com PREVIOUS

COURSE/PAPER:PRINCIPLES OF MARKETING

UNIT: MARKETING PLANNING AND STRATEGY: NO. OF HOURS ALLOTTED:10

TOPICS TO COVERED	NO.OF HOURS
Corporate Strategic Planning - Vision-Mission – Strategic Business Units – Planning new businesses - Business Strategic Planning	2
SWOT Analysis - Goal Formulation-Strategy Formulation-Program Formulation – Implementation - Feedback and Control - Marketing Process - Nature and Contents of a Marketing Plan	5
–Marketing control - Annual Plan Control – Profitability Control – Efficiency Control – Strategic Control	3

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CLASS:M.com PREVIOUS

COURSE/PAPER: MARKETING MANAGEMENT

UNIT: PRODUCT MANAGEMENT: NO. OF HOURS ALLOTTED:10

TOPICS TO COVERED	NO.OF HOURS
Concept of Product - Classification of Products - Product Levels– Product Mix - Product Mix Decisions -	3
- New Product – New Product Development Stages – Reasons for New Product Failure - Product Life Cycle Stages and Marketing Implications	5
Branding - Packaging & Labeling	2

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CLASS:M.com PREVIOUS

COURSE/PAPER: MARKETING MANAGEMENT

UNIT: PRICE MANAGEMENT: NO. OF HOURS ALLOTTED:10

TOPICS TO COVERED	NO.OF HOURS
Pricing – Objectives of Pricing – Role of Price in Marketing Mix – Factors Influencing Price	3
Pricing under different competitive conditions – New Product Pricing - Skimming and Penetration Pricing	5
– Pricing Methods – Cost based – Demand based – Competition based– Product line Pricing – Pricing strategies	2

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CLASS:M.com PREVIOUS

COURSE/PAPER: MARKETING MANAGEMENT

UNIT: PROMOTION MANAGEMENT: NO. OF HOURS ALLOTTED:10

TOPICS TO COVERED	NO.OF HOURS
Promotion – Significance – Promotion Mix – Advertising – Objectives – Media – Media selection	3
Budget - Types of Advertising – Advertising Effectiveness, Personal Selling – Nature – Steps in Personal Selling	4
Sales Promotion – Objectives – Tools. Public Relations – Direct Marketing – Forms of Direct Marketing	3

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Signature:

CLASS:M.com PREVIOUS

COURSE/PAPER: MARKETING MANAGEMENT

UNIT: CHANNEL MANAGEMENT & RETAILING NO. OF HOURS ALLOTTED:10

TOPICS TO COVERED	NO.OF HOURS
Marketing Channels: Nature – Channel Levels - Channel Structure &. Participants – Functions Marketing Intermediaries - Channel Design Decisions	3
Channel Conflict and Resolutions - Online Marketing - Online Marketing Channels – objectives	4
Merits – demerits –Retailing: Meaning – Significance – Emerging trends – forms of retailing – formats of retail stores.	3

Name of the Teacher: PROF GANGADHAR Head, Department of Commerce Signature :

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CLASS:M.com PREVIOUS

COURSE/PAPER: MARKETING MANAGEMENT

UNIT: MARKETING INFORMATION SYSTEM AND MARKETING RESEARCH

NO. OF HOURS ALLOTTED:10

TOPICS TO COVERED	NO.OF HOURS
Concept of MKIS - Components of a Marketing Information System - Internal Records System Marketing Intelligence	5
System-Marketing Research System-Marketing Decision Support System - Marketing Research Process - Marketing Research Vs MKIS - Marketing Research in India.	5

Name of the Teacher: PROF GANGADHAR Head, Department of Commerce Signature :

Signature:

NIZAM COLLEGE: DEPARTMENT OF COMMERCE

CLASS:M.com PREVIOUS

COURSE/PAPER: HUMAN RESOURCE MANAGEMENT

UNIT: INTRODUCTION NO. OF HOURS ALLOTTED:10

TOPICS TO COVERED	NO.OF HOURS
Human Resources Management (HRM): Concepts – Significance – Objectives – Scope – Functions - Changing role of Human Resource Manager	5
– HRM Policies - Impact of Environment on HRM. Human Resource Development (HRD): Concept - Scope - Objectives- Brief introduction of Techniques of HRD.	5

Name of the Teacher: NAVEENA GRAPE KUMARI Head, Department of Commerce Signature :

Signature:

CLASS:M.com PREVIOUS

COURSE/PAPER: HUMAN RESOURCE MANAGEMENT

UNIT: ACQUISITION OF HUMAN RESOURCE NO. OF HOURS ALLOTTED:10

TOPICS TO COVERED	NO.OF HOURS
Job Design - Approaches - Job Rotation - Job Enlargement - Job Enrichment - Job Bandwidth - Job Analysis: Concepts - Objectives - Components (Job Description and Job Specification) - Methods f Job Analysis	4
Human Resource Planning: Concept - Objectives - Factors affecting HR planning - Process of HR Planning - Problems in HR Planning	3
Recruitment: Objectives - Sources of recruitment – Selection: Concept – Selection - Procedure – Tests and Interview - Placement - Induction - Promotion - Transfer	3

Name of the Teacher: NAVEENA GRAPE KUMARI Head, Department of Commerce Signature :

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CLASS:M.com PREVIOUS

COURSE/PAPER: HUMAN RESOURCE MANAGEMENT

UNIT: DEVELOPING AND MOTIVATING HUMAN RESOURCE NO. OF HOURS ALLOTTED:10

TOPICS TO COVERED	NO.OF HOURS
Training - Assessing training needs - Methods and Evaluation of Training. Development: Techniques of Management Development – Evaluating Effectiveness.	3
Performance Management: Concept - Performance Appraisal - Concept- - Traditional and Modern Methods of Appraisal – Concepts of Potential Appraisal, Assessment Centers and Career Planning and Development	4
Concept of Empowerment – Participative Management: Objectives – Types – Quality Circles – Brief Introduction to forms of Workers Participation in Management in India	3

Name of the Teacher: NAVEENA GRAPE KUMARI Head, Department of Commerce Signature :

Signature:

CLASS:M.com PREVIOUS

COURSE/PAPER: HUMAN RESOURCE MANAGEMENT

UNIT: : MAINTENANCE OF HUMAN RESOURCE: NO. OF HOURS ALLOTTED:10

TOPICS TO COVERED	NO.OF HOURS
Compensation Management: Objectives – Job Evaluation: Concept – Methods - Essentials of Sound Wage Structure – Concepts of Minimum Wage, Living Wage and Fair Wage – Wage Differentials	4
.Employee Relations: Objectives – Discipline: Objectives – Grievance: Causes – Procedure; Trade Unions: Objectives - Role of Trade Union in New economy -.	4
Collective Bargaining: Types – Essential conditions for the success of Collective Bargaining	2

Name of the Teacher: NAVEENA GRAPE KUMARI Head, Department of Commerce Signature :
Signature

CLASS:M.com PREVIOUS

COURSE/PAPER: HUMAN RESOURCE MANAGEMENT

UNIT: HRM IN THE KNOWLEDGE ERA: NO. OF HOURS ALLOTTED:10

TOPICS TO COVERED	NO.OF HOURS
Knowledge Management: Concept - KM Architecture - Knowledge Conversion - Knowledge Management Process..	5
Virtual Organizations: Concept - Features -Types - HR Issues. Learning Organization: Concept – Role of Leader in Learning Organizations	5

Name of the Teacher: NAVEENA GRAPE KUMARI Head, Department of Commerce Signature :

Signature:

NIZAM COLLEGE: DEPARTMENT OF COMMERCE

CLASS:M.com Final

COURSE/PAPER:INTERNATIONAL FINANCIAL MANAGEMENT (IFM)

UNIT: INTRODUCTION NO. OF HOURS ALLOTTED:10

TOPICS TO COVERED	NO.OF HOURS
An Overview of International Financial Management: Meaning – Features of International Finance – Scope of International Finance	1
International Financial Management and Domestic Financial Management – Factors influencing Growth of International Finance	1
International Monetary System	1
Balance of payments Accounting: BoP Accounting Principles – Debit and Credit Entries	2
Balance of Payments Statement -Problems	5

Name of the Teacher:DR.P.KISHAN RAO Head, Department of Commerce Signature :

Signature:

CLASS:M.com Final

COURSE/PAPER:INTERNATIONAL FINANCIAL MANAGEMENT (IFM)

UNIT: FOREIGN EXCHANGE MARKETS & EXCHANGE RATE MECHANISM NO. OF HOURS ALLOTTED:10

TOPICS TO COVERED	NO.OF HOURS
Foreign Exchange Market: Features – Major Participants	1
Spot Market: Features, arbitrage, speculation	1
Forward Market: Features, arbitrage, hedging. Speculation, Swapping	2
Problems	2
Exchange Rate Mechanism: Exchange Rate Quotations – Nominal, Real & Effective Exchange Rates	1
Exchange Rate Determination in Spot Market-Problems	1
Exchange Rate Determination in forward Market -Problems	1
Problems	1

Name of the Teacher:DR.P.KISHAN RAO Head, Department of Commerce Signature :

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CLASS:M.com Final

COURSE/PAPER:INTERNATIONAL FINANCIAL MANAGEMENT (IFM)

UNIT: FOREIGN EXCHANGE EXPOSURE: NO. OF HOURS ALLOTTED:10

TOPICS TO COVERED	NO.OF HOURS
Meaning & Relevance of Foreign Exchange Exposure	1
Classification of Foreign Exchange Exposure: Transaction Exposure, Operating Exposure & Accounting Exposure	1
Problems	1
Management of Foreign Exchange Exposure: Need – Hedging of Transaction Exposure	1
Hedging of Real Operating Exposure – Management of Accounting Exposure	1
Problems	5

Name of the Teacher:DR.P.KISHAN RAO Head, Department of Commerce Signature :

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CLASS:M.com Final

COURSE/PAPER:INTERNATIONAL FINANCIAL MANAGEMENT (IFM)

UNIT:INTERNATIONAL FINANCIAL MARKETS & INSTRUMENTS: NO. OF HOURS ALLOTTED:10

TOPICS TO COVERED	NO.OF HOURS
International Financial Markets: Features – Factors for Growth	2
Interest Rates – Channels of International Funds Flow.	2
International Financial Instruments: Euro Credits: Revolving Credit, Term Credit	2
Euro Bonds: Straight Bonds, Convertible Bonds, Currency Optional Bonds, FRNs	2
Euro Issues: FCCB, GDR, ADR	2

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CLASS:M.com Final

COURSE/PAPER:INTERNATIONAL FINANCIAL MANAGEMENT (IFM)

UNIT:FINANCING OF FOREIGN TRADE NO. OF HOURS ALLOTTED:10

TOPICS TO COVERED	NO.OF HOURS
Foreign Trade Documents: Letters of Credit – Bill of Exchange Marine Insurance Policy – Invoices Certificates – Bill of Lading.	2
– Bill of Exchange Marine Insurance Policy – Invoices Certificates – Bill of Lading.	2
Foreign Trade Financing: Methods of Financing:	2
Bank Credit (Pre-Shipment Credit, Post-Shipment Credit, Medium Term Credit, Credit under Duty Draw Back Scheme),	2
Factoring, Counter Trade – Modes of Payment	2

Name of the Teacher:DR.P.KISHAN RAO Head, Department of Commerce Signature :

Signature:

NIZAM COLLEGE: DEPARTMENT OF COMMERCE

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (SEMESTERIII)

CLASS: B.com 2nd year

COURSE/PAPER: Banking Theory and Practice

UNIT: 1.INTRODUCTION NO. OF HOURS ALLOTTED: 12

TOPICS TO COVERED	NO.OF HOURS
Origin and growth of banking in India- unit vs branch banking	2
Functions of commercial banks- nationalization of commercial banks in India	2
RBI Constitution- organizational structure- management- objectives- functions	3
Emerging trends in commercial banking in India	1
E-Banking- Mobile banking- core banking	2
Bank Assurance- OMBUDSMAN	2

Name of the Teacher: Dr. P Kishan Rao Head, Department of Commerce Signature

UNIT: 2 .BANKER AND CUSTOMER RELATIONSHIP NO. OF HOURS ALLOTTED:14

TOPICS TO COVERED	NO.OF HOURS
Definition of banker and customer- Relationship between banker and customer	2
KYC norms- General and special features of relationship- opening of accounts	2
Special types of customers like Minor, Married women, partnership firms, companies, clubs and other non-trading institutions	4
Descriptions and their special features	1
Duties and responsibilities of paying and collecting banker	1
Circumstances under which a banker can refuse payment of Cheques	2
Consequences of wrongful dishonors	1
Precautions to be taken while advancing loans against securities	1

Name of the Teacher: Dr. P. Kishan Rao Head, Department of Commerce
Signature:Signature:

UNIT: 3. NEGOTIABLE INSTRUMENTS NO. OF HOURS ALLOTTED: 12

TOPICS TO COVERED	NO.OF HOURS
Definition- Types- Features	1
Promissory note- Bills of Exchange	2
Cheque- parties to negotiable instruments- kinds of cheque	2
MICR- Requisitesof cheque- Bouncing of cheque	2
Promissory Note vs Bills of Exchange	1
Rule in clayton's clase- Garnishee Order	1
Loans against equitable mortgage and legal mortgage and distinction between them	2
Latest trends in deposit mobilization	1

Name of the Teacher: Dr. P Kishan Rao Head, Department of Commerce

Signature :

UNIT: 4. TYPES OF LOANS AND ADVANCES NO. OF HOURS ALLOTTED: 10

TOPICS TO COVERED	NO.OF HOURS
Principles of sound lending policies	2
Credit appraisals of various forms of loans and advances	4
Modes of creating charges- Lien, Pledge, Mortgage and Hypothecation	4

Name of the Teacher: Dr. P Kishan Rao Head, Department of Commerce

Signature : Signature:

UNIT: 5. TYPES OF BANKS NO. OF HOURS ALLOTTED: 12

TOPICS TO COVERED	NO.OF HOURS
District co-operative central banks	2
Development banks	3
Regional rural banks	2
National bank for agricultural and rural development (NABARD)	2
SIDBI- Development banks	3

Name of the Teacher: Dr. P Kishan Rao Head, Department of Commerce

Signature :

Signature:

CLASS: B.com 2nd year

UNIT: 1. INTRODUCTION NO. OF HOURS ALLOTTED: 10

TOPICS TO COVERED	NO.OF HOURS
Functions of financial system	2
Constituents of financial system	2
An overview of Indian financial system	2
Role and functions of participants in financial market	2
Factors	2

Name of the Teacher: Dr. P Kishan Rao Head, Department of Commerce

Signature : Signature:

UNIT: 2. FINANCIAL INSTITUTIONS AND ALL INDIA DEVELOPMENT BANKSNO. OF HOURS ALLOTTED:10

TOPICS TO COVERED	NO.OF HOURS
Role of financial institutions in economic development	2
Types of financial institutions	2
All India development banks: IFCI	2
Industrial development bank of India	1
IIBIL	2
IRBI	1

Name of the Teacher: Dr. P Kishan Rao
Signature :

Head, Department of Commerce
Signature:

UNIT: 3. FINANCIAL INSTITUTIONS & STATE LEVEL DEVELOPMENT BANKS NO. OF HOURS ALLOTTED:12

TOPICS TO COVERED	NO.OF HOURS
State finance corporations- Objectives and scope	2
Management – Financial Resources	2
Functions - operations	2
Performance appraisal and problems	1
SIDBI	1
IDFC	1
SIDCs- functions- resources- operations – financial assistance	3

Name of the Teacher: Dr. P Kishan Rao
Signature :

Head, Department of Commerce
Signature:

UNIT: 4. MONEY MARKET NO. OF HOURS ALLOTTED:14

TOPICS TO COVERED	NO.OF HOURS
Definition – features - objectives	1
Importance – compositions	1
Call money market: operations- transactions and participants- advantages and drawbacks	3
Commercial bill market: definition- types of bills	2
Operations in bill market and importance of bill market	2
Discount Market- acceptance market- drawbacks	1
Treasury bills – Types of treasury bills- operations and participants	2
Money market instruments- structure of Indian money market	1
Recent development in Indian money market	1

Name of the Teacher: Dr. P Kishan Rao
Signature :

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UNIT: 5. CAPITAL MARKET NO. OF HOURS ALLOTTED: 14Structure of Indian capital market	2
	2
TOPICS TO COVERED	
Meaning, objectives, importance and functions	
New issue market- instruments- security buyer	
Methods of issue- intermediaries primary market- secondary market	2
Characteristics and functions of stock exchanges	1
Listing of securities	1
Types of speculators	1
Stock exchange in India	1
SEBI- Powers and functions	2

Name of the Teacher: Dr. P Kishan Rao
Signature :

Head, Department of Commerce
Signature:

CLASS: B.com 1st year

COURSE/PAPER: FINANCIAL ACCOUNTING

UNIT:1. INTRODUCTION AND ACCOUNTING PROCESSNO. OF HOURS ALLOTTED:12

TOPICS TO COVERED	NO.OF HOURS
Meaning- definition- functions- advantages and limitations	2
Users of accounting information- principles of accounting concepts and conventions	3
Branches of accounting	1
Accounting system- types of accounts	2
Accounting cycle: Journal- ledger and trial balance including problems	4

Name of the Teacher: Dr. P Kishan Rao
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Head, Department of Commerce
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UNIT: 2. SUBSIDIARY BOOKS NO. OF HOURS ALLOTTED:12

TOPICS TO COVERED	NO.OF HOURS
Meaning- types	1
Purchases and sales book	2
Purchase returns and sales returns book	2
Bills receivables and bills payable book	2
Single column, two column, three column and petty cash book (including problems)	4
Journal proper	1

Name of the Teacher: Dr. P Kishan Rao
Signature :

Head, Department of Commerce
Signature:

UNIT: 3. BANK RECONCILIATION STATEMENT NO. OF HOURS ALLOTTED:12

TOPICS TO COVERED	NO.OF HOURS
Meaning- need	1
Reasons for differences between cash book and pass book balances	2
Favorable and overdraft balances	2
Ascertainment of correct cash book balance	2
Preparation of bank reconciliation statement including problems	5

Name of the Teacher: Dr. P Kishan Rao
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Head, Department of Commerce
Signature:

UNIT: 4. BILLS OF EXCHANGE NO. OF HOURS ALLOTTED: 12

TOPICS TO COVERED	NO.OF HOURS
Definition- promissory notes and bills of exchange	1
Recording of transactions relating to bills	2
Books of drawer and acceptor	2
Honour and dishonour of bills	3
Renewal of bills	1
Retiring of bills under rebate	1
Accommodation bills (including problems)	2

Name of the Teacher: Dr. P Kishan Rao
Signature :

Head, Department of Commerce
Signature:

UNIT: 5. FINAL ACCOUNTS NO. OF HOURS ALLOTTED: 12

TOPICS TO COVERED	NO.OF HOURS
Capital and revenue expenditure	1
Capital and revenue receipts	1
Manufacturing account	1
Trading account- profit and loss account	2
Balance sheet	2
Adjustment and closing entries	2
Problems regarding final accounts	3

Name of the Teacher: Dr. P Kishan Rao
Signature :

Head, Department of Commerce
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CLASS: B.COM 1ST YEAR

COURSE/PAPER: FINANCIAL ACCOUNTING-II

UNIT:1. DEPRECIATION, PROVISIONS& RESERVES NO. OF HOURS ALLOTTED: 15

TOPICS TO COVERED	NO.OF HOURS
Depreciation: meaning–causes	1
Differences between depreciation, Amortization and Depletion	1
Objectives of providing for depreciation	1
Factors affecting depreciation- accounting	2
Methods of depreciation: straight line method- diminishing balance method	3
Depreciation fund method- Annuity method	3
Provisions and Reserves- Reserve fund- Different types of Provisions and Reserves (including problems)	4

Name of the Teacher: Dr. P Kishan Rao Head, Department of Commerce

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UNIT:2 Rectification of Errors No OF HOURS ALLOTTED: 12

TOPICS TO COVERED	NO.OF HOURS
Meaning-	1
Types of Errors- methods of rectification of errors	3
Effect of Errors on final accounts- Rectification before and after preparation of final accounts	4
Suspense account (including problems)	4

Name of the Teacher: Dr. P Kishan Rao
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UNIT:3. Joint Ventures NO. OF HOURS ALLOTTED:12

TOPICS TO COVERED	NO.OF HOURS
Features- Difference between joint venture consignment	2
Accounting Procedure- methods of keeping records for joint venture accounts	3
Methods of recording in co-ventures books- Separate set of books method	3
Joint Bank account- Memorandum joint venture account (including problems)	4

Name of the Teacher: Dr. P Kishan Rao Head, Department of Commerce

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UNIT: 4.Consignment NO. OF HOURS ALLOTTED:12

TOPICS TO COVERED	NO.OF HOURS
Features- Proforma invoice- account sale- Delcrederecommission	2
Accounting treatment in the books of the consigner and the consignee	3
Valuation of consignment stock	2
Normal loss and Abnormal loss	2
Invoice of goods at a price higher than the cost price(including problems)	3

Name of the Teacher: Dr. P Kishan Rao
Signature :

Head, Department of Commerce
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UNIT:5. Accounts from incomplete records NO. OF HOURS ALLOTTED: 09

TOPICS TO COVERED	NO.OF HOURS
Features-differences between single entry and double entry	2
Defects of single entry- Ascertainment of profit	2
Statement of affairs (including problems)	5

Name of the Teacher: Dr. P Kishan Rao
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Head, Department of Commerce
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NIZAM COLLEGE: DEPARTMENT OF COMERCE

LESSON PLAN FOR THE ACADEMIC YEAR: 2020-2021 (SEMESTER- I)

CLASS: M.Com I year (previous)

COURSE/PAPER: Financial Management

UNIT: I- Introduction **NO. OF HOURS ALLOTTED:10**

TOPICS TO BE COVERED	NO.OF HOURS
Financial management: meaning – Evolution –	2
Organization of Finance Function – Financial Decisions – Goals of Financial Management-	2
Agency Problem – changing Role Of Finance Manager(Theory)	2
Time Value of Money: Meaning	2
Rationale of Time Preference for Money- Future Value – Present Value(including problems)	2

Name of the Teacher: Dr. Srinivas Reddy
Signature :

Head, Department of Commerce
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CLASS: M.Com I year (previous)

COURSE/PAPER: Financial Management

UNIT: II-Capital Budgeting **NO. OF HOURS ALLOTTED:10**

TOPICS TO COVERED	NO.OF HOURS
Capital Budgeting: meaning- importance- Process- Kinds of Decisions- cash Flows Estimation	1
Techniques of capital Budgeting – traditional Techniques: pay back period – Accounting / Average Rate Of return	3
Discounting Techniques – Discounting paybackperiod – Net Present Value – Internal rate of Return – Profitability index- NPV vs IRR – capital budegeting(Including Problems).	3
Risk analysis in capital Budgeting Decisions: sources and perspectives of Risk – Traditional Tools – Pay back period – Risk adjusted Discount rate – Certainity equivalent coefficient of Variation – and Decision tree Analysis(including problems).	3

Name of the Teacher: Head, Department of Commerce

Signature : Signature:

CLASS: M.Com I year (previous)

COURSE/PAPER: Financial Management

UNIT: III – Working capital management **NO. OF HOURS ALLOTTED:10**

TOPICS TO COVERED	NO.OF HOURS
Working capital :Meaning – kinds – Determinants – sources and levels – Estimation of working capital requirements (including problems)	2
cash management : Nature of cash – motives of holding Cash- Objectives of cash management	2
Factors determining cash need – cash cycle – facets of cash management – cash forecasting and budgeting	2
Accounts Receivable management : Meaning – objectives- cost benefit analysis – credit standards – credit Terms – collection of receivales (including problems).	2
Inventory management :meaning – components of inventory- Motives of holding Inventory – objectives of Inventory management – tools and Techniques of inventory control (including problems)	2

Name of the Teacher: Head, Department of Commerce

Signature : Signature:

CLASS: M.Com I year (previous)

COURSE/PAPER: Financial Management

UNIT: IV- Financing Decisions **NO. OF HOURS ALLOTTED:10**

TOPICS TO COVERED	NO.OF HOURS
Cost of Capital: meaning – Significance- classification of costs- computation of specific cost of capital	2
cost of Debt- cost of preference Share Capital – cost Equity share capital and cost of retained earnings	2
Computation of weighted average and marginal cost of capital (including problems)	2
Leverages: Meaning – Types- EBIT- EPS Analysis – degree of leverage – operating and financial leverage- Degree of combined leverage- Indifference point (including problems)	2
Capital structure: meaning – determinants – theories – net Income approach – net operating approach – Traditional approach – MM approach(including problems)	2

Name of the Teacher: Head, Department of Commerce

Signature : Signature:

CLASS: M.Com I year (previous)

COURSE/PAPER: Financial Management

UNIT: V- Dividend decisions **NO. OF HOURS ALLOTTED:10**

TOPICS TO COVERED	NO.OF HOURS
Dividend policy: meaning- types of dividend policies – factors influencing dividend policy – forms of dividends(theory)	5
Dividend theories: Relevance Theories – Walter's model – Gorden's model – Irrelavance Theory – MM Hypothesis(including problems)	5

Name of the Teacher: Head, Department of Commerce

Signature : Signature:

CLASS: M.Com -final

COURSE/PAPER: FINANCIAL SERVICES

UNIT: I **NO. OF HOURS ALLOTTED:10**

TOPICS TO COVERED	NO.OF HOURS
Meaning – classification – traditional activities- financial sector reforms and financial innovations in India – banking and Non-banking services	2
Financial products and services: merchant banking , loan syndication, leasing, mutual funds , factoring, forfeiting, venture capital .	2
Custodial services, corporate services, advisory services, depository services, securitization, under-writing services(banks and insurance)	2
Bank services: Bank Assurance services, credit rating , credit cards, derivatives, mergers, acquisitions and amalgamations, services in Forex market	2
Letter of credit- Innovative finance instruments- micro credit finance- importance and different products/ schemes- challenges facing the financial sevices sector.	2

Name of the Teacher: Dr. Srinivas Reddy Head, Department of Commerce

Signature : Signature:

CLASS: M.Com -final

COURSE/PAPER: financial services

UNIT: II – LEASE, HIRE PURCHASE AND HOUSING FINANCE

NO. OF HOURS ALLOTTED:10

TOPICS TO COVERED	NO.OF HOURS
Leasing: Financial lease and Operating lease- lease Vs HirePurchase- types of Financial leasing	2
Advantages of leasing- Consideration under lease Vs. Buy decision –leasing in india –Problems of leasing companies- RBI guidelines on leasing and finance companies.	2
Hire purchase- terms of the agreement, under hire purchase-types of hire purchase-advantages	2
Housing Finance: Housing Finance policy and role of national Housing Bank(NHB)- Housing and Urban Development Corporation(HUDCO)	2
Role of housing Finance corporations and the housing schemes and recent developments	2

Name of the Teacher: Dr. Srinivas Reddy Head, Department of Commerce

Signature : Signature

CLASS: M.Com -FINAL

COURSE/PAPER: FINANCIAL SERVICES

UNIT: III - MUTUAL FUNDS **NO. OF HOURS ALLOTTED:10**

TOPICS TO COVERED	NO.OF HOURS
MUTUAL FUND: Fund unit- vs equity share – importance of mutual funds- types of mutual funds	3
Types of mutual funds: open ended funds- close ended funds, income funds, growth funds,	3
Risks involved – organisatin of firm- facilities available to investors- guidelines from the government of India	2
Recent reforms in mutual funds- banks providing mutual funds services – factors to b considered in selection of fund- reasons for commercial banks to offer mutual funds- scenario of mutual funds in India- problems inn future prospects	2

Name of the Teacher: Dr. Srinivas Reddy
Signature :

Head, Department of Commerce
Signature:

CLASS: M.Com -final

COURSE/PAPER: financial services

UNIT: IV – Discounting ,Factoring and Forfaiting **NO. OF HOURS ALLOTTED:10**

TOPICS TO COVERED	NO.OF HOURS
Meaning of discounting- factoring ; meaning , modus operandi of factoring scheme, erms and conditions in factoring agreement	4
Function of factoring services- types of factoring – role of banks in providing discounting , factoring and forfeiting services	3
Cost of factoring and pricing of factoring services , benefit to the cients, export factoring – forfeiting : factoring Vs. forfeiting – advantages and limitations of forfeiting – forfeiting in india	3

Name of the Teacher: Dr. Srinivas Reddy
Signature :

Head, Department of Commerce
Signature:

CLASS: M.Com -final

COURSE/PAPER: financial services

UNIT: V-Securitisation of Debt **NO. OF HOURS ALLOTTED:10**

TOPICS TO COVERED	NO.OF HOURS
Meaning and concept of securitization- standard securities Vs conversion securities – securitization Vs factoring	5
Operational mechanism of securitization – types of securitized assets-securitization and role of banks-advantages and limitations of securities – future prospects of securitization	5

Name of the Teacher: Dr. Srinivas Reddy
Signature :

Head, Department of Commerce
Signature

CLASS: B.com (final – sem V)

COURSE/PAPER: cost and accounting management

UNIT: I- INTRODUCTION **NO. OF HOURS ALLOTTED:5**

TOPICS TO COVERED	NO.OF HOURS
Cost Accounting – Definitions, Features,Objectives, Functions,Scope, Advantages and limitations	3
management accounting- definitions,features, objectives, functions, scope, ,advantages and limitations ,relationship between cost management and financial accounting	1
Cost concepts – cost classification- preparation of cost sheet- relationship between cost department with other departments(Theory only)	1

Name of the Teacher: Dr. Srinivas Reddy Head, Department of Commerce

Signature : Signature:

CBCS SYLLABUS

NIZAM COLLEGE: DEPARTMENT OF COMERCE

LESSON PLAN FOR THE ACADEMIC YEAR: 2020-2021 (SEMESTER- v)

CLASS: B.com (final – sem V)

COURSE/PAPER: cost accounting

UNIT: I- Introduction **NO. OF HOURS ALLOTTED:5**

TOPICS TO COVERED	NO.OF HOURS
Coat accounting – definition, features, objectives –functions – scope - advantages and limitations	2
Essentials of a good cost accounting system- difference between cost accounting and financial accounting – cost concepts – cost classification (problems)	3

Name of the Teacher: Dr. Srinivas Reddy
Signature :

Head, Department of Commerce
Signature:

CLASS: B.com (final – sem V)

COURSE: cost accounting

UNIT:II- material **NO. OF HOURS ALLOTTED:5**

TOPICS TO COVERED	NO.OF HOURS
Direct and indirect material cost and inventory control techniques	2
Stock levels –EOQ- ABC – analysis- issue of materials to production- pricing methods- : LIFO, FIFO and with base stock and average methods(problems)	3

Name of the Teacher: Dr. Srinivas Reddy Head, Department of Commerce

Signature : Signature:

CLASS: B.com (final – sem V)

COURSE/PAPER: cost accounting

UNIT: labour and overheads **NO. OF HOURS ALLOTTED:5**

TOPICS TO COVERED	**NO.OF HOURS**
Labour – direct and indirect labour cost- methods of payment of wages (only incentive plans)	3
Halsey , Rowan plan, Taylor piece plan and merrick multiple piece plan rate methods	2
Overheads :classification – methods of allocation – apportionment and absorption of overheads (problems)	1

Name of the Teacher: Dr. Srinivas Reddy Head, Department of Commerce

Signature : Signature:

CLASS: B.com (final – sem V)

COURSE/PAPER: cost accounting

UNIT: IV- unit amd job costing **NO. OF HOURS ALLOTTED:5**

TOPICS TO COVERED	**NO.OF HOURS**
Unit costing : features – cost sheet- tender and quotations cost sheet	3
Job costing –features , objectives –procedure – preparation of job cost sheet (problems)	2

Name of the Teacher: Dr. Srinivas Reddy
Signature :

Head, Department of Commerce
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CLASS: B.com (final – sem V)

COURSE/PAPER: cost accounting

UNIT: V- contract and process costing **NO. OF HOURS ALLOTTED:5**

TOPICS TO COVERED	NO.OF HOURS
Contract costing : features – advantages –types of contracts –recording o f costs of contract – recording of value and profit on contracts	3
Process costing : meaning –features –preparation of process account – normal and abnormal losses	2

Name of the Teacher: Dr. Srinivas Reddy Head, Department of Commerce

Signature : Signature:

NIZAM COLLEGE: DEPARTMENT OF COMMERCE

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021

(SEMESTER:III)

CLASS: M.com Final

COURSE/PAPER: RESEARCH METHODOLOGY AND STATISTICAL ANALYSIS

UNIT: INTRODUCTION NO. OF HOURS ALLOTTED:10

TOPICS TO COVERED	NO.OF HOURS
Quantitative Techniques: Meaning, Need and Importance - Classification: Statistical Techniques Operations Research techniques	1
Role of Quantitative Techniques in Business and Industry Quantitative Techniques in Decision making - Limitations.	1
Research: Meaning, Purpose, Characteristics and Types - Process of Research	2
Formulation of objectives - Formulation of Hypotheses: Types of Hypotheses	2
Methods of testing Hypotheses - Research plan and its components	2
Methods of Research: Survey, Observation, Case study, experimental, historical and comparative methods - Difficulties in Business research	2

Name of the Teacher:SYEDA ZEHRA Head, Department of Commerce Signature :

Signature:

CLASS:M.com Final

COURSE/PAPER:RESEARCH METHODOLOGY AND STATISTICAL ANALYSIS

UNIT: COLLECTION, PRESENTATION & ANALYSIS OF DATA NO. OF HOURS ALLOTTED:10

TOPICS TO COVERED	NO.OF HOURS
Sources of Data: Primary and Secondary Sources - Methods of collecting Primary Data - Designing Questionnaires/Schedules in functional areas like Marketing, Finance, Industrial Economics, Organizational Behavioral and Entrepreneurship	4
Census vs. Sampling - Methods of Sampling Random and Non-Random Sampling methods - Measurement and scaling techniques	2
Processing and Presentation of Data: Editing, coding, classification, and tabulation - Graphic and diagrammatic presentation (Theory only). Statistical analysis of Data: Types of analysis (Descriptive analysis and inferential analysis)	2
Tools: Measures of Central Tendency, Measures of Variation, Skewness, Time series, Index numbers, Correlation and Regression	2

Name of the Teacher:SYEDA ZEHRA Head, Department of Commerce Signature :

Signature:

CLASS:M.com Final

COURSE/PAPER:RESEARCH METHODOLOGY AND STATISTICAL ANALYSIS

UNIT: INTERPRETATION AND REPORT WRITING: NO. OF HOURS ALLOTTED:10

TOPICS TO COVERED	NO.OF HOURS
Interpretation: Introduction - Essentials for Interpretation, Precautions in interpretation - Conclusions and generalization	1
Methods of generalization. Statistical fallacies: bias, inconsistency in definitions, inappropriate comparisons, faulty generalizations, drawing wrong inferences, misuse of statistical tools, failure to comprehend the data.	3
Report Writing: Meaning and types of reports - Stages in preparation of Report - Characteristics of a good report - Structure of the report'-Documentation: Footnotes and Bibliography - Checklist for the report.	4
Case Study	2

Name of the Teacher:SYEDA ZEHRA Head, Department of Commerce Signature :

Signature:

CLASS:M.com Final

COURSE/PAPER:RESEARCH METHODOLOGY AND STATISTICAL ANALYSIS

UNIT:PROBABILITY AND PROBABILITY DISTRIBUTIONS: NO. OF HOURS ALLOTTED:10

TOPICS TO COVERED	NO.OF HOURS
Probability: Meaning - Fundamental Concepts - Approaches to measurement of Probability -Classical, Relative frequency, subjective and axiomatic approaches - Addition theorem - Multiplication theorems, Bayesian theorem and its simple applications - Mathematical expectation	2
Problems	3
Probability Distributions: Meaning and importance of theoretical frequency distributions Binomial, Poisson and Normal distributions - Properties and uses - fitting Binomial, Poisson and Normal, Distributions	2
Problems	3

Name of the Teacher:SYEDA ZEHRA Head, Department of Commerce Signature :

Signature:

CLASS:M.com Final

COURSE/PAPER:RESEARCH METHODOLOGY AND STATISTICAL ANALYSIS

UNIT: ASSOCIATION OF ATTRIBUTES & CHI SQUARE TEST NO. OF HOURS ALLOTTED:10

TOPICS TO COVERED	NO.OF HOURS
Quantitative Techniques: Meaning, Need and Importance - Classification: Statistical Techniques Operations Research techniques	1
Association of Attributes: Meaning - Distinction between correlation and association Methods of studying Association - interpretation of results.	2
Chi Square Test: Definition - Conditions for applying Chi square test, Yates's correction - Uses and limitations of Chi square test - Chi square test for testing the independence of Attributes -	4
- Chi square test for goodness of fit (including problems	4

Name of the Teacher:SYEDA ZEHRA Head, Department of Commerce Signature :

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NIZAM COLLEGE: DEPARTMENT OF COMERCE

LESSON PLAN FOR THE ACADEMIC YEAR: 2020-2021 (SEMESTER - I)

CLASS: B.Com – I year

COURSE/PAPER: BUSINESS ECONOMICS

UNIT: I- INTRODUCTION **NO. OF HOURS ALLOTTED: 10**

TOPICS TO COVERED	NO.OF HOURS
BUSINESS ECONOMICS: Meaning & Definition	2
Nature ,characteristics , Importance & Role	2
Micro & macro Economics - Differentiation, scope Objectives	2
Law of diminishing Marginal Utility, Definition, Graph, Assumptions Advantages, Limitations, Conclusion, practical applicability	2
Law of Equi-marginal Utility, Definition, Graph, Assumptions. Advanages, Limitations, conclusion, Practical applicability	2

Name of the Teacher: T.VIJAYA Head, Department of Commerce :

Signature: Signature:

LESSON PLAN FOR THE ACADEMIC YEAR :2017-2018 (SEMESTER - I)

CLASS: B.Com I year

COURSE/PAPER: Business Economics

UNIT: II- DEMAND ANALYSIS **NO. OF HOURS ALLOTTED: 10**

TOPICS TO COVERED	NO.OF HOURS
Meaning, Function - Types of Demand	1
Demand Curve, Law of Demand, Graph, Assumptions, conclusions, Practical applicability,	1
Factors influencing demand, Individual Demand, Market Demand Shift of Demand Vs. Movement Along demand curve	2
Types of Demand:- Price Elasticity, Income Elasticity, cross elasticity Differentiation between the elasticity's.	2
Types of measurement of elasticity of Demand--- Total outlay Method, Ratio method Point method, Arc method	1
Utility – Ordinal Utility Analysis ; Indifference curve Analysis , Scale of preferences , Marginal rate of Substitution	2
Indifference schedule, Indifference Curve, Properties of of Indifference Curves, Budget Constraint, consumer Equilibrium	1

Name of the Teacher: T.VIJAYA Head, Department of

Signature : Signature:

LESSON PLAN FOR THE ACADEMIC YEAR:2017-2018 (SEMESTER - I)

CLASS: B.Com I year

COURSE/PAPER: Business Economics

UNIT: III – Supply Analysis **NO. OF HOURS ALLOTTED:5**

TOPICS TO COVERED	NO.OF HOURS
Meaning of Supply; Individual Market Supply Schedule, Market supply Schedule	1
Supply Curve, Determinants of Supply, Law of supply, Extension and Contraction of supply, Increase and Decrease of supply	1
Causes in changes of supply, Elasticity of supply- Price Elasticity, Income Elasticity, Cross Elasticity; Measurement of Elasticity of supply, Determinants of Elasticity of supply.	1
Laws of supply, Basics of Law of Supply, Assumptions underlying the law of Supply, Exceptions to the Law of Supply,	1
Market Equilibrium – Consumer Surplus- Theory of Consumer Behavior	1

Name of the Teacher: T.VIJAYA Head, Department of

Signature : Signature:

LESSON PLAN FOR THE ACADEMIC YEAR: 2020-2021 (SEMESTER - I)

CLASS: B.Com I year

COURSE/PAPER: Business Economics

UNIT: IV- Production Analysis **NO. OF HOURS ALLOTTED:5**

TOPICS TO COVERED	NO.OF HOURS
Introduction, Meaning of production, Concept of Production – Total Production, marginal Production, Average Production	1
Production Functions- production Function with one variable Input, Production with Two variable Input	1
Law of Returns to Scale- Isocost, Isoquants- Economies and Dis-Economies to scale of production	1
Laws to returns to Scale(Short Run), Laws of Variable proportions(long Run)	2

Name of the Teacher: T.VIJAYA Head, Department of

Signature : Signature:

LESSON PLAN FOR THE ACADEMIC YEAR: 2020-2021 (SEMESTER - I)

CLASS: B.Com I year

COURSE/PAPER: Business Economics

UNIT: V- Cost Analysis **NO. OF HOURS ALLOTTED:10**

TOPICS TO COVERED	NO.OF HOURS
Theory of Cost – Concepts of cost- Short Run and long Run cost curves	5
Traditional and Modern approaches – Break Even Analysis: Meaning – Assumptions – uses and limitations	5

Name of the Teacher: T.VIJAYA Head, Department of

Signature : Signature:

LESSON PLAN FOR THE ACADEMIC YEAR:2020-2021 (SEMESTER - II)

CLASS: B.Com I year

COURSE/PAPER: Managerial Economics

UNIT: I- Nature and scope of Managerial economics **NO. OF HOURS ALLOTTED:10**

TOPICS TO COVERED	NO.OF HOURS
Characteristics of Managerial economics	3
Nature and Scope of managerial economics – importance of managerial economics	3
Basic economics tools in managerial economics	2
Managerial Economists role and responsibility	2

Name of the Teacher: T.VIJAYA Head, Department of

Signature : Signature:

LESSON PLAN FOR THE ACADEMIC YEAR:2017-2018(SEMESTER - II)

CLASS: B.Com I year

COURSE/PAPER: Managerial Economics

UNIT:II – Demand Forecasting **NO. OF HOURS ALLOTTED:10**

TOPICS TO COVERED	NO.OF HOURS
Demand estimations for major consumer durables	3
Demand estimations for major non-durable products	2
Demand Forecasting Techniques	2
Demand Forecasting Techniques: Statistical and Non-Statistical techniques	3

Name of the Teacher: T.VIJAYA Head, Department of

Signature : Signature:

LESSON PLAN FOR THE ACADEMIC YEAR:2017-2018(SEMESTER - II)

CLASS: B.Com I year

COURSE/PAPER: Managerial economics

UNIT:III- Market Analysis **NO. OF HOURS ALLOTTED:10**

TOPICS TO COVERED	NO.OF HOURS
Definition of market: market structure	2
Classification of market structure based on time, place, markets	2
Market structures: Perfect competition- characteristics, Determination of equilibrium price , profit maximizing output in short and long run	2
Monopoly competition – characteristics, Determination of equilibrium price , profit maximizing output in short and long run	1
Monopolistic competition-characteristics, Determination of equilibrium price , profit maximizing output in short and long run	1
Oligopoly - characteristics, Determination of equilibrium price , kinked Demand curve	1
Duopoly – characteristics, Determination of equilibrium price.	1

Name of the Teacher: T.VIJAYA Head, Department of

Signature : Signature:

LESSON PLAN FOR THE ACADEMIC YEAR:2017-2018(SEMESTER - II)

CLASS: B.Com I year

COURSE/PAPER: managerial Economics

UNIT: Macro- Economics for managers **NO. OF HOURS ALLOTTED:5**

TOPICS TO COVERED	NO.OF HOURS
National Income- concepts - methods	1
Methods of measurement of national Income- GDP- GVA	1
Business cycles – nature	1
Phases of business cycles – Inflation, Causes and Control	1
Deflation- Causes and Control, Stagflation- causes and control	1

Name of the Teacher: T.VIJAYA Head, Department of

Signature : Signature:

LESSON PLAN FOR THE ACADEMIC YEAR: 2020-2021 (SEMESTER - II)

CLASS: B.Com I year

COURSE/PAPER: Managerial economics

UNIT: Fiscal and Monetary Policy **NO. OF HOURS ALLOTTED:5**

TOPICS TO COVERED	NO.OF HOURS
Fiscal Policy – objectives of fiscal policy, advantages of fiscal policy and Disadvantages of fiscal policy deficits – Budgetary deficit -primary deficit- revenue deficit	2
Fiscal deficit – objectives of FRBM act, role of FRBM act	1
Monetary Policy- objectives – Repo rates- Reverse Repo Rates	1
CRR(Cash Reserve Ratios), SLR (Statutory liquidatory Ratio), Finance Commission, Role and objectives	1

Name of the Teacher: Head, Department of Commerce

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LESSON PLAN FOR THE ACADEMIC YEAR: 2017-2018 (SEMESTER - I)

CLASS: M.Com I year(previous)

COURSE/PAPER: Managerial economics

UNIT: I- Nature of Managerial economics **NO. OF HOURS ALLOTTED:15**

TOPICS TO COVERED	NO.OF HOURS
Nature of managerial economics, Managerial economics, and Economic theory	3
Managerial economics and Decision Sciences, Managerial Decision making	3
Types of business Decision, Managerial Decision Making process	3
Firm, meaning of Firm, Objectives of Firm	3
Nature of profits(economic vs accounting profit)	1
Optimization functions, slope of functions, optimization techniques, Concept of Derivative, simple rules of derivatives, Application of derivatives to optimization problems	1
Role of marginal analysis in decision making, Total , average and marginal relationship, problems	1

Name of the Teacher: T.VIJAYA Head, Department of Commerce

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LESSON PLAN FOR THE ACADEMIC YEAR: 2017-2018 (SEMESTER - I)

CLASS: M.Com I year(previous)

COURSE/PAPER: Managerial economics

UNIT: II- Demand Analysis **NO. OF HOURS ALLOTTED:10**

TOPICS TO COVERED	NO.OF HOURS
Demand Analysis, Individual demand and market demand, factors determining demand	5
Elasticity of demand, price elasticity, income elasticity, cross elasticity, Elasticity and decision –making	2
Demand Estimation, Demand Forecasting	2
Demand Forecasting , meaning of demand forecasting, significance of demand forecasting, Methods of demand forecasting	1

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LESSON PLAN FOR THE ACADEMIC YEAR: 2017-2018 (SEMESTER – I)

CLASS: M.Com I year(previous)

COURSE/PAPER: Managerial economics

UNIT: III- Production Analysis **NO. OF HOURS ALLOTTED:10**

TOPICS TO COVERED	NO.OF HOURS
Meaning of production function, cobb-Douglas production function, Production Function with one variable input, Production Function with two variable inputs, problems	5
Law of diminishing marginal returns, optimal employment to a factor of production, problems	2
Production iso-quant, production iso-cost, optimal employment of two inputs, expansion path, problems solving	2
Returns to scale and economies of scope, problems solving	1

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LESSON PLAN FOR THE ACADEMIC YEAR: 2020-2021 (SEMESTER - I)

CLASS: M.Com I year(previous)

COURSE/PAPER: Managerial economics

UNIT: IV- Cost Analysis **NO. OF HOURS ALLOTTED:10**

TOPICS TO COVERED	NO.OF HOURS
Concepts of cost, short run cost functions finding minimum average variable cost through equations, problems	5
Long run cost function, problems	2
Linear and Non-linear , Break – Even analysis, profit contribution analysis, problems	3

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LESSON PLAN FOR THE ACADEMIC YEAR:2017-2018 (SEMESTER- II)

CLASS: M.Com I year(previous)

COURSE/PAPER: Managerial economics

UNIT: V – Market structures **NO. OF HOURS ALLOTTED: 5**

TOPICS TO COVERED	NO.OF HOURS
Perfect and imperfect market condition, problem solving	1
Perfect competition, characteristics, Equilibrium price, profit maximization(in short run and long run),shut down decision, problem solving	1
Monopoly, characteristics, profit maximization (in short run and long run), Allocative inefficiency, Income transfer and Rent seeking,problem solving	1
Monopolistic competition, characteristics, profit maximization, price and output determination in the short run and long run, problems solving	1
Oligopoly , characteristic, price rigidity, kinked demand model(including problems)	1

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LESSON PLAN FOR THE ACADEMIC YEAR:2017-2018 (SEMESTER- II)

CLASS: M.Com I year(previous)

COURSE/PAPER: Business environment and Policy

UNIT: I- Business Environment **NO. OF HOURS ALLOTTED:15**

TOPICS TO COVERED	NO.OF HOURS
Introduction, meaning and definition of business environment, nature and characteristics of business environment, Importance, Dimensions of business environment, scope of business environment	3
Composition of business environment –Internal factors influencing business environment and external factors influencing business environment, micro environment , macro environment, environment scanning	3
Policy environment : Industrial policy- objectives, importance, IPR 1956, New industrial policy 1991,	3
Fiscal policy- objectives, tools and techniques of fiscal policy, evaluation of fiscal policy, short comings / draw backs of fiscal policy, suggestions for reforms in fiscal policy of India, critical analysis of recent fiscal policyof government of India	3
Monetary policy, Features, methods , recent changes in RBI monetary policy Evaluation, tools of monetary policy, limitations of monetary policy,monetary policy in India, monetary policy operations	3

Name of the Teacher: T.VIJAYA Head, Department of Commerce

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LESSON PLAN FOR THE ACADEMIC YEAR: 2020-2021 (SEMESTER- I I)

CLASS: M.Com I year(previous)

COURSE/PAPER: Business environment and Policy

UNIT: II-New Economic Policy **NO. OF HOURS ALLOTTED:15**

TOPICS TO COVERED	NO.OF HOURS
Economic reforms, origin of new economic policy -1991,major steps in new economic policy, economic reforms of new economic policy-1991, importance of new economic policy-1991	5
Liberalization- Nature of liberalization, Factors favoring liberalization in India, Impact of Liberalization in India	5
Globalization – Nature, Essentials ,stages of globalization, factors facilitating and impeding globalization in India, Consequences of Globalization for India, Impact of FMCG industry	5

Name of the Teacher: T.VIJAYA Head, Department of Commerce

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LESSON PLAN FOR THE ACADEMIC YEAR:2020-2021 (SEMESTER- II)

CLASS: M.Com I year(previous)

COURSE/PAPER: Business environment and Policy

UNIT: III- Public Sector **NO. OF HOURS ALLOTTED:10**

TOPICS TO COVERED	NO.OF HOURS
Characteristics of public sector, objectives of public enterprises/ public sector, role of of public enterprises/ public sector in Indian economy, reforms in public sector, organization of public sector enterprises, defects/limitations of public sector enterprises	2
Privatization concepts – history and privatization, Reasons for privatization nature of privatization, objectives of privatization, forms of privatization, advantages and disadvantages of privatization, Impact of privatization SINS and pitfalls of privatization	2
Regulatory framework- Insurance sector, Mission statement of the authority, duties, powers and functions of IRDAI, Role of the IRDA IN India,	2
Power sector – Power of central commission, functions of state and central commission	2
Telecom sector- establishment and incorporation of authority, functions of authority, power of authority to issue directions, authority to settle disputes, procedure and powers of authority, grants bycentral government, fund, power of central government to issue directions.	2

Name of the Teacher: T.VIJAYA Head, Department of Commerce

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LESSON PLAN FOR THE ACADEMIC YEAR:2020-2021 (SEMESTER- II)

CLASS: M.Com I year (previous)

COURSE/PAPER: Business Environment and Policy

UNIT: IV- Foreign Direct Investment **NO. OF HOURS ALLOTTED:5**

TOPICS TO COVERED	NO.OF HOURS
Introduction to FDI, Determinants of FDI, Types of FDI, FDI policy in India, FDI policy in India-advantages and disadvantages, advantages and disadvantages for host country, advantages and disadvantages for home country	1
Trends in FDI- Factors Affecting the trends in FDI flows, directional trends, Sectoral trends, problems of FDI, Consequences of FDI, FDI in India.	1
FEMA 147, Scope of FEMA, objectives of FEMA, Provisions of FEMA, FERA vs FEMA.	1
Multinational Corporations(MNCs)- characteristics, organisational structures of MNCs, Entry strategies of MNCs, Role of MNCs, Growth of MNCs, Advantages and disadvantages of MNCs, advantages of MNCs of host country and Home country, problems and consequences , applicability to particular business, MNCs in India, MNCs and India Economy	1
Mergers and Acquisitions- strategy of mergers and acquisitions, types of mergers, motives of mergers and acquisitions, transaction characteristics, types of acquisitions, the merger process, payment mechanisms in mergers, advantages and disadvantages of mergers and acquisitions , difference between merger and acquisitions	1

Name of the Teacher: T.VIJAYA Head, Department of Commerce

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LESSON PLAN FOR THE ACADEMIC YEAR:2020-2021 (SEMESTER- II)

CLASS: M.Com I year(previous)

COURSE/PAPER: Business Environment and policy

UNIT: V- World Trade Organisation **NO. OF HOURS ALLOTTED:5**

TOPICS TO COVERED	NO.OF HOURS
WTO- Principlesof trading system,objectives/functions of WTO, Rules of WTO, Trade Agreement on policy review, organization of WTO, RegionalGroups in WTO, Advantages of WTO, Dispute settlement	2
WTO Agreements- agreements on agriculture(AOA), Multi Fibre Agreement(MFA) – history of approving, objectives of MFA, Effects after removing MFA, Trade related Intellectual property Rights (TRIPS), Trade Related Investment measures(TRIMS) General Agreement on trade in services(GATS)	1
Barriers to Trade- Trade barriers (TARRIF), Types of tarrifs, Reasons for Trade Barriers, non- tariff Barriers- price influencing Non-Tariff Barriers (NTBs), Quantity Influencing non- tariff Barriers	1
Trade policy changes consequent to WTO, Trade policy review, Recent EXIM Policy (2015-2020), consequences of wto for India	1

Name of the Teacher: T.VIJAYA Head, Department of Commerce

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UNIT	Topics Covered	Number of Lectures	Methodology / Instructional techniques
I	**INTRODUCTION TO PHP**	**8L**	
	19 Common uses of PHP 20 Characteristics of PHP 21 PHP Environment 1. PHP Installation on Window XP/2007 2. Apache Configuration 3. PHP.INI file configuration 22 PHP Syntax Overview 1. Commenting PHP Code 2. PHP is Case sensitive 3. Variable Types 4. Operators 5. Datatypes 6. Expression Handling 7. Capturing form data 8. Generating File upload form 9. Redirecting form	**3 Theory**	Lecture, PowerPoint presentation, hand outs
	Lab work 23 Example to print text to the output using PHP 24 Example to Add comments in PHP 25 Example to Test global scope and to Test local scope 26 Example to Use the global keyword to access a global variable from within a function 27 Display strings with the echo command 28 Display strings and variables with the echo command 29 Display strings and variables with the print command 30 Example to find length of a string with strlen() 31 Example to Count the number of words in a string with str_word_count() 32 Example to Reverse a string with strrev() 33 Example to search for a specific text within a string with strpos() 34 Example to Replace text within a string with str_replace()	**5 Labs**	PowerPoint, Practical Lab work

UNIT	Topics Covered	Number of Lectures	Methodology/ Instructional techniques
II	**CONDITIONAL STATEMENTS**	**7L**	
	15. Decisions a. IF /else and Nested If/else Statement b. Switch /case Statement 16. Loops a. For loop b. Do/while loops c. While loops d. Looping with Html-Strings 17. Functions 18.Arrays 19.Library Functions	**2 Theory**	Lecture, PowerPoint presentation, Handouts
	Labwork 1. PHP Operators using Arithmetic 2. Assignment operators with PHP 3. Examples using if/else 4. Examples using nested if/else 5. Examples using switch/ case 6. Examples using for loop 7. Examples using do/while 8. Examples using while 9. Creating function with one argument 10.Creating function with two argument 11.Loop through indexed array 12.Examples with function Sort() 13.Examples with function rSort() 14.Examples with function aSort() 15.Examples with function k Sort() 16.PHP with multi-dimensional arrays 17.PHP with Date and Time function 18.PHP using include files	**5Labs**	PowerPoint, Practical Lab work

UNIT	Topics Covered	Number of Lectures	Methodology/ Instructional techniques
III	WORKING WITH FILE AND DIRECTORIES	**5L**	
	37. The include() function 38. Importance of POST and GET method 39. require() function 40. Php- Files & I/O 41. Opening and closing files 42. Reading file 43. Writing file 44. Working with directory 45. File uploading 46. File downloading 47. PHP Cookies 48. Create, Modify, Delete and Check Cookies 49. PHP Sessions 50. Start Session 51. Get Session 52. Modify session 53. Destroy session 54. Generating images 55. Creating images 56. Manipulating images	**2 Theory**	Lecture, PowerPoint presentation, Handouts
	Lab work 1. Example with fopen(), 2. Example fread() 3. Example with fclose() 4. Example with fgets() 5. Example with feof() 6. Example with fgectc() 7. Example with readfile() 8. Example with session_start() 9. Example with session_destroy() 10. Example with session_unset() 11. Example with setcookie()	**3Labs**	PowerPoint, Practical Lab work

UNIT	Topics Covered	Number of Lectures	Methodology/ Instructional techniques
IV	**DATABASE CONNECTIVITY WITH MYSQL**	**10L**	
	1. Introduction to MySQL 2. Facts about MySQL database 3. MySQL Installation 4. Importance of Xampp Server/ Wampp Server 5. Installation of Xampp server 6. Setting of Phpmyadmin 7. Connecting to MySQL 8. Creating MySQL database using PHP 9. Deleting MySQL database using PHP 10. Inserting Data to MySQL using PHP 11. Retrieving Data from MySQL using PHP 12. Updating Data to MySQL database using PHP 13. Using PHP to Backup MySQL database	**3 Theory**	Lecture, PowerPoint presentation, Handouts
	Lab work 15. Php program to open a connection 16. Php program to close a connection 17. Php program to select database 18. Php program to insert data into table 19. Php program to delete data from database 20. Php program to update data into database 21. Php program to retrieve data from database 22. Php program to create and populate a table 23. Php program to write images and store in database 24. Php program to retrieve images from database 25. Php program to retrieve data from database with HTML forms 26. Create a Login form and validate the form with database connectivity 27. Upload the images/pdf files to database 28. Php program to destroy table 29. Php program to destroy database	**7Labs**	PowerPoint, Practical Lab work

Name of the Teacher: G DEVENDER Head, Department of Commerce

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UNIT	Topics Covered	Number of Lectures	Methodology/ Instructional techniques
V	**JQUERY**	**8L**	
	31. Introduction to JQuery and its importances 32. Form validation with JQuery 33. Framework of JQuery 34. JQuery Scripting 35. JQuery Events 36. JQuery Selectors 37. Introduction to CakePHP 38. MVC pattern of CakePHP 39. How MVC Works 40. Configuration of CakePHP 41. Understanding MVC patterns 42. Setting of cakephp with apache server	**3 Theory**	Lecture, PowerPoint presentation, Handouts
	Labwork 1. Example using jQuery hide/show 2. Example using jQuery fade 3. Example using jQuery slide 4. Example using jQuery Animate 5. Example using jQuery Get and Set 6. Example using jQuery filtering 7. Example using jQuery add and remove 8. Example using jQuery filters 9. Example using jQuery selectors 10. Example using jQuery events 11. Example using jQuery get/post 12. Example using jQuery Load	**5Labs**	PowerPoint, Practical Lab work

	Topics Covered	Number of Lectures	Methodology/ Instructional techniques
	ENTITY RELATIONSHIP AND NORMALISATION	**8L**	

UNIT	Topics Covered	Number of Lectures	Methodology/ Instructional techniques
I	**BASIC CONCEPTS**	**8L**	
II	1. DBMS overview a. Advantages of DBMS & Disadvantages 2. Introduction to RDBMS a. Differentiate b/w DBMS Vs RDBMS b. Levels of RDBMS c. Network, Hierarchical and Relational Model 3. Levels of abstraction a. Data Independence 4. Data Base administrators a. Functions of DBA b. Role of DBA 5. ER Models a. Data Models b. Relational Model 6. Keys a. Super keys b. Candidate keys i. Primary keys and foreign key for the Relations 7. Constraints a. Key Constraints b. Integrity Constraints c. Referential Integrity	**8 Theory**	Lecture, PowerPoint presentation, Handouts Maintain Lab Record
	Student Activity(ER Models) 35 A college contains many departments 36 Each department can offer any number of courses 37 Many instructors can work in a department 38 An instructor can work only in one department 39 For each department there is a Head 40 An instructor can be head of only one department 41 Each instructor can take any number of courses 42 A course can be taken by only one instructor 43 A student can enroll for any number of courses 44 Each course can have any number of students		
	1. Overview on E.F. Codd's Rules 2. Meaning and scope of Entity Relationship models a. Attributes and its symbol b. Entity and its symbol c. Relation and its symbol d. Features of ER e. Advantages of ER 3. Define Normalization 4. Differentiate b/w Normalization Vs Denormalization 5. Types of Normalization a. First Normal Form	**8 Theory**	Lecture, PowerPoint presentation, Handouts

	b. Second Normal Form c. Third Normal Form d. Boycodd Normal Form e. Fourth Normal Forms f. Fifth Normal Forms 6. File organization a. Sequential file organization b. Hashed file organization c. Indexed file organization i. Types of Indexes		
	Student Activity (sample) 1. Assume a video library maintains a database of movies rented out. Without any normalization, all information is stored in one table 2. Apply 1NF, 2NF rules to the video library 3. Identify Composite Key , foreign Key 4. Find the transitive dependencies 5. Apply 3NF, Bcnf, 4NF, 5NF rules to the video library		Maintain Lab Record

UNIT	Topics Covered	Number of Lectures	Methodology/ Instructional techniques
III	STRUCTURES QUERY LANGUAGE (SQL)	**22L**	
	57. Define SQL and its uses 58. SQL syntax 59. SQL Commands 1. DDL 1. CREATE command and explanation with syntax and example 2. ALTER command and explanation with syntax and example 3. DROP command and explanation with syntax and example 2. DML 1. INSERT command and explanation with syntax and example 2. SELECT command and explanation with syntax and example 3. UPDATE command and explanation with syntax and example 4. DELETE command and explanation with syntax and example 3. DCL 1. GRANT command and explanation with syntax and example 2. REVOKE command and explanation with syntax and example 4. TCL 1. COMMIT command and explanation with syntax and example 2. ROLLBACK command and explanation with syntax and example 60. SQL Queries 1. Nested Queries 2. Define Joins 61. Types of Joins 1. Union 2. Intersect 3. Except 62. Views and Sequences 63. Indexes and Synonyms	**8 Theory**	Lecture, PowerPoint presentation, Handouts
	Lab work (Sample) using Oracle 12. Create Employee table	**14Labs**	PowerPoint,

	13. Create student table 14. Create Patient Table 15. Alter the Employee table by adding two columns 16. Alter the Employee table by increasing size of two columns 17. Destroy the patient table 18. Insert 5 records in Employee table 19. Insert 10 records in student table 20. Insert 8 records in patient table 21. Update the employee salary table based on the condition specified 22. Update the student marks list 23. Erase the data in the patient table 24. Display the student table 25. Display employee table 26. Display patient details based on the criteria 27. Combine more than one table using joins and display the results 28. Create the user 29. Alter the user password 30. Drop the user 31. Give the privileges to user 32. Take back the privileges of user		Practical Lab work

UNIT	Topics Covered	Number of Lectures	Methodology/ Instructional techniques
IV	TRANSACTIONS AND CONCURRENCY MANAGEMENT	**8L**	
	1. Meaning of Transaction 2. Scope of Concurrent Transactions 3. Locking Protocol a. Types of Locks i. Two Phase Locking (2PL) ii. Deadlock and its Prevention iii. Optimistic Concurrency Control. 4. Database Recovery meaning a. Database Recovery and Security b. Kinds of failures c. Failure controlling methods 5. Database errors a. Backup & Recovery Techniques b. Security & Integrity c. Database Security d. Authorization.	**8 Theory**	Lecture, PowerPoint presentation, Handouts

UNIT	Topics Covered	Number of Lectures	Methodology/ Instructional techniques
V	**MySQL**	**21 L**	
	1. About MySQL and Concepts 2. Client/Server Concepts 3. Features of MySql and Oracle 4. Database and Database Objects 5. Installation and settings of MySQL a. Configuration b. monitoring 6. Grouping and Aggregate Functions 7. Joining Tables a. Queries- b. SubQueries 8. Tools for Import/Export 9. MySQL a. Data types of MySQL b. Syntax c. String Functions d. Comparison Functions	**8 Theory**	Lecture, PowerPoint presentation, Handouts
	Lab work (Sample) using MySQL 1. Create Employee table 2. Create student table 3. Create Patient Table 4. Alter the Employee table by adding two columns 5. Alter the Employee table by increasing size of two columns 6. Destroy the patient table 7. Insert 5 records in Employee table 8. Insert 10 records in student table 9. Insert 8 records in patient table 10. Update the employee salary table based on the condition specified 11. Update the student marks list 12. Erase the data in the patient table 13. Display the student table 14. Display employee table 15. Display patient details based on the criteria 16. Combine more than one table using joins and display the results 17. Create the user 18. Alter the user password 19. Drop the user 20. Give the privileges to user 21. Take back the privileges of user	**13Labs**	PowerPoint, Practical Lab work

UNIT	Topics Covered	Number of Lectures	Methodology / Instructional techniques
I	**INTRODUCTION**	**8L**	
	23 Introduction to browsers 24 Need of internet and its importance 25 About Web pages and websites 26 About HTML and its pre-defined tags 27 Physical tags 28 Logical Tags 29 Formatting Tags 30 Heading Tags 31 Image Tags 32 Table Tags 33 Frame Tags 34 List and its types 1. Ordered List 2. Unordered List 3. Definition List 35 Paragraph Tags 36 Anchor Tags 37 Form tags 1. Input text 2. Password 3. Radio 4. Check 5. Select	**3 Theory**	Lecture, PowerPoint presentation, hand outs

	Lab work 45 Html Program using Heading Tags 46 Html Program using Paragraph Tags 47 Html program using Ordered 48 Html program using unordered list 49 Html program using Anchor Tags 50 Html program using Table tags 51 Html program using image tags 52 Html program using frame tags 53 Html program using form tags 54 Html program using font tags 55 Html program using form password 56 Html program using select option 57 Html program using radio button 58 Html program using submit button 59 Html program using check box 60 Html program using physical tags 61 Html program using logical tags 62 Html program using pre tag 63 Html program using text color 64 Html program using definition list	**5 Labs**	PowerPoint, Practical Lab work

UNIT	Topics Covered	Number of Lectures	Methodology/ Instructional techniques
II	**AN OVER VIEW OF DYNAMIC WEB PAGES**	**7L**	
	20. About DHTML 21. Differentiate b/w HTML and DHTML 22. Advantages and disadvantages of HMTL 23. Benefits of DHTML 24. Changing Text and Attributes 25. About Div and Span tags 26. About Layer Tags 27. About embed Tags 28. Text effects 29. Filters 30. Transaction filters 31. Meaning of CSS and need of CSS 32. Role of CSS 33. Types of CSS a. Internal Styles b. Inline Styles c. External styles	**2 Theory**	Lecture, PowerPoint presentation, Handouts
	Labwork 1. Html Program using Text Attributes 2. Html Program to change the text color 3. Html program to apply background color 4. Html program using <DIV> tag 5. Html program using <SPAN> tag 6. Html program using fliph tag 7. Html program using fliphV 8. Html program using chroma filter 9. Html program using wave filter 10. Html program using gray filter 11. Html program using lnline style 12. Html program using Internal style 13. Html program using External style	**5Labs**	PowerPoint, Practical Lab work

UNIT	Topics Covered	Number of Lectures	Methodology/ Instructional techniques
III	JAVA SCRIPT AND EVENT HANDLERS	**6L**	
	64. Introduction to Scripting languages 65. Need of JavaScript Language 66. Differentiate b/w Client Scripting Vs Server Scripting 67. Data types of JavaScript 68. Operators and types of operators 69. Functions of Scripting 70. Event Handling	**2 Theory**	Lecture, PowerPoint presentation, Handouts
	Lab work 33. Html program using OnClick() function 34. Html program using OnDrag() function 35. Html program using OnFocus() function 36. Html program using OnKeyPress() function 37. Html program using OnKeyUp() function 38. Html program using OnKeyDown() function 39. Html program using OnMouseOver() function 40. Html program using OnMouseOut() function' 41. Html program using OnSubmit() function 42. Html program using OnMove() function	**4Labs**	PowerPoint, Practical Lab work

UNIT	Topics Covered	Number of Lectures	Methodology/ Instructional techniques
IV	**Adobe Photoshop Cs6**	**10L**	
	14. Introduction to Photoshop 15. Workspace of Photoshop 16. Importance of Tools 17. Palettes 18. Tools in Quick mode 19. Tools in Expert mode a. View b. Select c. Enhance d. Draw e. Modify 20. Tools in view group of the expert mode 21. Tools in select group of the expert mode 22. Tools in enhance group of the expert mode 23. Tools in draw group of the expert mode 24. Tools in the modify group of the expert mode 25. Edit Tools preferences 26. Shortcut keys	**3 Theory**	Lecture, PowerPoint presentation, Handouts
	Lab work 30. Select an area of the image with Move Tool, Rectangular Marquee Tool, Elliptical Marquee Tool, Lasso Tool, Magnetic Lasso tool , Quick Selection Tool 31. Remove the spots from the photos with the help of Eye tool, Sport Healing Tool, Smart Brush Tool, Clone Stamp tool, Blur Tool, Sharpen Tool, Smudge tool, Sponge Tool, Dodge tool, Burn Tool 32. Give the strokes to the image with various color using Brush Tool, Color replacement tool, eraser tool, background eraser tool , magic eraser tool, paint bucket tool, gradient tool 33. Type the text and edit the text on images and display either vertical, horizontal, text on shape, text on custom path, vertical type mask, horizontal type mask 34. Modify the image using crop tool, cookie cutter tool, recompose tool, content-aware move tool	**7Labs**	PowerPoint, Practical Lab work

UNIT	Topics Covered	Number of Lectures	Methodology/ Instructional techniques
	Adobe Flash Cs5	**8L**	
V	43. Introduction to Adobe Flash 44. Importance of Workarea 45. Importance of Timeline 46. Tools of the Flash 47. Properties of Flash document area 48. Adding object on workarea 49. Timeline settings 50. Drawing and modifying Text object 51. Drawing and modifying the object(shapes,images) 52. Importance of Frames on Timeline 53. Animating an object, shapes, images 54. Adding text effect, object effects, filters to images/text 55. Adding background sounds to an object 56. Importance of Tweening 1. Movement Tweening 2. Shape Tweening 3. Fading 57. Creating Interactive GUI 1. Creating Symbols 2. Creating Buttons 58. Saving & Publishing on to the web	**3 Theory**	Lecture, PowerPoint presentation, Handouts

	Labwork 13. Build an animation in Flash Professional to play and stop an audio 14. Build an animation in Flash Professional to play and stop an movie 15. Build an animation in Flash Professional to play and stop an audio using action button 16. Build an animation in Flash Professional to play and stop an movie using action button 17. Build an animation in Flash Professional to rotate an object clockwise 18. Build an animation in Flash Professional to rotate an object anti-clockwise 19. Build an animation in Flash Professional to fade an object 20. Build an animation in Flash Professional to blink the text/image 21. Build an animation in Flash Professional to appear/disappear text or image 22. Build an animation in Flash Professional to Zoom-In or Zoom out of text or image 23. Build an animation in Flash Professional to scrawl an object left/right/both 24. Build an interactive GUI in Flash Professional 25. Build an animated storyboard in Flash Professional	**5Labs**	PowerPoint, Practical Lab work

Name of the Teacher: G DEVENDER

Head, Department of Commerce

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UNIT	Topics Covered	Number of Lectures	Methodology/ Instructional techniques
I	**INTRODUCTION**	**12L**	
	38 Introduction to computers 39 Generations of computers 40 Types of computers 41 Input & Output Devices 42 Control unit 43 ALU, RAM,ROM,EPROM,PROM 44 Types of Memory	**6 Theory**	Lecture, PowerPoint presentation, hand outs
	65 What are the H/W resources that we will need in computer 66 How CPU Design 67 Identification of hardware 68 Job of each components 69 Checking of RAM Slot, cleaning and identification of working of RAM 70 USB slots, LAN Slots, Sound and Graphics Slots	**6 Labs**	PowerPoint, Practical Lab work
	Student Activity 9. What is the job of each component? 10. How does this component work together with others to make the computer work 11. Plug-ins of input and output devices		Maintain record work

UNIT	Topics Covered	Number of Lectures	Methodology/ Instructional techniques
II	**OPERATING SYSTEM (OS)**	**12L**	
	34.Types of Operating System Windows XP, Windows 7, Linux, Ubuntu 35.Booting Process 36.Control panel 37.Windows Properties 38.Customizing windows 39.Windows Accessories 40.Types of virus and protection from virus 41.Hackers 42. Dos Commands 1. Internal Commands 2. External Commands	**6 Theory**	Lecture, PowerPoint presentation, Handouts
	19. BIOS Setting 20. Internal Commands (COPYCON, TYPE, DIR, CLS, REN, PATH,DEL, MD,CD, RD,DATE,TIME,) 21. External Commands(EDIT, XCOPY,TREE, FORMAT, DISKCOPY,CHKDSK,DELTREE,DOSKEY,FIND,SORT, BACKUP,RESTORE)	**6 Labs**	PowerPoint, Practical Lab work
	Student Activity 1. BIOS setting 2. Setting Boot Order 3. Installation of OS using Bootable CD 4. Installation of Os using Bootable Pen drive/ External Drive 5. Dos Commands		Maintain record work

UNIT	Topics Covered	Number of Lectures	Methodology/ Instructional techniques
III	**WORD PROCESSING**	**14L**	
	71. Creating and opening Word Document 72. Saving Documents 73. Importance of Toolbar 74. Functions of Toolbar 75. Shortcut keys of Ms-Word 76. Mail merge 77. Formatting the pages 78. Header and footer 79. Find and Replace 80. Paragraph setting 81. Various fonts and Sizes 82. Printing and Page settings	**6 Theory**	Lecture, PowerPoint presentation, Handouts
	43. Important keys we use when typing Delete, Shift, Space Bar, Enter/Return, etc.) Have them find them on their computers. 44. Functions Keys 45. Have students practice their typing skills, and use of the Home Row keys, edit a document with punctuation, spacing, and capitalization errors. 46. Walk students through opening Pages 47. Walk through saving and naming documents (File-> Save As-> type name: first name, last initial, grade-> save on desktop) 48. Show students where the Tool Bar is located in Pages. This is where you change your font (Explain what font is (what your letters look like/color/size/etc.) 49. Show students how to use the Shift key (Hold either key down and press the letter you want uppercase, let go of both keys)	**8 Labs**	PowerPoint, Practical Lab work
	Student Activity Improving typing skills and utilize important keys. Create new word documents, Navigate the Pages tool bar to format text. Pages, Blank Document, Opening Saved Documents, Text, Tool Bar, Cap lock, Delete, Enter/Return, Spacebar, Font, Shift, Menu Bar, Tool Bar, Mail- Merge		Maintain record work

UNIT	Topics Covered	Number of Lectures	Methodology/ Instructional techniques
IV	**SPREAD SHEET**	**14L**	
	27. Introduction to Ms-Excel 28. Creating new Worksheet, Saving , opening, closing 29. Importance of Excel Toolbar 30. Importance of Cells, Formulae bar, 31. Sort, organize, interpret, display information 32. Functions of Excel 33. Print Setting 34. Importance of Grid lines, Print preview, Page layout 35. Cell Alignment, placing borders, adjusting rows and columns 36. Graphs and types of Charts 37. Sorting and filtering	**6 Theory**	Lecture, PowerPoint presentation, Handouts
	35. Excel formulas (Math Functions, Statistical Functions, Text Functions, Date Functions, Lookup functions, logical functions) 36. Sorting of Data, Creating Sequence of numbers 37. Import of excel to access 38. Cell alignment, Drag and drop of data, Merging of data, 39. Short cut keys	**8 Labs**	PowerPoint, Practical Lab work
	Student Activity 5. Request that students perform actions such as cell alignment, formatting cells, shading cells, placing borders around cells etc. individually. 6. Request that students exhibit knowledge of renaming worksheets, deleting worksheets, adjusting row heights and column widths etc 7. Creating bar, pie charts 8. Average , sum of daily sales, payrolls 9. Grade sheet Activity 10. Mean, Median, Mode 11. Stock market activity 12. Execute Mathematical, Text , Date and Logical Functions		Maintain record work

UNIT	Topics Covered	Number of Lectures	Methodology/ Instructional techniques
V	**POWER POINT PRESENTATION**	**12L**	
	59. Introduction to Ms-PowerPoint 60. Creating new Slides, Saving , opening, closing, Editing Slides 61. Importance of PowerPoint Toolbar 62. Slide Transition 63. Animation 64. Themes & Templates 65. Creating of Master Slides 66. Header and Footer 67. Print Settings 68. Inserting Audio and Videos 69. Slide sorter view and Slide view 70. Outline Tab and left hand pane 71. Switching levels in outline tab and outline control tools	**6 Theory**	Lecture, PowerPoint presentation, Handouts
	26. Once the students have prepared their presentations, discuss how to include accessibility features, such as adding alt text to images, so that the PPT is accessible to everyone 27. The content (text) of each slide before adding pictures, animations, sounds, and other features. 28. Changing of Theme of the slide and multiple slides 29. Modifying the character formats and paragraph levels 30. Creating presentations with bullet list 31. Hiding slides and use Action buttons	**6 Labs**	PowerPoint, Practical Lab work
	Student Activity 11. Creating Slides on Favorite Pet 12. Creating Slides on School day 13. Creating slides on Book Report 14. Inserting Charts , Audio and Videos 15. Creating slides with transition effects 16. Creating slides with animation 17. Creating slides with Master slides 18. Creating slides with themes		Maintain record work

Name of the Teacher: G DEVENDER

Head, Department of Commerce

Signature:

Signature:

UNIT	Topics Covered	Number of Lectures	Methodology/ Instructional techniques
I	**INTRODUCTION**	**8L**	
	45 Introduction to E-Commerce 46 Four Pillars of e-Commerce 47 Advantages & Limitations of e-commerce, 48 E-Business Traditional & Contemporary Model 49 Impact of E-Commerce on Business Models 50 Classification of E-Commerce: B2B, B2C, C2B, C2C, B2E. 51 Applications of E-Commerce: E-Commerce 52 Meaning of E-Marketing , Scope 53 Advantages and Disadvantages of E-Marketing 54 e-marketing vs traditional marketing 55 E-Advertising 56 E-Banking 57 Mobile Commerce and benefits 1. Challenges and opportunities 2. Desktop experience and mobile experience 3. Mobile payment mechanisms 58 E-Learning meaning and Types 1. Education Training 2. Uploading of videos 59 E-Shopping 60 Social Media Overview 1. Social Networking 2. Blogs 3. Podcasting	**8 Theory**	Lecture, Internet, PowerPoint presentation, hand outs
	Student Activity Case study : M-Commerce Scenarios at e-Banking, e-ticketing Case study : Online Purchasing with mobile apps Case Study : Flipkart, Amzon Kindle, Snapdeal		Case study Maintain record work,

UNIT	Topics Covered	Number of Lectures	Methodology/ Instructional techniques
II	**FRAMEWORK OF E-COMMERCE**	**8L**	
	43. Frame work of e-commerce 44. E-Commerce Application services 45. Issues and Prospects 46. E-Business Architecture model 47. E-commerce security system 48. Measures to ensure security 49. Different types of network security devices 50. Recognizing network security Threats 51. Middleware system 52. Middleware framework 53. Firewall meaning, goals and architecture 54. Firewall types 55. Configuration of firewall 56. Firewall capabilities 57. Methods of network security 58. SMTP, SSL 59. Data Encryption 60. Public key and Private key 61. Digital signature	**8 Theory**	Lecture, PowerPoint presentation, Handouts

UNIT	Topics Covered	Number of Lectures	Methodology/ Instructional techniques
III	**ELECTRONIC DATA INTERCHANGE (EDI)**	**8 L**	
	83. Meaning of EDI, Scope of EDI, Importance of EDI 84. Differentiate b/w Traditional EDI and Computerized EDI 85. Advantages and disadvantages of EDI 86. Implementing EDI 87. EDI Applications in Business 88. Meaning and Scope of FDI 89. Framework of FDI 90. Benefits and Drawbacks of FDI 91. Introduction to Cryptography 92. History of Cryptography 93. Symmetric – Key & Public –Key , Digital Signature 94. Messaging Security Issues 95. Confidentiality Integrity 96. Authentication 97. Encryption Techniques 98. Authorization 99. Cyber Laws 100. Classification of cybercrimes 101. Indian IT Act 102. Software piracy 103. Cybercrime and punishment	**8 Theory**	Lecture, PowerPoint presentation, Handouts
	Student Activity 1. Case Study on latest crimes in India a. Andhra Pradesh Tax Case b. Bank NSP CASE c. How cybercrime operations work- and why they make money d. UTI BANK hooked in a phishing attack		Case study Maintain record work, Illustration

UNIT	Topics Covered	Number of Lectures	Methodology/ Instructional techniques
IV	**ELECTRONIC PAYMENT MECHANISMS**	**8 L**	
	13. Definition , problems with traditional EPS 14. Mercantile Process Model 15. Consumers Perspective and Merchant's Perspective 16. Legal Issues & Digital Currency 17. Modes of Payments 1. Credit Card,Debit Card,Smart Card, E-Money,Electronic Fund Transfer 2. Credit card Payment Process 1. Architecture of EPS 2.Accepting Payment online 3.Security in credit processing 4. Webservices 18. Electronic Fund Transfer and definition , process 19. Advantages and disadvantages EFT 20. Definition of SET and SSL 21. How SET Works 22. Importance of SSL 23. Difference b/w SET vs SSL 24. Introduction to CRM 25. Meaning and Scope 26. Advantages and Disadvantages for ecommerce and retail business 27. CRM Strategies over e-commerce 28. Virtualbanks 29. ,Datamining, 30. Intelligentagents, 31. Biometrics 32. importance of fingerprinting 33. Biometric security	**8 Theory**	Lecture, PowerPoint presentation, Handouts
	Student Activity 1. E-Banking Case Study: 2. Case study on online retailing 3. CRM for e-commerce websites		Case study Maintain record work

Practical	**Topics Covered**	**Number of Lectures**	**Methodology/ Instructional techniques**
	DREAM WEAVER	**15 L**	
	1. Creating of web page using dreamweaver 2. Publishing web files 3. Adding styles to webpages 4. Adding Add-ons and pulgins 5. Adding of Audio, videos, images 6. Text formatting 7. Paragraph formatting 8. Using properties window 9. Defining sites 10. Preview html pages in various browsers 11. Dreamweaver setup and settings 12. Design web pages for mobile phones, tablets, and desktop computers 13. Embed or link to audio or video files from your page, including from YouTube, Vimeo, and SoundCloud 14. Create and use HTML tables 15. Add forms to your web pages for visitors to fill out 16. The Dreamweaver Workspace 17. Adding Images and Graphics 18. Using Dreamweaver Templates 19. Managing and Publishing Your Sites 20. Creating hyperlinks 21. Creating frames 22. Creating menus and navigation bars	**15 Labwork**	Record work

UNIT	Topics Covered	Number of Lectures	Methodology/ Instructional techniques
V	**DIGITAL MARKETING**	**8 L**	
	72. Basics of Advertising 73. Meaning and scope of Digital Marketing 74. Difference b/w Traditional marketing vs Digital Marketing 75. Benefits of Digital Marketing 76. SEO Meaning 77. Need of SEO in Business 78. Importance Paid ranking 79. SEO Strategy 80. Search Engine Importance 81. File Optimization 82. Header optimization 83. SEO Content Writing 84. Image Tag Optimization 85. Meta Tag Optimization 86. Social Book Marking 87. Social Media Links 88. SEO Techniques 1. Black hat Techniques 2. White hat Techniques 3. Gray hat Techniques	**8 Theory**	Lecture, PowerPoint presentation, Handouts
	Student Activity Case Study : SEO Case study : Customer behavior on Social Marketing Case study: B2B digital marketing		Maintain record work

Name of the Teacher: G DEVENDER

Head, Department of Commerce

Signature:

Signature:

NIZAM COLLEGE: DEPARTMENT OF COMMERCE

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021(SEMESTER

VI)

CLASS:**B.COM -III YEAR**

COURSE/PAPER:**COMPANY LAW & AUDITING**

UNIT: I MANAGEMENT OF COMPANIES NO. OF HOURS ALLOTTED: 12

TOPICS TO COVERED	NO.OF HOURS
1. Director: Qualification - Disqualification – 2. Appointment 3. Removal – Duties and Liabilities – 4. Loans – Remuneration	6
1 Managing Director – 2 Definition Company Secretary 3 Appointment – Duties – Liabilities – 4 Company Secretary in Practice 5 Secretarial Audit.	6

Name of the Teacher: K.ASHWINI Head, Department of Commerce Signature :

Signature

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021(SEMESTER **VI)**

CLASS:**B.COM -III YEAR**

COURSE/PAPER:**COMPANY LAW & AUDITING**

UNIT: II **COMPANY MEETINGS AND WINDING UP** NO. OF HOURS ALLOTTED: 13

TOPICS TO COVERED	NO.OF HOURS
1 Meaning Meeting:– Requisites - Notice – Proxy - Agenda – Quorum – Resolutions – Minutes – 2 Kinds – Shareholder Meetings - Statutory Meeting – 3 Annual General Body Meeting – 4 Extraordinary General Body Meeting –	5
1 Board Meetings- 2 Meaning Winding Up - – 3 Modes of Winding Up – 4 Winding Up by tribunal –	4
1 Voluntary Winding Up – 2 Compulsory Winding Up – 3 Consequences of Winding Up – 4 Removal of name of the company from Registrar of Companies	4

Name of the Teacher: K.ASHWINI Head, Department of Commerce Signature :

Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021(SEMESTER **VI)**

CLASS:**B.COM -III YEAR**

COURSE/PAPER:**COMPANY LAW& AUDITING**

UNIT: **III INTRODUCTION TO AUDITING** NO. OF HOURS ALLOTTED: 13

TOPICS TO COVERED	NO.OF HOURS
1. Auditing: Meaning – Definition – a) Evolution – b) Objectives – c) Importance – d) Types of Audit – e) Standards of Auditing.	5
1 Procedure for issue of standards by AASB – 2 Auditors – Qualification and Disqualification – 3 Qualities – 4 Remuneration – 5 Removal – 6 Rights – Duties 7 Civil and Criminal Liabilities of Auditors	5
1 Commencement of Audit – 2 Engagement Letter – 3 Audit Program – 4 Audit Note Book – 5 Audit Working paper – 6 Audit Markings	3

Name of the Teacher: K.ASHWINI Head, Department of Commerce Signature :

Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-18(SEMESTER **VI)**

CLASS:**B.COM -III YEAR**

COURSE/PAPER:**COMPANY LAW & AUDITING**

UNIT: **IV NTERNAL CONTROL, INTERNAL CHECK AND INTERNAL AUDITING**
NO. OF HOURS ALLOTTED: 13

	TOPICS TO COVERED	NO.OF HOURS
1 2 3	Meaning and Objectives of Internal Control – Essential Characteristics of Internal Control- Internal Control in Specific Areas: Sales, Purchases, Fixed Assets, Cash In Hand, Cash At Bank, Wages And Salaries-	4
1 2 3 4	Limitations of Internal Control-Internal Check Meaning and Importance – Internal Audit – Internal Control vs. Internal check -	5
1 2 3 4 5	Internal Check vs. Internal Audit – Internal Control vs. Internal audit – Test Checking – Audit in Depth – Audit Markings	4

Name of the Teacher: K.ASHWINI Head, Department of Commerce Signature :

Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-18(SEMESTER **VI)**

CLASS:**B.COM -III YEAR**

COURSE/PAPER:**COMPANY LAW & AUDITING**

UNIT: **V VOUCHING, VERIFICATION AND VALUATION OF ASSETS**

NO. OF HOURS ALLOTTED: 13

TOPICS TO COVERED	NO.OF HOURS
1 Meaning – Objectives OF VOUCHING 2 Types of Vouchers – 3 Vouching of Trading Transactions – 4 Vouching Cash Transaction –	5
Verification and Valuation of various Assets and Liabilities – Meaning and Definition – Distinction – Audit Committee – Role of Audit Committee – Audit Reports	6
Specimens of audit reports of different companies	2

Name of the Teacher: K.ASHWINI Head, Department of Commerce

:Signature

LESSON PLAN FOR THE ACADEMIC YEAR 2017-18(SEMESTER **VI)**

CLASS:**B.COM -III YEAR**

COURSE/PAPER:**COMPANY LAW**

UNIT: I INCORPORATION OF COMPANIES

NO. OF HOURS ALLOTTED: 13

TOPICS TO COVERED	NO.OF HOURS
1 Company: Meaning and Definition – 2 Characteristics – 3 Classification – 4 Legislation on Companies – 5 Incorporation – 6 Commencement of business	6
1 Promotion – 2 Registration – 3 Memorandum of Association –	3
1 Articles of Association – 2 Certificate of Incorporation – 3 Prospectus – 4 Statement in lieu of Prospectus	4

Name of the Teacher: K.ASHWINI Head, Department of Commerce Signature :

Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-18(SEMESTER **VI)**

CLASS: **B.COM -III YEAR**

COURSE/PAPER: **COMPANY LAW**

UNIT: II MANAGEMENT OF COMPANIES NO. OF HOURS ALLOTTED: 13

TOPICS TO COVERED	NO.OF HOURS
Introduction of Company Law Director: Qualification - Disqualification – Appointment –	5
Removal – Duties and Liabilities – Loans – Remuneration	5
Managing Director	1
Corporate Social Responsibility – Corporate Governance	2

Name of the Teacher: K.ASHWINI Head, Department of Commerce Signature :

Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021(SEMESTER **VI)**

CLASS:**B.COM -III YEAR**

COURSE/PAPER:**COMPANY LAW**

UNIT: **III** COMPANY SECRETARY

NO. OF HOURS ALLOTTED: 10

TOPICS TO COVERED	NO.OF HOURS
1 Company Secretary: Definition – 2 Appointment – 3 Duties – Liabilities	5
1 Company Secretary in Practice – 2 Secretarial Audit	5

Name of the Teacher: K.ASHWINI

Head, Department of Commerce Signature :

Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-18(SEMESTER **VI)**

CLASS:**B.COM -III YEAR**

COURSE/PAPER:**COMPANY LAW**

UNIT: **IV** COMPANY MEETINGS

NO. OF HOURS ALLOTTED: 13

TOPICS TO COVERED	NO.OF HOURS
1 Meeting: Meaning – 2 Requisites - Notice – Proxy - Agenda – Quorum – Resolutions – Minutes – 3 Kinds 4 Shareholder Meetings.	6
1 Statutory Meeting 2 Annual General Body Meeting – 3 Extraordinary General Body Meeting – 4 Board Meetings	5
Brief notes on meetings ,when they will conduct annual meeting Who will conduct Annual meeting	2

Name of the Teacher: K.ASHWINI

Head, Department of Commerce Signature :

Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-18(SEMESTER **VI)**

CLASS:**B.COM -III YEAR**

COURSE/PAPER:**COMPANY LAW**

UNIT: **V -**WINDING UP NO. OF HOURS ALLOTTED: 13

TOPICS TO COVERED	NO.OF HOURS
1 Meaning – Modes of Winding Up – 2 Winding Up by tribunal – 3 Voluntary Winding Up – 4 Compulsory Winding Up	5
1 Consequences of Winding Up – 2 Removal of name of the company from Registrar of Companies	5
1 Revision	3

Name of the Teacher: K.ASHWINI Head, Department of Commerce Signature :

Signature:

NIZAM COLLEGE: DEPARTMENT OF COMMERCE

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021(SEMESTER V)

CLASS: B.COM

COURSE/PAPER: PRINCIPLES OF MARKETING

UNIT: INTRODUCTION NO. OF HOURS ALLOTTED: 10

TOPICS TO COVERED	NO.OF HOURS
Meaning and Definition of Marketing	2
Scope – Evolution of Marketing Concept	2
Production concept - Product concept	2
Marketing Myopia – Selling Concept	2
Marketing Concept - Societal Marketing Concept	2
Marketing Mix - Direct Marketing	2

Name of the Teacher: K MAHENDAR Head, Department of Commerce Signature:

Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-18(SEMESTER V)

CLASS: B.COM

COURSE/PAPER: PRINCIPLES OF MARKETING

UNIT: MARKETING ENVIRONMENT NO. OF HOURS ALLOTTED: 10

TOPICS TO COVERED	NO.OF HOURS
Micro Environment , Company – Suppliers -	2
Marketing Intermediaries – Customers – Competitors - Publics	3
Macro Environment Demographic – Economic –	2
Natural – Technological – Political - Legal -Cultural - Social	3

Name of the Teacher: K MAHENDAR Head, Department of Commerce

Signature:Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-18(SEMESTER V)

CLASS: B.COM

COURSE/PAPER: PRINCIPLES OF MARKETING

UNIT: MARKETING SEGMENTATION NO. OF HOURS ALLOTTED: 8

TOPICS TO COVERED	NO.OF HOURS
Concept of Target Market	2
Market Segmentation	2
Concept- Bases- Benefits	2
Product Positioning- Concepts- Bases	2

Name of the Teacher: K MAHENDAR Head, Department of Commerce Signature:
Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021(SEMESTER V)

CLASS: B.COM

COURSE/PAPER: PRINCIPLES OF MARKETING

UNIT: CONSUMER BEHAVIOUR

NO. OF HOURS ALLOTTED: 13

TOPICS TO COVERED	NO.OF HOURS
Consumer Behavior- Nature	3
Scope – Importance – Factors – Economic	2
Psychological- Cultural- Social and Personal	2
Steps in consumer Decision Process	2
Post Purchase Behavior -	2
Cognitive Dissonance	2

Name of the TeacherK MAHENDAR Head, Department of Commerce Signature:

Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021(SEMESTER V)

CLASS: B.COM

COURSE/PAPER: PRINCIPLES OF MARKETING

UNIT: SERVICES MARKETING NO. OF HOURS ALLOTTED: 14

TOPICS TO COVERED	NO.OF HOURS
Concept- Reasons for Growth of Services	2
Importance of Services in Economy	3
Nature and Scope of Services	2
Classifications of Services- Features of Services	3
Service Marketing Mix	2
Strategies for Service Marketing -Service Quality – Its Determinants	2

Name of the Teacher: K MAHENDAR Head, Department of Commerce Signature:

Signature:

NIZAM COLLEGE: DEPARTMENT OF COMMERCE

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021(SEMESTER

V)

CLASS: B.COM

COURSE/PAPER: RETAIL MARKETING

UNIT: INTRODUCTION NO. OF HOURS ALLOTTED: 12

TOPICS TO COVERED	NO.OF HOURS
Retail Definitions - Retailer	2
Retailing and Marketing	2
Functions of a Retailer	2
Place of retailing in a distribution channel	2
Classification of Retailers - Types of Retailers	2
Service Retailing-Retail Mix	2

Name of the Teacher: K MAHENDAR Head, Department of Commerce Signature:

Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-18(SEMESTER V)

CLASS: B.COM

COURSE/PAPER: RETAIL MARKETING

UNIT: RETAIL PRODUCT AND RETAIL PRICE NO. OF HOURS ALLOTTED: 8

TOPICS TO COVERED	NO.OF HOURS
Retail Product - Break Down of the Retail Product	2
Service, Quality, Merchandise, Brand Name, Features and Benefits, Atmospherics	2
Retail Pricing	1
Factors Affecting the Pricing Decisions	2
Types of retail pricing	1

Name of the Teacher: K MAHENDAR Head, Department of Commerce Signature:

Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-18(SEMESTER V)

CLASS: B.COM

COURSE/PAPER: RETAIL MARKETING

UNIT: RETAIL PROMOTION AND RETAIL DISTRIBUTION NO. OF HOURS ALLOTTED: 11

TOPICS TO COVERED	NO.OF HOURS
Retail Promotion	2
Communication - Stages in Communication	2
Advertising - Sales Promotion – Publicity	2
Store Atmosphere - Retail Distribution	2
Channels and Channel Flows (Physical Flow - Manufacturer/Producer - Intermediary/Wholesaler – Retailer - Service Flow – Information - Payments - Promotion Flows)	3

Name of the Teacher: K MAHENDAR Head, Department of Commerce Signature:

Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-18(SEMESTER V)

CLASS: B.COM

COURSE/PAPER: RETAIL MARKETING

UNIT: CONTEMPORARY ISSUES IN RETAILING

NO. OF HOURS ALLOTTED: 12

TOPICS TO COVERED	NO.OF HOURS
Non Store Retailing	2
Electronic Retailing – The Emergence of World Wide Web	1
Advantages of E-Tailing -Franchising	2
Need and Importance - Foreign Direct Investment In India	2
Information Technology in Retailing	2
Rural Retailing	1
Visual Merchandising and Store Design - Mall Management	2

Name of the Teacher K MAHENDAR Head, Department of Commerce Signature:

Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021(SEMESTER V)

CLASS: B.COM

COURSE/PAPER: RETAIL MARKETING

UNIT: INFORMATION TECHNOLOGY IN RETAILING NO. OF HOURS ALLOTTED: 12

TOPICS TO COVERED	NO.OF HOURS
Introduction – MKIS	2
Components of Marketing Information System (Internal Records - Marketing Intelligence - Marketing Research)	2
Application of IT – Areas Where IT Impacts	2
Inventory Control - Point of Sale	2
Sales Analysis - Planning & Forecasting	2
Collaborative Planning	2

Name of the Teacher: K MAHENDAR Head, Department of Commerce Signature:

Signature:

NIZAM COLLEGE: DEPARTMENT OF COMMERCE

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (SEMESTER IV)

CLASS:M.COM(FINAL)

COURSE/PAPER:BUSINESS AND CORPORATE TAXATION

UNIT:ASSESSMENT OF PARTNERSHIP FIRMS NO. OF HOURS ALLOTTED:10

TOPICS TO COVERED	NO.OF HOURS
Meaning of Partnership Firm - Conditions for Assessment as a firm U/S 184 and 185 - Treatment of interest and remuneration paid to partners U/S 40(b)	2
Computation of Total Income - Assessment of Partners of Firm	2
Change in constitution of Firm Succession of one firm by another firm - Assessment of dissolved or discontinued firm	2
Problems	4

Name of the Teacher: Sonakshi Jaiswal
Signature :

Head, Department of Commerce
Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-18 (SEMESTER IV)

CLASS:M.COM(FINAL)

COURSE/PAPER:BUSINESS AND CORPORATE TAXATION

UNIT:ASSESSMENT OF PARTNERSHIP FIRMS NO. OF HOURS ALLOTTED:10

TOPICS TO COVERED	NO.OF HOURS
Partnership Firm Assessed as Association of Persons (AFAOP) -	2
Computation of Total Income - Allocation of PFAOP's - Total Income - Treatment of share of income received by partners of PFAOP	3
Problems	5

Name of the Teacher: Sonakshi Jaiswal
Signature :

Head, Department of Commerce
Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-18 (SEMESTER IV)

CLASS:M.COM(FINAL)

COURSE/PAPER:BUSINESS AND CORPORATE TAXATION

UNIT: ASSESSMENT OF COMPANIES-I: NO. OF HOURS ALLOTTED:10

TOPICS TO COVERED	NO.OF HOURS
Meaning of Company - Types of Companies - Computation Procedure - Taxable income	3
Deductions - Tax Liability - MAT - Carry Forward and set off of losses - Tax on Distributed Profits	3
Tax on income distributed to Unit holders - Tax on income receipt from venture capital companies and funds	4

Name of the Teacher: Sonakshi Jaiswal
Signature :

Head, Department of Commerce
Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (SEMESTER IV)

CLASS:M.COM(FINAL)

COURSE/PAPER:BUSINESS AND CORPORATE TAXATION

UNITASSESSMENT OF COMPANIES – II & OTHER TAXES: NO. OF HOURS ALLOTTED:10

TOPICS TO COVERED	NO.OF HOURS
Companies: Computation of total income of companies - Determination of Tax Liability	2
Problems	3
Other Taxes: Security Transaction Tax - Tonnage Tax	2
Problems	3

Name of the Teacher: Sonakshi Jaiswal
Signature :

Head, Department of Commerce
Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (SEMESTER IV)

CLASS:M.COM(FINAL)

COURSE/PAPER:BUSINESS AND CORPORATE TAXATION

UNIT: ASSESSMENT OF CO-OPERATIVES AND TRUSTS NO. OF HOURS ALLOTTED:10

TOPICS TO COVERED	NO.OF HOURS
Cooperative Societies: Meaning - Deduction u/s 80(p) - Other deductions - Computation of Tax	2
Problems	3
Trusts: Definition – Creation – Registration - Types of Trusts - Tax Exemptions - Accumulation of income - Income not exempted - Assessment of Trust	3
Problems	2

Name of the Teacher: Sonakshi Jaiswal Head, Department of Commerce

Signature : Signature:

NIZAM COLLEGE: DEPARTMENT OF COMMERCE

CLASS:M.com Final

COURSE/PAPER:INTERNATIONAL FINANCIAL MANAGEMENT (IFM)

UNIT: INTRODUCTION NO. OF HOURS ALLOTTED:10

TOPICS TO COVERED	NO.OF HOURS
An Overview of International Financial Management: Meaning – Features of International Finance – Scope of International Finance	1
International Financial Management and Domestic Financial Management – Factors influencing Growth of International Finance	1
International Monetary System	1
Balance of payments Accounting: BoP Accounting Principles – Debit and Credit Entries	2
Balance of Payments Statement -Problems	5

Name of the Teacher:DR.P.KISHAN RAO Head, Department of Commerce Signature :

Signature:

CLASS:M.com Final

COURSE/PAPER:INTERNATIONAL FINANCIAL MANAGEMENT (IFM)

UNIT: FOREIGN EXCHANGE MARKETS & EXCHANGE RATE MECHANISM NO. OF HOURS ALLOTTED:10

TOPICS TO COVERED	NO.OF HOURS
Foreign Exchange Market: Features – Major Participants	1
Spot Market: Features, arbitrage, speculation	1
Forward Market: Features, arbitrage, hedging. Speculation, Swapping	2
Problems	2
Exchange Rate Mechanism: Exchange Rate Quotations – Nominal, Real & Effective Exchange Rates	1
Exchange Rate Determination in Spot Market-Problems	1
Exchange Rate Determination in forward Market -Problems	1
Problems	1

Name of the Teacher:DR.P.KISHAN RAO Head, Department of Commerce Signature :

Signature:

CLASS:M.com Final

COURSE/PAPER:INTERNATIONAL FINANCIAL MANAGEMENT (IFM)

UNIT: FOREIGN EXCHANGE EXPOSURE: NO. OF HOURS ALLOTTED:10

TOPICS TO COVERED	NO.OF HOURS
Meaning & Relevance of Foreign Exchange Exposure	1
Classification of Foreign Exchange Exposure: Transaction Exposure, Operating Exposure & Accounting Exposure	1
Problems	1
Management of Foreign Exchange Exposure: Need – Hedging of Transaction Exposure	1
Hedging of Real Operating Exposure – Management of Accounting Exposure	1
Problems	5

Name of the Teacher:DR.P.KISHAN RAO Head, Department of Commerce Signature :

Signature

CLASS:M.com Final

COURSE/PAPER:INTERNATIONAL FINANCIAL MANAGEMENT (IFM)

UNIT:INTERNATIONAL FINANCIAL MARKETS & INSTRUMENTS: NO. OF HOURS ALLOTTED:10

TOPICS TO COVERED	NO.OF HOURS
International Financial Markets: Features – Factors for Growth	2
Interest Rates – Channels of International Funds Flow.	2
International Financial Instruments: Euro Credits: Revolving Credit, Term Credit	2
Euro Bonds: Straight Bonds, Convertible Bonds, Currency Optional Bonds, FRNs	2
Euro Issues: FCCB, GDR, ADR	2

Name of the Teacher:DR.P.KISHAN RAO Head, Department of Commerce Signature :

Signature:

CLASS:M.com Final

COURSE/PAPER:INTERNATIONAL FINANCIAL MANAGEMENT (IFM)

UNIT:FINANCING OF FOREIGN TRADE NO. OF HOURS ALLOTTED:10

TOPICS TO COVERED	NO.OF HOURS
Foreign Trade Documents: Letters of Credit – Bill of Exchange Marine Insurance Policy – Invoices Certificates – Bill of Lading.	2
– Bill of Exchange Marine Insurance Policy – Invoices Certificates – Bill of Lading.	2
Foreign Trade Financing: Methods of Financing:	2
Bank Credit (Pre-Shipment Credit, Post-Shipment Credit, Medium Term Credit, Credit under Duty Draw Back Scheme),	2
Factoring, Counter Trade – Modes of Payment	2

Name of the Teacher:DR.P.KISHAN RAO Head, Department of Commerce Signature :

Signature:

NIZAM COLLEGE: DEPARTMENT OF COMMERCE

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (SEMESTERIII)

CLASS: B.com 2nd year

COURSE/PAPER: Banking Theory and Practice

UNIT: 1.INTRODUCTION NO. OF HOURS ALLOTTED: 12

TOPICS TO COVERED	NO.OF HOURS
Origin and growth of banking in India- unit vs branch banking	2
Functions of commercial banks- nationalization of commercial banks in India	2
RBI Constitution- organizational structure- management- objectives- functions	3
Emerging trends in commercial banking in India	1
E-Banking- Mobile banking- core banking	2
Bank Assurance- OMBUDSMAN	2

Name of the Teacher: Dr. P Kishan Rao Head, Department of Commerce Signature

UNIT: 2 .BANKER AND CUSTOMER RELATIONSHIP NO. OF HOURS ALLOTTED:14

TOPICS TO COVERED	NO.OF HOURS
Definition of banker and customer- Relationship between banker and customer	2
KYC norms- General and special features of relationship- opening of accounts	2
Special types of customers like Minor, Married women, partnership firms, companies, clubs and other non-trading institutions	4
Descriptions and their special features	1
Duties and responsibilities of paying and collecting banker	1
Circumstances under which a banker can refuse payment of Cheques	2
Consequences of wrongful dishonors	1
Precautions to be taken while advancing loans against securities	1

Name of the Teacher: Dr. P. Kishan Rao Head, Department of Commerce
Signature:Signature:

UNIT: 3. NEGOTIABLE INSTRUMENTS NO. OF HOURS ALLOTTED: 12

TOPICS TO COVERED	NO.OF HOURS
Definition- Types- Features	1
Promissory note- Bills of Exchange	2
Cheque- parties to negotiable instruments- kinds of cheque	2
MICR- Requisitesof cheque- Bouncing of cheque	2
Promissory Note vs Bills of Exchange	1
Rule in clayton's clase- Garnishee Order	1
Loans against equitable mortgage and legal mortgage and distinction between them	2
Latest trends in deposit mobilization	1

Name of the Teacher: Dr. P Kishan Rao Head, Department of Commerce

Signature :

UNIT: 4. TYPES OF LOANS AND ADVANCES NO. OF HOURS ALLOTTED: 10

TOPICS TO COVERED	NO.OF HOURS
Principles of sound lending policies	2
Credit appraisals of various forms of loans and advances	4
Modes of creating charges- Lien, Pledge, Mortgage and Hypothecation	4

Name of the Teacher: Dr. P Kishan Rao Head, Department of Commerce

Signature : Signature:

UNIT: 5. TYPES OF BANKS NO. OF HOURS ALLOTTED: 12

TOPICS TO COVERED	NO.OF HOURS
District co-operative central banks	2
Development banks	3
Regional rural banks	2
National bank for agricultural and rural development (NABARD)	2
SIDBI- Development banks	3

Name of the Teacher: Dr. P Kishan Rao
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Head, Department of Commerce
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CLASS: B.com 2nd year

UNIT: 1. INTRODUCTION NO. OF HOURS ALLOTTED: 10

TOPICS TO COVERED	NO.OF HOURS
Functions of financial system	2
Constituents of financial system	2
An overview of Indian financial system	2
Role and functions of participants in financial market	2
Factors	2

Name of the Teacher: Dr. P Kishan Rao Head, Department of Commerce

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UNIT: 2. FINANCIAL INSTITUTIONS AND ALL INDIA DEVELOPMENT BANKSNO. OF HOURS ALLOTTED:10

TOPICS TO COVERED	NO.OF HOURS
Role of financial institutions in economic development	2
Types of financial institutions	2
All India development banks: IFCI	2
Industrial development bank of India	1
IIBIL	2
IRBI	1

Name of the Teacher: Dr. P Kishan Rao
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UNIT: 3. FINANCIAL INSTITUTIONS & STATE LEVEL DEVELOPMENT BANKS NO. OF HOURS ALLOTTED:12

TOPICS TO COVERED	NO.OF HOURS
State finance corporations- Objectives and scope	2
Management – Financial Resources	2
Functions - operations	2
Performance appraisal and problems	1
SIDBI	1
IDFC	1
SIDCs- functions- resources- operations – financial assistance	3

Name of the Teacher: Dr. P Kishan Rao
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UNIT: 4. MONEY MARKET NO. OF HOURS ALLOTTED:14

TOPICS TO COVERED	NO.OF HOURS
Definition – features - objectives	1
Importance – compositions	1
Call money market: operations- transactions and participants- advantages and drawbacks	3
Commercial bill market: definition- types of bills	2
Operations in bill market and importance of bill market	2
Discount Market- acceptance market- drawbacks	1
Treasury bills – Types of treasury bills- operations and participants	2
Money market instruments- structure of Indian money market	1
Recent development in Indian money market	1

Name of the Teacher: Dr. P Kishan Rao
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UNIT: 5. CAPITAL MARKET NO. OF HOURS ALLOTTED: 14

TOPICS TO COVERED	NO.OF HOURS
Meaning, objectives, importance and functions	2
Structure of Indian capital market	2
New issue market- instruments- security buyer	2
Methods of issue- intermediaries primary market- secondary market	2
Characteristics and functions of stock exchanges	1
Listing of securities	1
Types of speculators	1
Stock exchange in India	1
SEBI- Powers and functions	2

Name of the Teacher: Dr. P Kishan Rao
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CLASS: B.com 1st year

COURSE/PAPER: FINANCIAL ACCOUNTING

UNIT:1. INTRODUCTION AND ACCOUNTING PROCESSNO. OF HOURS ALLOTTED:12

TOPICS TO COVERED	NO.OF HOURS
Meaning- definition- functions- advantages and limitations	2
Users of accounting information- principles of accounting concepts and conventions	3
Branches of accounting	1
Accounting system- types of accounts	2
Accounting cycle: Journal- ledger and trial balance including problems	4

Name of the Teacher: Dr. P Kishan Rao
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UNIT: 2. SUBSIDIARY BOOKS NO. OF HOURS ALLOTTED:12

TOPICS TO COVERED	NO.OF HOURS
Meaning- types	1
Purchases and sales book	2
Purchase returns and sales returns book	2
Bills receivables and bills payable book	2
Single column, two column, three column and petty cash book (including problems)	4
Journal proper	1

Name of the Teacher: Dr. P Kishan Rao
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Head, Department of Commerce
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UNIT: 3. BANK RECONCILIATION STATEMENT NO. OF HOURS ALLOTTED:12

TOPICS TO COVERED	NO.OF HOURS
Meaning- need	1
Reasons for differences between cash book and pass book balances	2
Favorable and overdraft balances	2
Ascertainment of correct cash book balance	2
Preparation of bank reconciliation statement including problems	5

Name of the Teacher: Dr. P Kishan Rao
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UNIT: 4. BILLS OF EXCHANGE NO. OF HOURS ALLOTTED: 12

TOPICS TO COVERED	NO.OF HOURS
Definition- promissory notes and bills of exchange	1
Recording of transactions relating to bills	2
Books of drawer and acceptor	2
Honour and dishonour of bills	3
Renewal of bills	1
Retiring of bills under rebate	1
Accommodation bills (including problems)	2

Name of the Teacher: Dr. P Kishan Rao
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UNIT: 5. FINAL ACCOUNTS NO. OF HOURS ALLOTTED: 12

TOPICS TO COVERED	NO.OF HOURS
Capital and revenue expenditure	1
Capital and revenue receipts	1
Manufacturing account	1
Trading account- profit and loss account	2
Balance sheet	2
Adjustment and closing entries	2
Problems regarding final accounts	3

Name of the Teacher: Dr. P Kishan Rao
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CLASS: B.COM 1ST YEAR

COURSE/PAPER: FINANCIAL ACCOUNTING-II

UNIT:1. DEPRECIATION, PROVISIONS& RESERVES NO. OF HOURS ALLOTTED: 15

TOPICS TO COVERED	NO.OF HOURS
Depreciation: meaning–causes	1
Differences between depreciation, Amortization and Depletion	1
Objectives of providing for depreciation	1
Factors affecting depreciation- accounting	2
Methods of depreciation: straight line method- diminishing balance method	3
Depreciation fund method- Annuity method	3
Provisions and Reserves- Reserve fund- Different types of Provisions and Reserves (including problems)	4

Name of the Teacher: Dr. P Kishan Rao Head, Department of Commerce

Signature : Signature:

UNIT:2 Rectification of Errors No OF HOURS ALLOTTED: 12

TOPICS TO COVERED	NO.OF HOURS
Meaning-	1
Types of Errors- methods of rectification of errors	3
Effect of Errors on final accounts- Rectification before and after preparation of final accounts	4
Suspense account (including problems)	4

Name of the Teacher: Dr. P Kishan Rao
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Head, Department of Commerce
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UNIT:3. Joint Ventures NO. OF HOURS ALLOTTED:12

TOPICS TO COVERED	NO.OF HOURS
Features- Difference between joint venture consignment	2
Accounting Procedure- methods of keeping records for joint venture accounts	3
Methods of recording in co-ventures books- Separate set of books method	3
Joint Bank account- Memorandum joint venture account (including problems)	4

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UNIT: 4.Consignment NO. OF HOURS ALLOTTED:12

TOPICS TO COVERED	NO.OF HOURS
Features- Proforma invoice- account sale- Delcrederecommission	2
Accounting treatment in the books of the consigner and the consignee	3
Valuation of consignment stock	2
Normal loss and Abnormal loss	2
Invoice of goods at a price higher than the cost price(including problems)	3

Name of the Teacher: Dr. P Kishan Rao
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UNIT:5. Accounts from incomplete records NO. OF HOURS ALLOTTED: 09

TOPICS TO COVERED	NO.OF HOURS
Features-differences between single entry and double entry	2
Defects of single entry- Ascertainment of profit	2
Statement of affairs (including problems)	5

Name of the Teacher: Dr. P Kishan Rao
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NIZAM COLLEGE: DEPARTMENT OF COMMERCE

CLASS:M.com PREVIOUS

COURSE/PAPER: HUMAN RESOURCE MANAGEMENT

UNIT: INTRODUCTION NO. OF HOURS ALLOTTED:10

TOPICS TO COVERED	NO.OF HOURS
Human Resources Management (HRM): Concepts – Significance – Objectives – Scope – Functions - Changing role of Human Resource Manager	5
– HRM Policies - Impact of Environment on HRM. Human Resource Development (HRD): Concept - Scope - Objectives- Brief introduction of Techniques of HRD.	5

Name of the Teacher: NAVEENA GRAPE KUMARI Head, Department of Commerce Signature :

Signature:

CLASS:M.com PREVIOUS

COURSE/PAPER: HUMAN RESOURCE MANAGEMENT

UNIT: ACQUISITION OF HUMAN RESOURCE NO. OF HOURS ALLOTTED:10

TOPICS TO COVERED	NO.OF HOURS
Job Design - Approaches - Job Rotation - Job Enlargement - Job Enrichment - Job Bandwidth - Job Analysis: Concepts - Objectives - Components (Job Description and Job Specification) - Methods f Job Analysis	4
Human Resource Planning: Concept - Objectives - Factors affecting HR planning - Process of HR Planning - Problems in HR Planning	3
Recruitment: Objectives - Sources of recruitment – Selection: Concept – Selection - Procedure – Tests and Interview - Placement - Induction - Promotion - Transfer	3

Name of the Teacher: NAVEENA GRAPE KUMARI Head, Department of Commerce Signature :

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CLASS:M.com PREVIOUS

COURSE/PAPER: HUMAN RESOURCE MANAGEMENT

UNIT: DEVELOPING AND MOTIVATING HUMAN RESOURCE NO. OF HOURS ALLOTTED:10

TOPICS TO COVERED	NO.OF HOURS
Training - Assessing training needs - Methods and Evaluation of Training. Development: Techniques of Management Development – Evaluating Effectiveness.	3
Performance Management: Concept - Performance Appraisal - Concept- - Traditional and Modern Methods of Appraisal – Concepts of Potential Appraisal, Assessment Centers and Career Planning and Development	4
Concept of Empowerment – Participative Management: Objectives – Types – Quality Circles – Brief Introduction to forms of Workers Participation in Management in India	3

Name of the Teacher: NAVEENA GRAPE KUMARI Head, Department of Commerce Signature :
Signature:

CLASS:M.com PREVIOUS

COURSE/PAPER: HUMAN RESOURCE MANAGEMENT

UNIT: : MAINTENANCE OF HUMAN RESOURCE: NO. OF HOURS ALLOTTED:10

TOPICS TO COVERED	NO.OF HOURS
Compensation Management: Objectives – Job Evaluation: Concept – Methods - Essentials of Sound Wage Structure – Concepts of Minimum Wage, Living Wage and Fair Wage – Wage Differentials	4
.Employee Relations: Objectives – Discipline: Objectives – Grievance: Causes – Procedure; Trade Unions: Objectives - Role of Trade Union in New economy -.	4
Collective Bargaining: Types – Essential conditions for the success of Collective Bargaining	2

Name of the Teacher: NAVEENA GRAPE KUMARI Head, Department of Commerce Signature :
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CLASS:M.com PREVIOUS

COURSE/PAPER: HUMAN RESOURCE MANAGEMENT

UNIT: HRM IN THE KNOWLEDGE ERA: NO. OF HOURS ALLOTTED:10

TOPICS TO COVERED	NO.OF HOURS
Knowledge Management: Concept - KM Architecture - Knowledge Conversion - Knowledge Management Process..	5
Virtual Organizations: Concept - Features -Types - HR Issues. Learning Organization: Concept – Role of Leader in Learning Organizations	5

Name of the Teacher: NAVEENA GRAPE KUMARI Head, Department of Commerce Signature :

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ECONOMICS

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021(Semester IV)

Class: M.A Final **Section:** Economics

Course/Paper: III ECO 403 (Environmental Economics)

Unit: 2 Theories of Natural Resource Management **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Material Balance and Entropy Law	1
Hostelling's Theory of Exhaustible Resources	1
Dasgupta and Heal	1
Optimal Depletion of Renewable Resources	1
Carrying Capacity of the Environment	1
Definition and Concept of Sustainable Development	1
Week VS. Strong Sustainability Criteria	1
Theories of Sustainable Development	2
Hartwick's Rule	1
Peace and Atkinson	1
London School	1
Safe Minimum Standard	1
Common and Perrings	1
Daly's Impossibility Theorem	**1**

Name of the Teacher: Dr. M.Savithri Head Department

Signature: Signature

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018(Semester IV)

Class: M.A Final **Section:** Economics

Course/Paper: III ECO 403 (Environmental Economics)

Unit: 3 Theory and Policy of Pollution Control **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Optimal level of Pollution	1
Polluter pays Principle	1
Pigovian Taxes and Subsidies	1
Pollution Permits	1
Charge and Standards approach	1
Coase Theorem	1
Role of Govt. in Environmental Regulation	1
Command and Control regime	1
WTO and Environmental impacts	2
Global environmental problems	1
Ozone layer depletion	1
Hazardous and Nuclear Wastes	1
International Environmental Conference	1
Global Environmental regulations	**1**

Name of the Teacher: Dr. M.Savithri Head Department

Signature: Signature

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018(Semester IV)

Class: M.A Final **Section:** Economics

Course/Paper: III ECO 403 (Environmental Economics)

Unit: 3 Theory and Policy of Pollution Control **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Optimal level of Pollution	1
Polluter pays Principle	1
Pigovian Taxes and Subsidies	1
Pollution Permits	1
Charge and Standards approach	1
Coase Theorem	1
Role of Govt. in Environmental Regulation	1
Command and Control regime	1
WTO and Environmental impacts	2
Global environmental problems	1
Ozone layer depletion	1
Hazardous and Nuclear Wastes	1
International Environmental Conference	1
Global Environmental regulations	**1**

Name of the Teacher: Dr. M.Savithri Head Department

Signature: Signature

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018(Semester IV)

Class: M.A Final **Section:** Economics

Course/Paper: III ECO 403 (Environmental Economics)

Unit: 4 Measurement of Environmental Degradation **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Environmental Costs and Benefits	2
User and Non-User Benefits	1
Direct and Indirect Valuation Methods	1
Contingent Valuation Method and willingness to pay	2
Hedonic Property Values	1
Travel Cost	1
Averted Expenditure and Dose Response methods	1
UN system of Integrated Economic and Environmental Accounts	2
Green National Income and Genuine Savings	2
Environmental impact assessment and report	1
Environmental Audit	1

Name of the Teacher: Dr. M.Savithri Head Department

Signature: Signature

LESSON PLAN FOR THE ACADEMIC YEAR 2018-2019(Semester IV)

Class: M.A Final **Section:** Economics

Course/Paper: III ECO 403 (Environmental Economics)

Unit: 1 Meaning & definition of Environmental Economics **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Definition of Environmental Economics	1
Relationship between Economics and Environment	1
Flow Chart	1
Functions of Environment	1
Components of Environment	1
Theory of Market Failure	1
Pigovian taxes and subsidies	1
Theories of Environmental Economics	2
Boulding's Spaceship Earth	1
Hardin's Tragedy of the Commons	1
Club of Rome Model	1
Schumacher's Small is Beautiful	1
Daly's Steady State Economics	1
Input-Output Models of the Environment	**1**

Name of the Teacher: Dr. M.Savithri Head Department

Signature: Signature

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018(Semester IV)

Class: M.A Final **Section:** Economics

Course/Paper: III ECO 403 (Environmental Economics)

Unit: 5 Environment problems of India **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
State of India's Environment	1
Air, Water and Soil Pollution	1
Natural Resource Depletion	1
Deforestation	1
Industrial and Agricultural Pollution	1
Urbanization	1
Vehicular Pollution	1
Impact of Green revolution techniques	2
Functions of Ministry of Environment and Forest Pollution Control Boards	1
Environmental Laws in India	1
Water and Air pollution control acts	1
Environmental protection act	1
Forest act	1
Renewable energy resources	**1**

Name of the Teacher: Dr. M.Savithri Head Department

Signature: Signature

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester III)

Class: M.A Final **Section:** Economics

Course/Paper: IV ECO 402 (Industrial Economics - I)

Unit: 2 Growth theories of Firm No. Hours allotted: 15

Topics to be covered	No. of Hours
Growth theories of Firm	2
Downie growth theory	2
Penrose & Marries growth theory	2
Theories of Industrial Location	2
Weber Industrial Location	2
Sargent Florence Industrial Location	3
Losch Industrial Location	2

Name of the Teacher: Dr. M.Savithri Head Department

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LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester I)

Class: M.A Previous **Section:** Economics

Course/Paper: II ECO 202

Unit:1 National Income Accounting **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Approaches of Macro Economics	1
Macro Economics Variables	1
Circular Flow of Income in two sector model	1
Circular Flow of Income in three sector model	1
Circular Flow of Income in four sector model	1
Different forms of National Income accountiong	1
Social Accounting	1
Importance of Social accounting and Difficulties in Social accounting	2
Input-Output Accounting	1
Importance of Input-Output Accounting	1
Flow of funds Accounts	1
Importance of Flow of Funds	1
Balance of payments accounting	2

Name of the Teacher: Dr. M.Savithri Head Department

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ENGLISH

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021(Semester II)

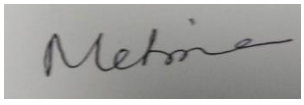
Class : M. A Previous **Section:** ENGLISH

Course/Paper: ENG 204 A **Women's Writing**

Unit: 3 **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Introduction to Fiction	1
Jean Rhys: *Wide Sargasso Sea*	4
Toni Morrison: *The Bluest Eye*	4
Chimamanda Adichie: *Americanah*	4
Further Discussions	2
Total	15

Name of the Teacher: Dr. Melissa Helen Head, Department of English

Signature: 

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LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021(Semester II)

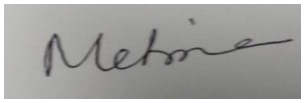
Class : M. A Previous **Section:** ENGLISH

Course/Paper: ENG 204 A **Women's Writing**

Unit: 4 **No. of Hours Allotted**: 15

Topics to be covered		No. of Hours
Introduction to Prose		1
Mary Wollstonecraft: *Vindication of the Rights of Women* (Introduction and Chapter 2)		3
Adrienne Rich: "When We Dead Awaken: Writing as Re-Vision"		3
Suniti Namjoshi: From *Feminist Fables*		
1.	From the Panchatantra	1
2.	The Little Princess	1
3.	The Gods	1
4.	Perseus and Andomeda	1
5.	Case History	1
6.	The Runner	1
Further Discussions		2
Total		15

Name of the Teacher: Dr. Melissa Helen Head, Department of English



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NIZAM COLLEGE : DEPARTMENT OF ENGLISH

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021(Semester I)

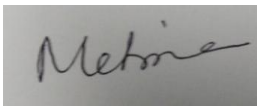
Class : M. A Previous **Section:** ENGLISH

Course/Paper: ENG 105 A Modern Indian Literatures in Translation

Unit: 1 **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Introduction	**1**
Concept of Sahitya;	2
Indian Concept of Translation;	2
Tradition-Modernity;	2
Progressive Writers Movement;	2
Indian Dramatic Traditions	3
Dalit Aesthetics	3
	15hrs

Name of the Teacher: Dr. Melissa Helen Head, Department of English

Signature:  Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester I)

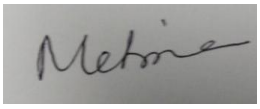
Class : M. APrevious **Section:** ENGLISH

Course/Paper: ENG 105 A Modern Indian Literatures in Translation

Unit: 2 **No. of Hours Allotted**: 15

Topics to be covered	**No. of Hours**
Introduction to Poetry:	1
Jibanananda Das' Poetry: "Banalata Sen", "Naked Solitary Hand" "This Earth"	3
Gajanan Madhav Muktibodh: "The Orang-Outang", "The Void Within", "A Single Shooting Star"	3
Makhdoom Mohiuddin : "The Heart of Silence", "Prison", "Darkness"	3
Dalit Poetry	2
Namdeo Dhasal : "The Day She Was Gone", "New Delhi, 1985", "On the Way to the Dargah"	3
Total	15

Name of the Teacher: Dr. Melissa Helen Head, Department of English

Signature:  Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester I)

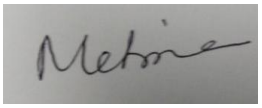
Class : M. APrevious **Section:** ENGLISH

Course/Paper: ENG 105 A Modern Indian Literatures in Translation

Unit: 3 **No. of Hours Allotted**: 15

Topics to be covered		**No. of Hours**
Introduction to Fiction		1
U R Ananthamurthy	*Samskara: A Rite For A Dead Man*	4
Mahasweta Devi	*Mother of 1084*	4
Bama:	*Karukku*	4
Further Discussions		2
Total		15

Name of the Teacher: Dr. Melissa Helen Head, Department of English

Signature:  Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester I)

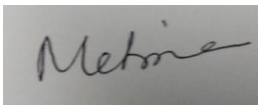
Class : M. A Previous **Section:** ENGLISH

Course/Paper: ENG 105 A Modern Indian Literatures in Translation

Unit: 4 **No. of Hours Allotted**: 15

Topics to be covered	**No. of Hours**
Introduction to Drama	2
Vijay Tendulkar: *Silence! The Court is in Session*	3
Girish Karnad: *Hayavadana*	4
Rabindranath Tagore: *Chandalika*	3
Further Discussions /presentations	3
Total	15

Name of the Teacher: Dr. Melissa Helen Head, Department of English

Signature:  Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester II)

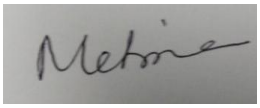
Class : M. APrevious **Section:** ENGLISH

Course/Paper: ENG 204 A **Women's Writing**

Unit: 1 **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Introduction :	1
Sex and Gender	3
Women‟s Liberation Movement	3
Feminisms	2
Women and the Canon	2
Gynocriticism	2
Further Discussions	2
Total	**15hrs**

Name of the Teacher: Dr. Melissa Helen Head, Department of English

Signature:  Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester II)

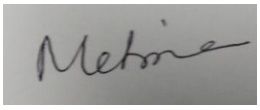
Class : M. APrevious **Section:** ENGLISH

Course/Paper: ENG 204 A **Women's Writing**

Unit: 2 **No. of Hours Allotted**: 15

Topics to be covered	**No. of Hours**
Introduction to Poetry:	1
Aemilia Lanyer: "Eve"s Apology in Defense of Women"	3
Sylvia Plath : "Lady Lazarus", "The Applicant", "Daddy"	3
Grace Nichols: "Waterpot", "A Praise Song for Mother","The Fat Black Woman Goes Shopping"	3
Luci Tapahonso: "Blue Horses Rush In", "Leda and the Cowboy","Raisin Eyes"	3
Further Discussions	2
Total	15

Name of the Teacher: Dr. Melissa Helen Head, Department of English

Signature:  Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester II)

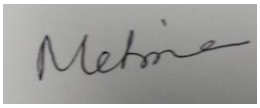
Class : M. APrevious **Section:** ENGLISH

Course/Paper: ENG 204 A **Women's Writing**

Unit: 3 **No. of Hours Allotted**: 15

Topics to be covered	**No. of Hours**
Introduction to Fiction	1
Jean Rhys: *Wide Sargasso Sea*	4
Toni Morrison: *The Bluest Eye*	4
Chimamanda Adichie: *Americanah*	4
Further Discussions	2
Total	15

Name of the Teacher: Dr. Melissa Helen Head, Department of English

Signature:  Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2018-2019(Semester II)

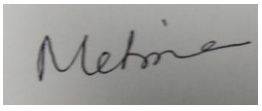
Class : M. A Previous **Section:** ENGLISH

Course/Paper: ENG 204 A **Women's Writing**

Unit: 4 **No. of Hours Allotted**: 15

Topics to be covered		**No. of Hours**
Introduction to Prose		1
Mary Wollstonecraft: *Vindication of the Rights of Women* (Introduction and Chapter 2)		3
Adrienne Rich: "When We Dead Awaken: Writing as Re-Vision"		3
Suniti Namjoshi: From *Feminist Fables*		
1.	From the Panchatantra	1
2.	The Little Princess	1
3.	The Gods	1
4.	Perseus and Andomeda	1
5.	Case History	1
6.	The Runner	1
Further Discussions		2
Total		15

Name of the Teacher: Dr. Melissa Helen Head, Department of English

Signature:  Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester III)

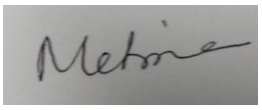
Class : M. A Final **Section:** ENGLISH

Course/Paper: ENG Paper IV 304 Postcolonial Literatures

Unit: 1 **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Introduction	1
Colonialism-Postcolonialism; ;	3
Universalism-Eurocentrism;	3
Decolonization-Neocolonialism	2
Mimicry-Hybridity;	2
Myth-History	2
Further Discussions	2
Total	15hrs

Name of the Teacher: Dr. Melissa Helen Head, Department of English

Signature:  Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester III)

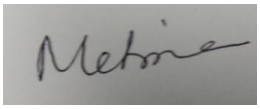
Class : M. A Previous **Section:** ENGLISH

Course/Paper: ENG 304 Postcolonial Literatures

Unit: 2 **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Introduction to Poetry:	1
Judith Wright:"Eve to Her Daughters", "Bullocky", "Request to a Year"	3
Phyllis Webb: "Marvel"s Garden", "Breaking", "Ah Ghalib …	3
Kamau Brathwaite: "Calypso", "Bread", "Limbo"	3
Christopher Okigbo: "Overture", "Elegy For Alto", "Banks of Reed"	3
Further Discussions	2
Total	15

Name of the Teacher: Dr. Melissa Helen Head, Department of English

Signature:  Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester III)

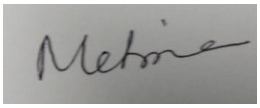
Class : M. APrevious **Section:** ENGLISH

Course/Paper: ENG 304 **Postcolonial Literatures**

Unit: 3 **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Introduction to Fiction	1
Chinua Achebe: *Things Fall Apart*	4
VS Naipaul: *The Mimic Men*	4
Margaret Atwood: *The Edible Woman*	4
Further Discussions	2
Total	15

Name of the Teacher: Dr. Melissa Helen Head, Department of English

Signature:  Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester III)

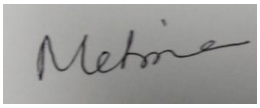
Class : M. APrevious **Section:** ENGLISH

Course/Paper: ENG 304 Postcolonial Literatures

Unit: 4 **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Introduction to Drama	1
Wole Soyinka: *Kongi's Harvest*	4
Derek Walcott: D*ream on Monkey Mountain*	4
Drew Hayden Taylor: alterNatives	4
Further Discussions	2
Total	15

Name of the Teacher: Dr. Melissa Helen Head, Department of English

Signature:  Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021(Semester IV)

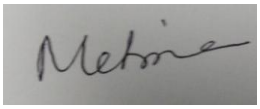
Class : M. A Previous **Section:** ENGLISH

Course/Paper: ENG 403 INDIAN WRITING IN ENGLISH- II

Unit: 1 **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Review of IWE paper 1 and Background	2
Partition Literature;	2
Nation-Nationalism	2
Counter Discourse;	2
Subalternity;	3
Identity Movements	2
Further Discussions	2
Total	15

Name of the Teacher: Dr. Melissa Helen Head, Department of English

Signature:  Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester IV)

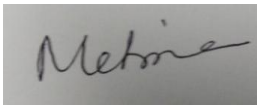
Class : M. APrevious **Section:** ENGLISH

Course/Paper: ENG 403 INDIAN WRITING IN ENGLISH- II

Unit: 2 **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Introduction to the unit	1
Nissim Ezekiel: –Enterprise‖, Poet, Lover, Birdwatcher‖, ‖Philosopher‖	3
A.K. Ramanujam: –Love Poem for a Wife-1‖, –Obituary‖, –Small-scale Reflections on a Great House‖	3
Kamala Das: –An Introduction‖, –The Old Playhouse‖, –Words‖	3
Arun Kolatkar : –Scratch‖, –A Low Temple‖, –An Old Woman‖	3
Further Discussions	2
Total	15

Name of the Teacher: Dr. Melissa Helen Head, Department of English

Signature:  Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester IV)

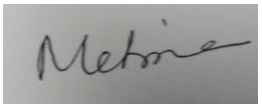
Class : M. APrevious **Section:** ENGLISH

Course/Paper: ENG 403 INDIAN WRITING IN ENGLISH- II

Unit: 3 **No. of Hours Allotted**: 15

Topics to be covered		**No. of Hours**
Introduction to the unit		2
Anita Desai	*Voices in the City*	3
Salman Rushdie	*Midnight's Children*	5
Shashi Deshpande	*The Binding Vine*	3
Further Discussions		2
Total		15

Name of the Teacher: Dr. Melissa Helen Head, Department of English

Signature:  Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester IV)

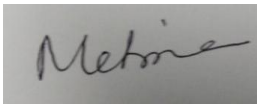
Class : M. APrevious **Section:** ENGLISH

Course/Paper: ENG 403 INDIAN WRITING IN ENGLISH- II

Unit: 4 **No. of Hours Allotted**: 15

Topics to be covered	**No. of Hours**
Introduction to the unit	2
Bharti Mukherjee:―Management of Grief‖ (from The Middleman and Other Stories)	4
Rohinton Mistry –Swimming Lessons‖ (from Tales from Firozsha Baag)	3
Jhumpa Lahiri –Interpreter of Maladies‖ (from Interpreter of Maladies)	3
Further Discussions	3
Total	15

Name of the Teacher: Dr. Melissa Helen Head, Department of English

Signature:  Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester IV)

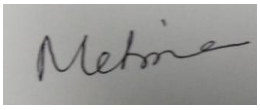
Class : M. APrevious **Section:** ENGLISH

Course/Paper: ENG 403 **INDIAN WRITING IN ENGLISH- II**

Unit: 5 **No. of Hours Allotted**: 15

Topics to be covered	**No. of Hours**
Introduction to the Unit	1
Asif Currimbhoy: *Goa*	4
Mahesh Dattani: *Final Solutions*	4
Manjula Padmanabhan: *Harvest*	4
Further Discussions	2
Total	15

Name of the Teacher: Dr. Melissa Helen Head, Department of English

Signature:  Signature:

NIZAM COLLEGE : DEPARTMENT OF ENGLISH

LESSON PLAN FOR THE ACADEMIC YEAR 2013-2015-16 (Semester I)

New-CBCS (Sem I) W.e.f. 2016-17 MA (Previous) Semester I Paper II ENG 102 English Poetry (5 Credits)

Dr. Sridevi

Unit no	**Topics to be covered**	**No of Hours: 15**
Unit I	Background Renaissance-Reformation; Neo-Classicism; Fancy and Imagination; Pre-Raphaelites; War Poetry; Modernism-Postmodernism	3
Unit II	Geoffrey Chaucer The General Prologue To The Canterbury Tales (Tran. Nevill Coghill) lines 1-42 (—When in April … I therefore will begin‖)	3
	John Milton Paradise Lost (Bk I)	
	John Donne –A Valediction‖, –The Canonization‖	
	Alexander Pope –The Rape of the Lock‖ (Canto I)	
Unit III	William Blake From Songs of Innocence (–The Lamb‖, –The Chimney Sweeper‖) From Songs of Experience (–The Tyger‖, –London‖)	3
	William Wordsworth –Tintern Abbey‖, –Anecdote for Fathers‖	
	P B Shelley –Ode to the West Wind‖, –To a Skylark‖	
	John Keats –Ode on a Grecian Urn‖, –Ode to a Nightingale‖	
Unit IV	Elizabeth Barrett Browning Sonnets from the Portuguese 14 (—If thou must love me …‖) 43 (–How do I love thee …‖)	3
	Alfred Lord Tennyson –Ulysses‖, –The Sailor Boy‖	
	Robert Browning –My Last Duchess‖, –The Lost Leader‖	
	Matthew Arnold –Self-Dependence‖, –Dover Beach‖	
	Robert Browning –My Last Duchess‖, –The Lost Leader‖	
Unit V	T S Eliot The Waste Land	3
	Phillip Larkin –Best Society‖, –Churchgoing‖	
	Seamus Heaney –Digging‖, –Alphabets‖	
	Carol Ann Duffy –Originally‖, –Havisham‖	

creUnit I	Background Antebellum and Postbellum America; Puritanism; Transcendentalism; The American Romantics; American Frontier	3
Unit II Poetry	William Cullen Bryant –A Forest Hymn‖, –The Yellow Violet‖, –America‖	**3**
	Edgar Allen Poe –Raven‖, –Dream Land‖	
	Emily Dickinson –Because I could not stop for death‖, –I taste a liquor never brewed‖, –„Hope‟ is the thing with feathers‖	
Unit III Fiction	Nathaniel Hawthorne The Scarlet Letter	**3**
	Herman Melville Billy Bud	
	Mark Twain The Adventures of Huckleberry Finn	
Unit IV Drama	Eugene O‟Neill Desire Under the Elms	**3**
	Tennessee Williams The Glass Menagerie	
	Arthur Miller All My Sons	
Unit V prose and Short Fiction	Ralph Waldo Emerson –The American Scholar‖	**3**
	Henry David Thoreau –Civil Disobedience‖	
	William Faulkner –Wealthy Jew‖	

Unit no	Topics to be covered	No of Hours: 15
Unit I	**Background** The Rise of Novel; The Gothic Novel; Realism-Naturalism; Bildungsroman; Stream of Consciousness; Magic Realism	**3**
Unit II	Daniel Defoe *Robinson Crusoe*	**3**
	Jane Austen *Emma*	
	Charlotte Brontë *Jane Eyre*	
Unit III	Charles Dickens *Hard Times*	**3**
	Thomas Hardy *Tess of the d'Urbervilles*	
	Joseph Conrad *Heart of Darkness*	
Unit IV	DH Lawrence *Sons and Lovers*	**3**
	William Golding *Lord of the Flies*	
	Zadie Smith *White Teeth*	
Unit V	**Short Stories** Rudyard Kipling ‑Lispeth‖, ‑Thrown Away‖	**3**
	HG Wells ‒The New Accelerator‖, ‑The Man Who Could Work Miracles‖	
	Roald Dahl ‒The Umbrella Man‖, ‑Lamb to the Slaughter	
	HG Wells ‒The New Accelerator‖, ‑The Man Who Could Work Miracles‖	
	Roald Dahl ‒The Umbrella Man‖, ‑Lamb to the Slaughter	

LESSON PLAN FOR THE ACADEMIC YEAR 2013-2015-16 (Semester III)

New-CBCS (Sem III) W.e.f. 2016-17 MA (Final) Semester III Paper II ENG 302 American Literature—I (5 credits)..Dr.Sridevi

Unit no	Topics to be covered	No of Hours: 15
Unit I	**Background** American Dream; Race; Ethnicity; Multiculturalism; Realism	**3**
Unit II	**Poetry** Walt Whitman —Out of the Cradle Endlessly Rocking , —When Lilacs Last in the Dooryard Bloom'd	**3**
	Robert Frost —Home Burial , —Birches , —After Apple Picking	
	Wallace Stevens —Emperor of Ice-cream , —Showman , —Thirteen Ways of Looking at a Blackbird	
Unit III	**Fiction** Scott Fitzgerald *The Great Gatsby*	**3**
	Ernest Hemingway *The Old Man and the Sea*	
	Saul Bellow *Seize the Day*	
Unit IV	**Drama** Lorraine Hansberry *A Raisin in the Sun*	**3**
	Edward Albee *Who's Afraid of Virginia Woolf?*	
	August Wilson *The Piano Lesson*	
Unit V	**Prose and Short Fiction** Alice Walker —In Search of our Mother's Gardens	**3**
	Bernard Malamud —The Magic Barrel	
	Issac Asimov —Bicentennial Man	

NIZAM COLLEGE : DEPARTMENT OF ENGLISH

LESSON PLAN FOR THE ACADEMIC YEAR 2016-2018 (Semester IV)

Class : MA Previous **Section:** English Literature

Course/Paper: Sem-I / P-IV

Unit: 1-5 English Language and Phonetics **No. of Hours Allotted**: 15

Unit no:	Topics to be covered	No. of Hours
1	a) Language as a System of Communication: Features of Human Communication, Differences between Animal and Human Communication.	4
	b) Verbal Communication: Formal vs Informal Communication, One way vs Two way Communication.	
	c) Non-verbal Communication: Aspects relating to body language.	
2	a) Phonetics: Articulatory Phonetics: Definition, Organs of Speech, Speech Mechanism (air-stream mechanism)	4
	b) Phonetic sounds vs Phonemic sounds; Classification of Phonemic Sounds IPA, Phonemic transcription (word and sentence levels)	
	c) Description of Consonant sounds and Vowel Sounds	
3	a) Word Accent/Stress: Syllable, Syllabification, Primary and Secondary Stress, Rules of Word Stress, Consonant clusters	4
	b) Aspects of Connected Speech: Weak forms and Elision	
	c) Intonation: Tones of intonation and meaning making	
4	a) Levels of Language Description – Phonology: Definition, Scope and Other Aspects	3
	b) Morphology: Definition, Scope and Other Aspects	
	c) Syntax: Definition, Scope and Other Aspects	

Name of the Teacher: Dr.J.Madhavi Head, Department of English

Signature: Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2016-2018 (Semester IV)

Class : MA Previous **Section:** English Literature

Course/Paper: Sem-II / P-II

Unit: 1-5 English Prose **No. of Hours Allotted**: 15

Unit no:	Topics to be covered	No. of Hours
1	**Background:** Origin and Development of the English Essay; Utopia.	3
	Translation of the Bible; Allegory; Satire	
2	**Philip Sidney:** An Apologie for Poetrie	3
	Francis Bacon: ‑Of Studies‖, ‑Of Truth‖, ‑Of Revenge‖	
	John Bunyan: The Pilgrim‘s Progress (from ‑As I walked through the wilderness of this world …‖ till the paragraph ending with the line ‑The name of the one was Simple, another Sloth, and the third Presumption.‖)	
3	**Jonathan Swift:** ‑The Battle of the Books‖	3
	Joseph Addison: ‑Sir Roger in Church‖, ‑The Aims of the Spectator‖	
	Samuel Johnson: Preface to Shakespeare (Up to the paragraph beginning ‑So careless was this great poet…‖)	
4	**Charles Lamb:** ‑Dream Children‖, ‑Old China‖	3
	William Hazlitt: ‑The Indian Jugglers‖, ‑On People with One Idea‖	
	John Ruskin: Unto This Last (Section I)	
5	**Bertrand Russell:** ‑The Ethics of War‖, ‑Education and Discipline‖	3
	Virginia Woolf: A Room of One‘s Own	
	George Orwell: ‑Politics and the English Language‖, ‑Reflections on Gandhi‖	

Name of the Teacher: Dr.J.Madhavi Head, Department of English

Signature: Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2016-2018 (Semester IV)

Class : MA Final **Section:** English Literature

Course/Paper: Sem-III / P-III

Unit: 1-5 Indian Writing in English-1 **No. of Hours Allotted**: 15

Unit no:	Topics to be covered	No. of Hours
1	**Background:** a) 19 Century Reform Movements in India; The Indian National Movement;	3
	b) Rise of the Indian Novel; Caste-Class; The New Indian Woman	
2	**Poetry** Henry Derozio: ‑The Harp of India‖, ‑To My Native Land‖	3
	Toru Dutt: ‒Sita‖, ‑Our Casuarina Tree‖, ‑My Vocation‖	
	Sri Aurobindo: ‒Silence is all‖, ‑Is this the end?‖, ‑The Dual Being‖	
	Sarojini Naidu: ‑The Pardah Nashin‖, ‑Ghanashyam‖, ‒The Gift of India‖	
3	**Fiction** Bankimchandra Chatterjee: Rajmohan‘s Wife	3
	Krupabai Satthianadhan: Kamala: a Story of Hindu Life	
	Zeenuth Futehally: Zohra	
4	**Fiction** Mulk Raj Anand: Untouchable	3
	Raja Rao: Kanthapura	
	R K Narayan: The Man-Eater of Malgudi	
5	**Prose** B R Ambedkar: ‑The Annihilation of Caste‖	3
	Jawaharlal Nehru: ‑The Quest‖ (Chapter 3; The Discovery of India)	
	Arundhati Roy: ‑The Ladies Have Feelings, So...Shall We Leave It To The Experts?‖	

Name of the Teacher: Dr.J.Madhavi Head, Department of English

Signature: Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2016-2018 (Semester IV)

Class : MA Final **Section:** English Literature

Course/Paper: Sem-IV / P-IV

Unit: 1-5 Academic Writing and Research Methodology **No. of Hours Allotted**: 15

Unit no:	Topics to be covered	No. of Hours
1	a) Factors Influencing Effective Writing : Mechanics of Writing, Purpose of writing, Audience/reader, Organisation- Cohesion and Coherence	4
	b) Features of Academic Writing : Introduction, Complexity, Formality, Precision, Objectivity, Explicitness, Accuracy and Appropriacy, Relevance, Hedging	
	c) Academic Writing Forms: Paragraph Development, Précis Writing, Building Argument, Making Counter Argument, Managing tone and tenor	
2	a) Study Skills and Academic Skills: Note Taking, Note Making, Information Transfer and Reference Skills, Paraphrasing (Change of parts of speech, word order, synonyms, using passive form), Summarizing (Steps in summarising)	4
	b) Essay and Report Writing: Descriptive Writing, Narrative Writing; General Reports, Feasibility reports, Progress reports, Evaluation reports, Writing for Media	
	c) Writing Book Reviews and Film Reviews	
3	a) Criteria of Good Research; Avoiding Plagiarism	4
	b) Types of Research: Primary and Secondary Research; Research Design: Statement of the Problem, Survey of relevant literature, Making hypotheses, developing objectives; Research Tools	
	c) Analysis and Data Interpretation: (Collecting the data, analysing and interpreting the data,testing the hypotheses)	
4	a) Preparing an outline for Research Articles and Thesis	3
	b) Documentation Format: APA style	
	c) Documentation Format: MLA style	

Name of the Teacher: Dr.J.Madhavi Head, Department of English

Signature: Signature:

NIZAM COLLEGE : DEPARTMENT OF ENGLISH

LESSON PLAN FOR THE ACADEMIC YEAR 2016-2018 (Semester IV)

Class : MA Previous **Section:** English Literature

Course/Paper: Sem-I / P-IV

Unit: 1-5 English Language and Phonetics **No. of Hours Allotted**: 15

Unit no:	Topics to be covered	No. of Hours
1	a) Language as a System of Communication: Features of Human Communication, Differences between Animal and Human Communication.	4
	b) Verbal Communication: Formal vs Informal Communication, One way vs Two way Communication.	
	c) Non-verbal Communication: Aspects relating to body language.	
2	a) Phonetics: Articulatory Phonetics: Definition, Organs of Speech, Speech Mechanism (air-stream mechanism)	4
	b) Phonetic sounds vs Phonemic sounds; Classification of Phonemic Sounds IPA, Phonemic transcription (word and sentence levels)	
	c) Description of Consonant sounds and Vowel Sounds	
3	a) Word Accent/Stress: Syllable, Syllabification, Primary and Secondary Stress, Rules of Word Stress, Consonant clusters	4
	b) Aspects of Connected Speech: Weak forms and Elision	
	c) Intonation: Tones of intonation and meaning making	
4	a) Levels of Language Description – Phonology: Definition, Scope and Other Aspects	3
	b) Morphology: Definition, Scope and Other Aspects	
	c) Syntax: Definition, Scope and Other Aspects	

Name of the Teacher: Head, Department of

Signature: Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2016-2018 (Semester IV)

Class : MA Previous **Section:** English Literature

Course/Paper: Sem-II / P-II

Unit: 1-5 English Prose **No. of Hours Allotted**: 15

Unit no:	Topics to be covered	No. of Hours
1	**Background:** Origin and Development of the English Essay; Utopia.	3
	Translation of the Bible; Allegory; Satire	
2	**Philip Sidney:** An Apologie for Poetrie	3
	Francis Bacon: ‑Of Studies‖, ‑Of Truth‖, ‑Of Revenge‖	
	John Bunyan: The Pilgrim‘s Progress (from ‑As I walked through the wilderness of this world …‖ till the paragraph ending with the line ‑The name of the one was Simple, another Sloth, and the third Presumption.‖)	
3	**Jonathan Swift:** ‑The Battle of the Books‖	3
	Joseph Addison: ‑Sir Roger in Church‖, ‑The Aims of the Spectator‖	
	Samuel Johnson: Preface to Shakespeare (Up to the paragraph beginning ‑So careless was this great poet…‖)	
4	**Charles Lamb:** ‑Dream Children‖, ‑Old China‖	3
	William Hazlitt: ‑The Indian Jugglers‖, ‑On People with One Idea‖	
	John Ruskin: Unto This Last (Section I)	
5	**Bertrand Russell:** ‑The Ethics of War‖, ‑Education and Discipline‖	3
	Virginia Woolf: A Room of One‘s Own	
	George Orwell: ‑Politics and the English Language‖, ‑Reflections on Gandhi‖	

Name of the Teacher: Head, Department of

Signature: Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2016-2018 (Semester IV)

Class : MA Final **Section:** English Literature

Course/Paper: Sem-III / P-III

Unit: 1-5 Indian Writing in English-1 **No. of Hours Allotted**: 15

Unit no:	Topics to be covered	No. of Hours
1	**Background:** c) 19 Century Reform Movements in India; The Indian National Movement;	3
	d) Rise of the Indian Novel; Caste-Class; The New Indian Woman	
2	**Poetry** Henry Derozio: ‑The Harp of India‖, ‑To My Native Land‖	3
	Toru Dutt: ‒Sita‖, ‑Our Casuarina Tree‖, ‑My Vocation‖	
	Sri Aurobindo: ‒Silence is all‖, ‑Is this the end?‖, ‑The Dual Being‖	
	Sarojini Naidu: ‑The Pardah Nashin‖, ‑Ghanashyam‖, ‒The Gift of India‖	
3	**Fiction** Bankimchandra Chatterjee: Rajmohan‘s Wife	3
	Krupabai Satthianadhan: Kamala: a Story of Hindu Life	
	Zeenuth Futehally: Zohra	
4	**Fiction** Mulk Raj Anand: Untouchable	3
	Raja Rao: Kanthapura	
	R K Narayan: The Man-Eater of Malgudi	
5	**Prose** B R Ambedkar: ‑The Annihilation of Caste‖	3
	Jawaharlal Nehru: ‑The Quest‖ (Chapter 3; The Discovery of India)	
	Arundhati Roy: ‑The Ladies Have Feelings, So...Shall We Leave It To The Experts?‖	

Name of the Teacher:
Signature:

Head, Department of
Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2016-2018 (Semester IV)

Class : MA Final **Section:** English Literature

Course/Paper: Sem-IV / P-IV

Unit: 1-5 Academic Writing and Research Methodology **No. of Hours Allotted**: 15

Unit no:	Topics to be covered	No. of Hours
1	a) Factors Influencing Effective Writing : Mechanics of Writing, Purpose of writing, Audience/reader, Organisation- Cohesion and Coherence	4
	b) Features of Academic Writing : Introduction, Complexity, Formality, Precision, Objectivity, Explicitness, Accuracy and Appropriacy, Relevance, Hedging	
	c) Academic Writing Forms: Paragraph Development, Précis Writing, Building Argument, Making Counter Argument, Managing tone and tenor	
2	a) Study Skills and Academic Skills: Note Taking, Note Making, Information Transfer and Reference Skills, Paraphrasing (Change of parts of speech, word order, synonyms, using passive form), Summarizing (Steps in summarising)	4
	b) Essay and Report Writing: Descriptive Writing, Narrative Writing; General Reports, Feasibility reports, Progress reports, Evaluation reports, Writing for Media	
	c) Writing Book Reviews and Film Reviews	
3	a) Criteria of Good Research; Avoiding Plagiarism	4
	d) Types of Research: Primary and Secondary Research; Research Design: Statement of the Problem, Survey of relevant literature, Making hypotheses, developing objectives; Research Tools	
	e) Analysis and Data Interpretation: (Collecting the data, analysing and interpreting the data,testing the hypotheses)	
4	a) Preparing an outline for Research Articles and Thesis	3
	b) Documentation Format: APA style	
	c) Documentation Format: MLA style	

Name of the Teacher: Head, Department of

Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF ENGLISH

LESSON PLAN FOR THE ACADEMIC YEAR 2017 -2018 (Semester II)

Class and Section: B.A.I C, B.Sc. I C

Course/Paper: General English

Unit: IX (Prose- The Bet, Poetry-No Men are Foreign)
No. of Hours Allotted: 15

Topics to be covered	No. of Hours
Prose : The Bet Pre- reading activity, About the author Anton Chekov	**(10)** 1
Text, Glossary and references	2
Discussion questions short and essay type, Genre study	2
Language Development Activities	1
Writing (Paragraph writing, Dialogue writing, Creative writing)	2
Speaking, Listening and Soft skills	2
Poetry: No Men are Foreign Pre- reading activity, About the poet James Kirkup	**(5)** 1
Poem, Glossary and references	1
Discussion questions short and essay type, Genre study	1
Language Development Activities, Writing (Critical appreciation, Creative writing)	1
Speaking, Listening and Soft skills	1

Name of the Teacher: Ms. Padma Patwari
Signature:

Head
Department of English
Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2017 -2018 (Semester II)

Class and Section: B.A.I C, B.Sc. I C

Course/Paper: General English

Unit: IX (Prose- The Bet, Poetry-No Men are Foreign)
No. of Hours Allotted: 15

Topics to be covered	No. of Hours
Prose : The Bet Pre- reading activity, About the author Anton Chekov	**(10)** 1
Text, Glossary and references	2
Discussion questions short and essay type, Genre study	2
Language Development Activities	1
Writing (Paragraph writing, Dialogue writing, Creative writing)	2
Speaking, Listening and Soft skills	2
Poetry: No Men are Foreign Pre- reading activity, About the poet James Kirkup	**(5)** 1
Poem, Glossary and references	1
Discussion questions short and essay type, Genre study	1
Language Development Activities, Writing (Critical appreciation, Creative writing)	1
Speaking, Listening and Soft skills	1

Name of the Teacher: Ms. Padma Patwari
Signature:

Head
Department of English
Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester II)

Class and Section: B.A.I C, B.Sc. I C

Course/Paper: General English

Unit: VIII (Prose- An Accursed House, Poetry- The Ballad of the Landlord)
No. of Hours Allotted: 15

Topics to be covered	No. of Hours
Prose : An Accursed House Pre- reading activity, About the author Emile Gaboriau	**(10)** 1
Text, Glossary and references	2
Discussion questions short and essay type, Genre study	2
Language Development Activities	1
Writing (Descriptive writing, Change of Speech)	2
Speaking, Listening and Soft skills	2
Poetry: The Ballad of the Landlord Pre- reading activity, About the poet Langston Hughes	**(5)** 1
Poem, Glossary and references	1
Discussion questions short and essay type, Genre study	1
Language Development Activities, Writing (Critical appreciation, Creative writing)	1
Speaking, Listening and Soft skills	1

Name of the Teacher: Ms. Padma Patwari
Signature:

Head Department of English
Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester II)

Class and Section: B.A.I C, B.Sc. I C

Course/Paper: General English

Unit: VIII (Prose- An Accursed House, Poetry- The Ballad of the Landlord)
No. of Hours Allotted: 15

Topics to be covered	No. of Hours
Prose : An Accursed House Pre- reading activity, About the author Emile Gaboriau	**(10)** 1
Text, Glossary and references	2
Discussion questions short and essay type, Genre study	2
Language Development Activities	1
Writing (Descriptive writing, Change of Speech)	2
Speaking, Listening and Soft skills	2
Poetry: The Ballad of the Landlord Pre- reading activity, About the poet Langston Hughes	**(5)** 1
Poem, Glossary and references	1
Discussion questions short and essay type, Genre study	1
Language Development Activities, Writing (Critical appreciation, Creative writing)	1
Speaking, Listening and Soft skills	1

Name of the Teacher: Ms. Padma Patwari
Signature:

Head Department of English
Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2017 -2018 (Semester II)

Class and Section: B.A.I C, B.Sc. I C

Course/Paper: General English

Unit: VII (Prose-The Open Window, Poetry- Conversation)
No. of Hours Allotted: 15

Topics to be covered	No. of Hours
Prose : The Open Window Pre- reading activity, About the author Saki	**(10)** 1
Text, Glossary and references	2
Discussion questions short and essay type, Genre study	2
Language Development Activities	1
Writing (Paragraph writing, Dialogue writing)	2
Speaking, Listening and Soft skills	2
Poetry: Conversation Pre- reading activity, About the poet Louis MacNeice	**(5)** 1
Poem, Glossary and references	1
Discussion questions short and essay type, Genre study	1
Language Development Activities, Writing (Critical appreciation, Creative writing)	1
Speaking, Listening and Soft skills	1

Name of the Teacher: Ms. Padma Patwari
Signature:

Head Department of English
Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2017 -2018 (Semester II)

Class and Section: B.A.I C, B.Sc. I C

Course/Paper: General English

Unit: VII (Prose-The Open Window, Poetry- Conversation)
No. of Hours Allotted: 15

Topics to be covered	No. of Hours
Prose : The Open Window Pre- reading activity, About the author Saki	**(10)** 1
Text, Glossary and references	2
Discussion questions short and essay type, Genre study	2
Language Development Activities	1
Writing (Paragraph writing, Dialogue writing)	2
Speaking, Listening and Soft skills	2
Poetry: Conversation Pre- reading activity, About the poet Louis MacNeice	**(5)** 1
Poem, Glossary and references	1
Discussion questions short and essay type, Genre study	1
Language Development Activities, Writing (Critical appreciation, Creative writing)	1
Speaking, Listening and Soft skills	1

Name of the Teacher: Ms. Padma Patwari **Head Department of English**

Signature: **Signature:**

LESSON PLAN FOR THE ACADEMIC YEAR 2017 -2018 (Semester II)

Class and Section: B.A.I C, B.Sc. I C

Course/Paper: General English

Unit: VI (Prose-The Gold Frame, Poetry- Mirror)
No. of Hours Allotted: **15**

Topics to be covered	No. of Hours
Prose : The Gold Frame Pre- reading activity, About the author R.K. Laxman	**(10)** 1
Text, Glossary and references	2
Discussion questions short and essay type, Genre study	2
Language Development Activities	1
Writing (Paragraph writing, Creative writing, Dialogue writing)	2
Speaking, Listening and Soft skills	2
Poetry: Mirror Pre- reading activity, About the poet Sylvia Plath	**(5)** 1
Poem, Glossary and references	1
Discussion questions short and essay type, Genre study	1
Language Development Activities, Writing (Paraphrase, Creative writing)	1
Speaking, Listening and Soft skills	1

Name of the Teacher: Ms. Padma Patwari

Signature:

Head Department of English

Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2017 -2018 (Semester II)

Class and Section: B.A.I C, B.Sc. I C

Course/Paper: General English

Unit: VI (Prose-The Gold Frame, Poetry- Mirror)
No. of Hours Allotted: **15**

Topics to be covered	No. of Hours
Prose : The Gold Frame Pre- reading activity, About the author R.K. Laxman	**(10)** 1
Text, Glossary and references	2
Discussion questions short and essay type, Genre study	2
Language Development Activities	1
Writing (Paragraph writing, Creative writing, Dialogue writing)	2
Speaking, Listening and Soft skills	2
Poetry: Mirror Pre- reading activity, About the poet Sylvia Plath	**(5)** 1
Poem, Glossary and references	1
Discussion questions short and essay type, Genre study	1
Language Development Activities, Writing (Paraphrase, Creative writing)	1
Speaking, Listening and Soft skills	1

Name of the Teacher: Ms. Padma Patwari
Signature:

Head of Department English
Signature:

NIZAM COLLEGE: DEPARTMENT OF ENGLISH

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021(Semester I)

Class and Section: B.A.I C, B.Sc. I D, B.Com I B

Course/Paper: General English

Unit: I (Prose-The Thief, Poetry- On Television)
No. of Hours Allotted: **15**

Topics to be covered	No. of Hours
Prose: The Thief Pre- reading activity, About the author Ruskin Bond	**(10)** 1
Text, Glossary and references	2
Discussion questions short and essay type, Genre study	2
Language Development Activities	1
Writing (Paragraph writing, Creative writing, Dialogue writing)	2
Speaking, Listening and Soft skills	2
Poetry: On Television Pre- reading activity, About the poet Roald Dahl	**(5)** 1
Poem, Glossary and references	1
Discussion questions short and essay type, Genre study	1
Language Development Activities, Writing (Paraphrase, Creative writing)	1
Speaking, Listening and Soft skills	1

Head
Name of the Teacher: Dr.D.Parameshwari **Department of English**
Signature: **Signature**

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester I)

Class and Section: B.A.I C, B.Sc. I D, B.Com I B

Course/Paper: General English

Unit: I (Prose-Romance Of a Busy Broker, Poetry- Ode to the Clothes)
No. of Hours Allotted: **15**

Topics to be covered	No. of Hours
Prose: Romance Of a Busy Broker Pre- reading activity, About the author O'Henry	**(10)** 1
Text, Glossary and references	2
Discussion questions short and essay type, Genre study	2
Language Development Activities	1
Writing (Paragraph writing, Creative writing, Dialogue writing)	2
Speaking, Listening and Soft skills	2
Poetry: Ode to the Clothes Pre- reading activity, About the poet Pablo Neruda	**(5)** 1
Poem, Glossary and references	1
Discussion questions short and essay type, Genre study	1
Language Development Activities, Writing (Paraphrase, Creative writing)	1
Speaking, Listening and Soft skills	1

Head
Name of the Teacher: Dr.D.Parameshwari **Department of English**
Signature: **Signature**

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester I)

Class and Section: B.A.I C, B.Sc. I D, B.Com I B

Course/Paper: General English

Unit: I (Prose-The Blue Bouquet Road, Poetry- Curious Mishaps)
No. of Hours Allotted: **15**

Topics to be covered	No. of Hours
Prose: The Blue Bouquet Road Pre- reading activity, About the author Octavia Paz Lozano	**(10)** 1
Text, Glossary and references	2
Discussion questions short and essay type, Genre study	2
Language Development Activities	1
Writing (Paragraph writing, Creative writing, Dialogue writing)	2
Speaking, Listening and Soft skills	2
Poetry: Curious Mishaps Pre- reading activity, About the poet Vikram Seth	**(5)** 1
Poem, Glossary and references	1
Discussion questions short and essay type, Genre study	1
Language Development Activities, Writing (Paraphrase, Creative writing)	1
Speaking, Listening and Soft skills	1

Head
Name of the Teacher: Dr.D.Parameshwari **Department of English**
Signature: **Signature:**

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester I)

Class and Section: B.A.I C, B.Sc. I D, B.Com I B

Course/Paper: General English

Unit: I (Prose-Lawley Road, Poetry- Bird Sanctuary)

Topics to be covered	No. of Hours
Prose: The Gold Frame Pre- reading activity, About the author R.K.Narayan	**(10)** 1
Text, Glossary and references	2
Discussion questions short and essay type, Genre study	2
Language Development Activities	1
Writing (Paragraph writing, Creative writing, Dialogue writing)	2
Speaking, Listening and Soft skills	2
Poetry: Bird Sanctuary Pre- reading activity, About the poet Sarojini Naidu	**(5)** 1
Poem, Glossary and references	1
Discussion questions short and essay type, Genre study	1
Language Development Activities, Writing (Paraphrase, Creative writing)	1
Speaking, Listening and Soft skills	1

Name of the Teacher: Dr.D.Parameshwari
Signature:

Head
Department of English
Signature:

NIZAM COLLEGE : DEPARTMENT OF ENGLISH

LESSON PLAN FOR THE ACADEMIC YEAR 2016-18 (Semester I)

(Sem I) W.e.f. 2016-17 MA (Previous) Semester I Paper I ENG 101 The English Language: History, Description and Practice (5 Credits)... Dr. Konda Nageswara Rao

Unit no	Topics to be covered	No of hours
Unit I	a) Indo-European Family of Languages and its Branches; Grimm_s Law	3
	b) Descent of English: Important features of Old English—Spelling and Pronunciation, Vocabulary	
	c) Middle English and Modern English: the Norman conquest, Major Changes in the English Language during Middle English Period, The Rise of Standard English; General Characteristics of Modern English	
Unit II		**3**
	a) Foreign Contribution to the Growth of Vocabulary: Influence of Greek, Latin, French and German on the English language	
	b) Word Formation—Different Processes	
	c) Change of Meaning—Different Processes	
Unit III		**3**
	a) Structure of the English Noun Phrase	
	b) Structure of the English Verb Phrase	
	c) The Simple Sentence—its types, constituents and organization; Coordination and Subordination—their semantic implications	
Unit IV		**3**
	a) Dialect: _The Standard_ Dialect; Idiolect; Register	
	b) Style; Jargon; Slang	
	c) British English and American English: Differences in Spelling and Pronunciation	
Unit V		**3**
	a) Functional Grammar: Transformations: Direct and Reported Speech (Use of Reporting Verbs), Degrees of Comparison	
	b) Functional English-I: Introducing oneself and others, Asking questions and giving polite replies, Complaining and Apologizing, Persuading people, Taking the initiative/Turn Taking	
	c) Functional English-II: Seeking permission, Inviting friends / colleagues, Complimenting, Expressing sympathy, Telephone etiquette	

NIZAM COLLEGE : DEPARTMENT OF ENGLISH

LESSON PLAN FOR THE ACADEMIC YEAR 2016-18 (Semester I)

New-CBCS (Sem II) W.e.f. 2016-17 MA (Previous) Semester II Paper I ENG 201 English Language Teaching: History, Approaches and Methods (5 Credits) ...Dr. Konda Nageswara Rao

Unit I	**Topics to be covered**	**No of Hours**
	a) History of English Language Teaching in India: Some Important Pre-Independence Landmarks: Macaulay‟s Minute-a critique; Woods Despatch (1854); Indian Education Commission (1882); Indian Universities Commission (1902)	3
	b) Landmarks in English Education in India after Independence: Radhakrishnan Commission (University Education Commission, 1948); Kothari Commission -Three Language Formula (1964-66), Curriculum Development Commission, Acharya Ramamurti Commission (1990); The National Knowledge Commission Report (2006- 10)	
	c) Teaching English as a second language: Role of English in India; Objectives of Teaching English as a Second Language in India	
Unit II		**4**
	a) Behaviourism and its Implications for ELT: Pavlov‟s Classical Conditioning, Thorndike‟s Connectionism, Skinner‟s Operant conditioning	
	b) Cognitivism and its Implications for ELT: Gestalt Theory; Chomsky‟s Cognitive Theory- Competence vs Performance; Dell Hymes‟ Communicative Competence	
	c) Language Acquisition Process: Differences between First Language Acquisition and Second Language Learning	
Unit III		**3**
	a) Approaches and Methods: Grammar Translation method, Direct Method, Reading Method, Audio-Lingual Method, Bilingual Method, Eclectic Method	
	b) Communicative Language Teaching (CLT), Task Based Learning and Teaching	
	c) Humanistic Approaches: Community Language Learning, Suggestopedia	
Unit IV		**2**
	a) Teaching LSRW and their Sub-skills	
	b) Curriculum and Syllabus: Components, Needs Analysis, Goals and Objectives; Course Evaluation	
	c) Types of Syllabi: Structural Syllabus, Notional - Functional Syllabus, Task-based Syllabus	
Unit V		**3**
	a) Language Testing: Definition and Types of Language Testing	
	b) Characteristic Features of an Effective Test: Validity, Reliability, Feasibility	
	c) Testing Language Skills: Listening, Speaking, Reading, Writing, Vocabulary, Grammar	

NIZAM COLLEGE : DEPARTMENT OF ENGLISH

LESSON PLAN FOR THE ACADEMIC YEAR 2016-18 (Semester I)

(Sem III) W.e.f. 2016-17 MA (Final) Semester III Paper I ENG 301 English Language Teaching: Classroom Techniques and Practical English (5 Credits) Dr. Konda Nageswara Rao

Unit No	Topic to be covered	No of Hours
Unit I	a) Error Analysis Theory; Identifying and dealing with Common Learner Errors; Remedial Teaching	3
	b) Techniques of Teaching Grammar and Vocabulary	
	c) Techniques of Teaching Prose, Poetry and Drama;	
	Unit II	**3**
	a) Classroom Techniques: Lecture Method-Advantages and Disadvantages	
	b) Learner Centred Approach: Classroom Discussion, Pair Work, Group Work, Role Play	
	c) Team Teaching and Teaching Large Classes	
	Unit III	**3**
	a) Teaching Aids: Use of the Blackboard, Flip Charts, Realia	
	b) Audio-visual Aids: OHP, PPT	
	c) Using technology: Computer Aided Language Learning (CALL), Importance of English Language Laboratory	
Unit IV		**3**
	a) Teaching of Literature: Teaching Language through Literature: Important Techniques	
	b) Stylistic Approach to the Teaching of Literature: Norm, Deviation and Foregrounding	
	c) Designing language tasks from literary texts.	
Unit V		**3**
	a) Practical English I: Essentials of Presentation Skills, Elocution, Debate, Compeering, Interviews, Group Discussions	
	b) Practical English II: Corporate/business communication: Inter Office Memos (IOMs), Notices, Agenda and Minutes of Meeting	
	c) Practical English III: Business Letters: Letter of enquiry, Letter of complaint, Letter of reply.	

NIZAM COLLEGE : DEPARTMENT OF ENGLISH

LESSON PLAN FOR THE ACADEMIC YEAR 2016-18 (Semester I)

Sem IV) W.e.f. 2016-17 MA (Final) Semester IV Paper I ENG 401 English Language Teaching: Major Developments in L1 and L2 (5 Credits)..Dr.Konda Nageswara Rao

Unit No	Topics to be covered	No of Hours
Unit I	a) The Human Brain and its Functions - Language Acquisition and Learning	
	b) First Language Acquisition - Stages of Language Development in a Child	
	c) Learning Disabilities with special focus on Aphasia	
Unit II	a) Major Findings in L2 Research	3
	b) Models of Second Language Acquisition I: The Linguistic Process Focus: The Monitor Model, The Conscious Reinforcement Model, The Strategy Model	
	c) Models of Second Language Acquisition II: The Social Process Focus: The Social	
	Psychological Model, The Acculturation Model, The Social Context Model, The Intergroup Model	
Unit III	a) Language Learning Strategies (LLS) : Definition, Early Research on LLS, The Good Language Learner Research	3
	b) Modern Research on LLS: Rebecca Oxford_s Classification of LLS:Direct Strategies: Memory Strategies, Cognitive Strategies, Compensation Strategies; Indirect Strategies: Meta-cognitive Strategies, Affective Strategies, Social Strategies	
	c) Mind Mapping, Learner Autonomy, Learning Styles	
Unit IV		**3**
	a) Socio-Linguistics: Language, Society and Culture: Their Relationship	
	b) World Englishes: Braj Kachru and Tom McArthur models; New Englishes: Current trends in the spread of English	
	c) Beyond Methods: Kumaravadivelu_s Concept of Postmethod Pedagogy, Macrostrategic Framework	
Unit V		**3**
	a) Principles of Designing ESP courses: English for Academic Purposes (EAP), English for	
	Science and Technology(EST), English for Occupational Purposes (EOP)	
	b) Teaching and testing Group Discussion (GD) and Interviews	
	c) Steps to design a Standard test, Designing objective type tests, Study of the Samples of TOEFL and IELTS, Competitive Tests at State and National Levels	

GENETICS

NIZAM COLLEGE : DEPARTMENT OF GENETICS

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021(Semester I)

Class : B.ScI year, **1**st year **Section: Mb.G.C**

Course/Paper: -1 **Transmission Genetics**

Unit: 1 **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Mendel's experiments- Choice of material, characters	2
Terminology and definitions – Mendel's factors, phenotypes, genotype, locus, allele, homozygotes, heterozygotes, purelines, filial generations, reciprocal cross, back cross, test cross	3
Law of Segregation- Monohybrid crosses with examples	2
Law of Independent Assortment – Dihybrid and Trihybrid crosses with examples.	2
Mendelian Inheritance in Man - Construction of pedigrees. Law of Independent Assortment – Dihybrid and Trihybrid crosses with examples	3
Determination of autosomal dominant (polydactyly), recessive (albinism), and X—linked (hemophilia) conditions from pedigrees.	3

Name of the Teacher: Sandhya.Jagtap

Signature:

Head, Department of Genetics

Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester I)

Class : B.Sc, **1**st year **Section: Mb.G.C**

Course/Paper: -1 **Transmission Genetics**

Unit: 2 **No. of Hours Allotted**: 15

Topics to be covered	**No. of Hours**
Eukaryotic Cell cycle - Phases of cell cycle G0, G1, S, G2	2
Genes that determine the cell cycle – cyclins, CDK proteins, role of P^{53} in cell cycle.	3
Mitosis – Stages in mitotic cell division- significance of mitosis	3
Meiosis - Formation of Synaptonemal complex, crossing over, chiasma formation, significance of meiosis	3
Gametogenesis in Plants	2
Gametogenesis in Animals & Human	2

Name of the Teacher: Sandhya.Jagtap Head, Department of Genetics

Signature: Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester I)

Class : B.Sc, **1**st year **Section: Mb.G.C**

Course/Paper: Transmission Genetics -1

Unit: 3 **No. of Hours Allotted**: 15

Topics to be covered	**No. of Hours**
Variations to Dominance - Penetrance and Expressivity; Co-dominance& Incomplete dominance	2
Pleiotropism.	2
Lethal and Sub-lethal Genes – Dominant and recessive Lethals	2
Modification of Mendel's Ratios - Different types of Epistasis with examples from different organisms	2
. Paramutation – mottling phenotypes in maize; Segregation distortion – Sd gene in *Drosophila*	2
Multiple alleles – theories of multiple allelic inheritance- Eye color in Drosophila, coat color in mice and rabbits.	2
ABO blood groups in man-inheritance, blood group incompatibility in transfusion, maternal fetal tolerance	2
Self incompatibility in plants	1

Name of the Teacher: Sandhya.Jagtap Head, Department of Genetics

Signature:

Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester I)

Class : B.Sc, **1**st year **Section: Mb.G.C**

Course/Paper: Transmission Genetics -1

Unit: 4 **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Discovery of linkage & Phases of linkage	1
Chiasmata and crossing over.	2
. Cytological proof for crossing over and recombination	3
Recombination frequencies, Linkage analysis- 2-point, 3-point test crosses.	3
Recombination frequencies, Linkage analysis- 2-point, 3-point test crosses.	3
Gene mapping in *Neurospora* – Tetrad Analysis	2
Mitotic Recombination- *Aspergillus.*	1

Name of the Teacher: Sandhya.Jagtap Head, Department of Genetics

Signature: Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester II)

Class : B.Sc, **1**st year **Section: Mb.G.C**

Course/Paper: -2 **GENETIC ANALYSIS**

Unit:1 **No. of Hours Allotted**: 15

Topics to be covered	**No. of Hours**
Complex loci – Rh blood group system in man, CDE alleles, maternal fetal incompatibility - Erythroblastosis Fetalis	3
Histocompatibility Loci – HLA system, organ transplantation.	2
Genes and Environment. Temperature effect - infra and ultra bar eye in Drosophila, coat color in rabbits.	3
Phenocopies – Microcephaly, Phocomelia and Amelia, Cleft lip and palate	2
Environment effects on Twins.	1
Features of Quantitative Inheritance- Additive effect; Kernel color and size in Maize, Skin color, height and IQ in man	3
Multifactorial inheritance – hypertension, diabetes mellitus	1

Name of the Teacher Sandhya.Jagtap: Head, Department of Genetics

Signature: Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester II)

Class : B.Sc, **1**st year **Section: Mb.G.C**

Course/Paper: -2 **GENETIC ANALYSIS**

Unit:2 **No. of Hours Allotted**: 15

Topics to be covered	**No. of Hours**
Chromosome morphology- size and shape; Euchromatin and Heterochromatin- constitutive and facultative heterochromatin.	3
Components of Chromatin, Histones & Non-histones.	2
Packing of DNA into Chromatin – Nucleosome and higher order organization	2
Specialized Chromosomes – Lampbrush chromosomes, Polytene Chromosomes, Super numerary chromosomes.	2
Chromosome Variation – Structural aberrations- Duplications, Deletions, Inversions & Translocations with examples, Genetic consequences	3
. Numerical aberrations – aneuploidy, euploidy auto-polyploidy and allo- polyploidy with examples, Genetic consequences.	3

Name of the Teacher: Sandhya.Jagtap Head, Department of Genetics

Signature: Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester II)

Class : B.Sc, **1**st year **Section: Mb.G.C**

Course/Paper: -2 **GENETIC ANALYSIS**

Unit: 3 **No. of Hours Allotted**: 15

Topics to be covered	**No. of Hours**
Primary and secondary sex determination	1
Mechanisms of sex determination in Insects, Birds, Melandrium, Human, Bonellia.	2
Sex-Linked inheritance – color blindness, Haemophilia, Duchenne Muscular Dystrophy, Vitamin D resistant rickets, body color in Drosophila	3
Sex chromatin & X-inactivation – inactivation center – dosage compensation – position effect variegation – gynandromorphs	3
Y-linked inheritance – Holandric genes – hypertrichosis pinnae, SRY gene	2
Partial sex linkage- Bobbed bristles in Drosophila, PAR region in man	2
Sex limited and sex- influenced characters with examples	2

Name of the Teacher: Sandhya.Jagtap Head, Department of Genetics

Signature: Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester II)

Class : B.Sc, **1**st year **Section: Mb.G.C**

Course/Paper: -2 **GENETIC ANALYSIS**

Unit: 4 **No. of Hours Allotted**: 15

Topics to be covered	**No. of Hours**
Recombination and Gene mapping in Bacteria. a) Transformation. b) Conjugation. c) Transduction	3
Bacteriophage mutants	2
Recombination in Viruses	2
Chloroplast and Mitochondrial Inheritance	2
Maternal Inheritance – Laber's Optic atrophy, shell coiling in snails	3
Extrachromosomal inheritance in Paramecium, Yeast, Drosophila	3

Name of the Teacher: Sandhya.Jagtap Head, Department of Genetics

Signature: Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester III)

Class : B.Sc, **2**rd year **Section: Mb.G.C**

Course/Paper: -3 **GENE AND GENOME SRUCTURE, ORGANIZATION & EXPRESSION**

Unit: 1 **No. of Hours Allotted**: 15

Topics to be covered	**No. of Hours**
Structure of DNA – Primary, secondary and tertiary – Watson and Crick Model – Forms of DNA.	2
. Structure of RNA – m-RNA, t-RNA & r-RNA & other types such as sn RNA, micro RNA, interference RNA	3
DNA as Genetic material, transforming principle, Hershey and Chase experiment	2
RNA as Genetic Material	2
Replication of DNA-Semi conservative & Conservative methods, Meselson and Stahl's experiment	3
Mechanism of DNA replication-circular & linear	2
Enzymes involved in DNA replication.	1

Name of the Teacher: B.R.K.M.urthy Head, Department of Genetics

Signature: Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester III)

Class : B.Sc, **2**rd year **Section: Mb.G.C**

Course/Paper: -3 **GENE AND GENOME SRUCTURE, ORGANIZATION & EXPRESSION**

Unit: 2 **No. of Hours Allotted**: 15

Topics to be covered	**No. of Hours**
Nuclear genome organization, genes and gene numbers	2
Denaturation and renaturation.	2
Dissociation and re-association of DNA, reassociation kinetics of DNA – melting temperature (Tm values) and cot curves	3
Kinetic classes of DNA, single copy sequences, repeated sequences – moderately repetitive, highly repetitive – inverted, tandem and palindromic repeats	3
Satellite DNA.	2
Organisation of Eukaryotic gene- exons, introns, promoters and termination sequences.	3

Name of the Teacher: B.R.K.Murthy Head, Department of Genetics

Signature: Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (SemesterIII)

Class : B.Sc, **2**rd year **Section: Mb.G.C**

Course/Paper: -3 **GENE AND GENOME SRUCTURE, ORGANIZATION & EXPRESSION**

Unit: 3 **No. of Hours Allotted**: 15

Topics to be covered	**No. of Hours**
Gene families and clusters egs., Histone genes and Globin genes	2
Mitochondrial and Choloplast genome organization, evolutionary significance	2
Compound eye locus in Drosophila – white eye and lozenge gene in Drosophila	3
One gene – one enzyme hypothesis egs. from Human and Neurospora	2
Analysis of rII locus	2
Co-linearity between gene and polypeptide, tryptophan synthetase	2
Intra codon recombination	2

Name of the Teacher: B.R.K.M.urthy Head, Department of Genetics

Signature: Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (SemesterIII)

Class : B.Sc, **2**rd year **Section: Mb.G.C**

Course/Paper: -3 **GENE AND GENOME SRUCTURE, ORGANIZATION & EXPRESSION**

Unit: 4 **No. of Hours Allotted**: 15

Topics to be covered	**No. of Hours**
Transcription- template of transcription - sense and antisense strands	2
Formation of RNA transcripts: m-RNA, m-RNA splicing in eukaryotes.	3
Reverse transcription	2
Translation- initiation, elongation and termination	3
Genetic code	2
Polypeptide synthesis – distinguishing features between prokaryotes and eukaryotes during peptide synthesis.	3

Name of the Teacher: B.R.K.M.urthy Head, Department of Genetics

Signature: Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2018-2019(SemesterIV)

Class : B.Sc, **2**rd year **Section: Mb.G.C**

Course/Paper: -4 **MOLECULAR GENETICS**

Unit:1 **No. of Hours Allotted**: 15

Topics to be covered	**No. of Hours**
Gene regulation in Bacteria- positive and negative regulation, inducible and repressible regulation.	3
Lac operon & Tryptophan operon	3
Lytic cascade in phage	2
Gene regulation in Eukaryotes – transcriptional regulation, enhancers, transcriptional motifs	3
Gal locus regulation in Yeast	2
Regulation of mating types in yeast	2

Name of the Teacher: B.R.K.Murthy Head, Department of Genetics

Signature: Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (SemesterIV)

Class : B.Sc, **2**rd year **Section: Mb.G.C**

Course/Paper: -4 **MOLECULAR GENETICS**

Unit:2 **No. of Hours Allotted**: 15

Topics to be covered	**No. of Hours**
Differential expression of hemoglobin genes	2
Gene expression in development, pattern formation in Drosophila	4
Host Restriction & modification, Restriction enzymes- Type I, II & III	3
Vectors used for gene transfer- plasmids, cosmids and lambda phage, & other vectors	2
Cloning strategies-steps in Gene Cloning	2
Genomic & cDNA libraries	2

Name of the Teacher: B.R.K.M.urthy Head, Department of Genetics

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LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (SemesterIV)

Class : B.Sc, **2**rd year **Section: Mb.G.C**

Course/Paper: -4 **MOLECULAR GENETICS**

Unit:3 **No. of Hours Allotted**: 15

Topics to be covered	**No. of Hours**
Spontaneous and induced mutations	2
Chemical and physical mutagens – alkylating agents, base analogs, UV and gamma rays	3
Mutations at molecular level. a) Transitions and transversions. b) Deletions and additions- Frame shift mutations	3
Detecting mutations in prokaryotes- Auxotrophic mutations, Ames test	2
Detection of mutations in Eukaryotes- Russel's test and DLTS in mice.	2
SLRL tests in Drosophila-CLB test & Attached X test	2

Name of the Teacher: B.R.K.M.urthy Head, Department of Genetics

Signature: Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (SemesterIV)

Class : B.Sc, **2**rd year **Section: Mb.G.C**

Course/Paper: -4 **MOLECULAR GENETICS**

Unit:4 **No. of Hours Allotted**: 15

Topics to be covered	**No. of Hours**
DNA damage and repair mechanisms Photo-reactivation, excision repair, SOS repair, recombinational repair and error prone repair.	4
Transposable elements–structure and function	3
Bacteria- IS elements, Transposons and plasmids	2
Maize- Ac, Ds and Spm system	2
Drosophila – P-element and hybrid dysgenesis	2
Yeast- Ty element	2

Name of the Teacher: B.R.K.Murthy Head, Department of Genetics

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LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (SemesterV)

Class : B.Sc **Section: Mb.G.C**

Course/Paper: -5 **POPULATION GENETICS**

Unit: 1 **No. of Hours Allotted**: 20

Topics to be covered	**No. of Hours**
The concept of populations, Demes and Mendelian population	3
Attributes of a population	2
Random mating populations	2
Calculation of Gene & genotype frequencies in a population	3
Genetic equilibrium- Hardy Weinberg Law- Establishment of equilibrium for diallelic locus	4
Calculation of Gene frequencies in case of complete dominance	3
Application of HWL in case of multiple allelic loci, X-linked loci, multiple loci	3

Name of the Teacher: B.R.K.M.urthy Head, Department of Genetics

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LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (SemesterV)

Class : B.Sc, **3**rd year **Section: Mb.G.C**

Course/Paper: -5 **POPULATION GENETICS**

Unit: 2 **No. of Hours Allotted**: 15

Topics to be covered	**No. of Hours**
Evolutionary processes – Mutation- Mutation pressure	1
Irreversible mutation	1
Reversible mutation- Attainment of Hardy Weinberg equilibrium under mutation	2
Introduction to selection- Concept of Fitness, selection co-efficient, calculation of fitnessbased on survival and fertility.	2
Complete elimination of recessive genes	1
Selection against dominants	1
Selection favoring heterozygotes – stable equilibrium, balanced polymorphisms eg. sicklecell hemoglobin trait	2
Selection against heterozygotes – unstable equilibrium – Rh incompatibility	2
Joint effects of mutation and selection	1
Selection at the phenotypic level – directional, stabilizing and disruptive selection.	2

Name of the Teacher: Head, Department of Genetics

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LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (SemesterV)

Class : B.Sc, **3**rd year **Section: Mb.G.C**

Course/Paper: -5 **POPULATION GENETICS**

Unit: 3 **No. of Hours Allotted**: 15

Topics to be covered	**No. of Hours**
Polymorphism – mechanisms for maintenance of polymorphism	3
Migration: Effect on gene frequencies	3
Genetic Drift: Effective population size	3
Effect of drift on gene frequencies	2
Founder effect	2
Bottle neck effect	2

Name of the Teacher: Head, Department of Genetics

Signature: Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2018-2019(SemesterV)

Class : B.Sc, **3**rd year **Section: Mb.G.C**

Course/Paper: -6-E1 **GENOME ANALYSIS AND GENETIC ENGINEERING**

Unit: 1 **No. of Hours Allotted**: 15

Topics to be covered	**No. of Hours**
Centrifugation- Sucrose gradient and Cesium chloride gradient centrifugation	3
Chromatography – Principles and applications – Separation of peptides and amino acids	3
Gel electrophoresis – Principles and applications	2
Paper, agar, starch, PAGE electrophoresis - Isoelectric focusing, pulse field gel and submarine electrophoresis – separation of proteins and nucleic acids	3
Polymerase chain reaction (PCR) and its applications	2
Autoradiography – Principles and Applications	2

Name of the Teacher: B.R.K.Murthy Head, Department of Genetics

Signature: Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (SemesterV)

Class : B.Sc, **3**rd year **Section: Mb.G.C**

Course/Paper: -6-E1 **GENOME ANALYSIS AND GENETIC ENGINEERING**

Unit: 2 **No. of Hours Allotted**: 15

Topics to be covered	**No. of Hours**
Hybridization techniques – Southern, Northern, Western blotting techniques – FISH, Principles and Applications. DNA - Microarray technology.	2
DNA sequencing – Maxam Gilbert's method, Sanger's method and automated sequencing, Next Generation Sequencing	2
Hybridoma technology and production of Monoclonal Antibodies	2
Chromosome Banding - G-banding, C-banding, R-banding, Q-banding, NOR banding	2
DNA Fingerprinting – RAPD technique, VNTRs	2
Physical methods – Electroporation – Microprojectile bombardment	2
Chemical methods – Liposome fusion, Calcium precipitation of DNA	1
Gene transfer mediated by vectors – R vectors, Ti vectors	1
Viral vectors	1

Name of the Teacher: B.R.K.Murthy Head, Department of Genetics

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LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (SemesterV)

Class : B.Sc, **3**rd year **Section: Mb.G.C**

Course/Paper: -6-E1 **GENOME ANALYSIS AND GENETIC ENGINEERING**

Unit: 3 **No. of Hours Allotted**: 15

Topics to be covered	**No. of Hours**
Transgenic plants – Need for developing transgenic plants	4
Development of insect and herbicide resistant plants	3
Development of stress tolerant plants	3
Transgenic animals – Need for developing transgenic animals	3
Nuclear transfer and cloning	3
Developing transgenic animals – Cattle, Birds, Fish and Mice – animal models for genetic diseases	4

Name of the Teacher: B.R.K.Murthy Head, Department of Genetics

Signature: Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2018-2019(Semester V)

Class : B.Sc, **3**rd year **Section: Mb.G.C**

Course/Paper: -6-E2 **MEDICAL GENETIS**

Unit: 1 **No. of Hours Allotted**: 15

Topics to be covered	**No. of Hours**
Introduction to Immunity –active and passive, Humoral and cell-mediated, components of the human immune system	2
Antigens and antibodies	1
Types and structure of Immunoglobulins-functions	2
Assembly of Immunoglobulin genes- Somatic Recombination- Antibody	2
Auto immune disorders	2
Major histocompatibility complex –Organ transplantation	2
Blood groups in human A B O ,MN, Rh, S/S and secretor antigens	2
Disorders of blood	2

Name of the Teacher: Head, Department of Genetics

Signature: Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021(SemesterV)

Class : B.Sc, **3**rd year **Section: Mb.G.C**

Course/Paper: -6 -E-2 **MEDICAL GENETIS**

Unit: 2 **No. of Hours Allotted**: 15

Topics to be covered	**No. of Hours**
Cell cycle regulating proteins and genes	3
Hereditary cancers-Tumor Suppressor genes- p^{53} and p^{RB} group of proteins, Retinoblastoma, Hereditary polyposis coli	3
Properties of cancer cells	2
Stages of cancer development	3
Proto oncogenes - mechanisms that convert them to oncogenes	2
Emerging trends in cancer therapy	2

Name of the Teacher: Head, Department of Genetics

Signature: Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (SemesterV)

Class : B.Sc **Section: Mb.G.C**

Course/Paper: -6-E2- **MEDICAL GENETIS**

Unit:3 **No. of Hours Allotted**: 15

Topics to be covered	**No. of Hours**
Some common syndromes	2
Sex chromosome anomalies	2
Origin of Barr body	2
Abberant sexual development-true and Pseudo Hermophrodites	2
Abortions and chromosomal anomalies.	2
Autosomal anomalies - Down's syndrome,Edward & Patau syndromes	3
Sex-chromosomal anomalies -Turners syndrome. Kline felter syndrome	3
Single gene disorders of autosomes and sex-chromosomes	2
Metabolic disorder – P K U ,albinism, alkaptonuria	2

Name of the Teacher: Head, Department of Genetics

Signature: Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (SemesterVI)

Class : B.Sc, **3**rd year **Section: Mb.G.C**

Course/Paper: -7 **BREEDING AND GENOME EVOLUTION**

Unit: 1 **No. of Hours Allotted**: 15

Topics to be covered	**No. of Hours**
Assortative mating	2
Construction of pedigrees – raw and forked pedigrees	2
Estimation of inbreeding coefficient using pedigrees	3
Effect of inbreeding - Effect of inbreeding on genotypic frequencies and inbreeding depression	3
Genetic load – mutational and segregational load	3
Inbreeding in small populations / isolates	2

Name of the Teacher: Head, Department of Genetics

Signature: Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021(SemesterVI)

Class : B.Sc, **3**rd year **Section: Mb.G.C**

Course/Paper: -7 **BREEDING AND GENOME EVOLUTION**

Unit: 2 **No. of Hours Allotted**: 15

Topics to be covered	**No. of Hours**
Self pollinated crops- mass selection, pure line, back cross, line breeding(pedigree method)	2
Cross pollinated crops-mass selection, progeny selection	2
Hybrids-steps in the production of hybrid varieties	2
Heterosis – genetic basis of heterosis, inbreeding depression & physiological basis of Heterosis	2
Cross breeding –objectives and types of hybridisation	2
Full sib mating	1
Parent - offspring and repeated back crosses	2
Line Breeding	1
Cross breeding and out crossing	1

Name of the Teacher: Head, Department of Genetics

Signature: Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021(SemesterVI)

Class : B.Sc , **3**rd year **Section: Mb.G.C**

Course/Paper: -7 **BREEDING AND GENOME EVOLUTION**

Unit: 3 **No. of Hours Allotted**: 15

Topics to be covered	**No. of Hours**
The origins of genomes	2
Acquisition of new genes by gene duplication and from other species	3
Non-coding DNA, transposable elements and genome evolution – origin of introns	3
Molecular Phylogenetics – UPGMA & NEIS index	2
Origin of Molecular Phylogenetics – Molecular clocks	2
Applications of Molecular Phylogenetics and establishment of evolutionary relationships	3

Name of the Teacher: Head, Department of Genetics

Signature: Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021(SemesterVI)

Class : B.Sc, **3**rd year **Section: Mb.G.C**

Course/Paper: -8-E-1 **HUMAN GENETICS AND BIOSTATISTICS**

Unit: 1 **No. of Hours Allotted**: 15

Topics to be covered	**No. of Hours**
Types of Genetic disorders	1
Prevention of Genetic diseases - Identification of carriers	1
Risk prediction – for single gene disorders and multifactorial disorders	1
Genetic counseling – steps in counselling	1
Prenatal diagnosis – indications for prenatal diagnosis – Methods used in prenatal diagnosis	2
Management of inherited human diseases - Treatment of Genetic diseases	1
Gene therapy and its need -Strategies of gene therapy – somatic and germinal gene therapy	2
Ex-vivo and in-vivo gene therapy, advantages and disadvantages	2
Gene therapy trials – ADA deficiency, Cystic fibrosis, Hypercholesterolemia and cancers; vectors used in gene therapy- advantages and disadvantages	2
Gene therapy and ethical issues	1
Over view of Genome projects	1

Name of the Teacher: B.R.K.Murthy Head, Department of Genetics

Signature: Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021(SemesterVI)

Class : B.Sc, **3**rd year **Section: Mb.G.C**

Course/Paper: -8-E-1 **HUMAN GENETICS AND BIOSTATISTICS**

Unit:2 **No. of Hours Allotted**: 15

Topics to be covered	**No. of Hours**
Humulin and Vaccines	3
Commercial enzymes – Subtilisin, Phytase	2
Introduction to Bioreactors	2
Bio-fertilizers and Biopesticides	3
Bioremediation	2
Biodegradation of Petroleum and Xeno-biotics	3

Name of the Teacher: B.R.K.Murthy Head, Department of Genetics

Signature: Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021(Semester VI)

Class : B.Sc, **3**rd year **Section: Mb.G.C**

Course/Paper: -8-E-1 **HUMAN GENETICS AND BIOSTATISTICS**

Unit: 3 **No. of Hours Allotted**: 15

Topics to be covered	**No. of Hours**
Theory of probability – use of probability in testing segregation of genes	3
Concept of a random variable	3
Probability distributions – Binomial & Poisson's for discrete Genetic variable	2
Normal distribution– for continuous Genetic variables	2
Simple random sampling, test of hypothesis – Normal deviate test, t-test and Chi-square test in Genetic analysis	3
Correlation and Regression of genetic variables	2

Name of the Teacher: Sandhya.Jagtap Head, Department of Genetics

Signature: Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021(SemesterVI)

Class : B.Sc, **3**rd year **Section: Mb.G.C**

Course/Paper: -8-E-2 **Plant Genetics and Biotechnology**

Unit: 1 **No. of Hours Allotted**: 15

Topics to be covered	**No. of Hours**
Overview of genetics of biosynthetic pathways in plants	3
Anthocycanin biosynthesis in maize	2
Chlorophyll biosynthesis in maize	2
Starch biosynthesis in cereals	2
Genetics of Nitrogen fixation in plants- nif genes in Rhizobium	3
Genetic regulation of Nitrogen fixation	3

Name of the Teacher: B.R.K.Murthy Head, Department of Genetics

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LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021(SemesterVI)

Class : B.Sc, **3**rd year **Section: Mb.G.C**

Course/Paper: -8-E2 **Plant Genetics and Biotechnology**

Unit: 2 **No. of Hours Allotted**: 15

Topics to be covered	**No. of Hours**
Applications and importance of plant tissue culture	3
Media for tissue – MS medium- organic and inorganic constituents	3
Sterilization of media- steam, dry and filter sterilization, explants sterilization	3
Callus culture	2
Organogenesis and regeneration	2
Meristem culture and virus free plants	2

Name of the Teacher: B.R.K.Murthy Head, Department of Genetics

Signature: Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021(SemesterVI)
Class : B.Sc-**3**rd year **Section: Mb.G.C**

Course/Paper: -8-E-2 **Plant Genetics and Biotechnology**

Unit: 3 **No. of Hours Allotted**: 15

Topics to be covered	**No. of Hours**
Anther and pollen cultures- principle and protocol and its significance	3
Somaclonal variation- selection of clones and applications	3
Somatic embryogenesis- principle and applications	3
Artificial seeds- production and applications	2
Production of secondary metabolites of commercial value	2
Cryopreservation of plant cultures	2

Name of the Teacher: B.R.K.Murthy Head, Department of Genetics
Signature Signature

HINDI

NIZAM COLLEGE: DEPARTMENT OF HINDI

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (semester-I)

Class: B.A I_{st} Year section: No

Course/paper: Morden Language - I

Unit: I No. of Hours Allotted: 15

Nibandh Niket: Meaning and Definition of Nibandh	1
Types of Nibandh	2
History of Hindi Essay	2
Man ki Drudhata: Balakrishna Batt - Introduction	1
Life Sketch of the Writer - Balakrishna Batt	2
Man ki Drudhata: Meanings of Hard Words and Explanation	1
Summary of the Lesson	2
Reference of the Context	2
Synopsis of the Man ki Drudhata	2

Signature of the Teacher
Name: Dr. Dasari Moulali

Head of the Department
Name: Dr. Avinash Jaiswal

LESSON PLAN FOR THE ACADEMIC YEAR 2017-18 (semester-I)

Class: B.A I_{st} Year section: No

Course/paper: Morden Language

Unit: II No. of Hours Allotted: 15

Acharan ki Sabhyata: Sardaar Purnasingh - Introduction	1
Life Sketch of the Writer - Sardaar Purnasingh	2
Meanings of Hard Words and Explanation	2
Summary of the Lesson	4
Reference of the Context	2
Synopsis of the Acharan ki Sabhyatha	2
Sardaar Purnasingh: His works on Hindi Literature	2

Signature of the Teacher
Name: Dr. Dasari Moulali

Head of the Department
Name: Dr. Avinash Jaiswal

LESSON PLAN FOR THE ACADEMIC YEAR 2017-18 (semester-I)

Class: B.A I_{st} Year section: No

Course/paper: Morden Language

Unit: III No. of Hours Allotted: 15

Jeene ki Kala: Mahadevi Varma - Introduction	1
Life Sketch of the Writer - Mahadevi Varma	2
She's works on the Hindi Literature	2
Meanings of Hard Words and Explanation	2
Summary of the Lesson	4
Reference of the Context	2
Synopsis of the Jeene ki Kala	2

Signature of the Teacher
Name: Dr. Dasari Moulali

Head of the Department
Name: Dr. Avinash Jaiswal

LESSON PLAN FOR THE ACADEMIC YEAR 2017-18 (semester-I)

Class: B.A I_{st} Year section: No

Course/paper: Morden Language

Unit: IV No. of Hours Allotted: 15

Druvaswamini (Drama): Jaishanker Prasad - Introduction	1
Life Sketch of the Dramatist	1
Ithihasikata	2
Pratham Ank Explanation	2
Dwitiya Ank Explanation	2
Thrutiya Ank Explanation	2
Reference of the Context	2
Paatra Yojana (Characters in the Drama)	1
Uddeshya (Content of the Drama)	1
Synopsis of the Drama	1

Signature of the Teacher Head of the Department

Name: Dr. Dasari Moulali Name: Dr. Avinash Jaiswal

LESSON PLAN FOR THE ACADEMIC YEAR 2017-18 (semester-II)

Class: B.A I_{st} Year section: No

Course/paper: Morden Language-II

Unit: I No. of Hours Allotted: 15

Devadaru: Hajari Prasad Dwivedi - Introduction	1
Life Sketch of the Writer - Hajari Prasad Dwivedi	2
Hajari Prasad Dwivedi: His works on Hindi Literature	3
Meanings of Hard Words and Explanation	2
Summary of the Lesson	2
Reference of the Context	3
Synopsis of the Devadaru	2

Signature of the Teacher
Name: Dr. Dasari Moulali

Head of the Department
Name: Dr. Avinash Jaiswal

LESSON PLAN FOR THE ACADEMIC YEAR 2017-18 (semester-II)

Class: B.A I_{st} Year section: No

Course/paper: Morden Language-II

Unit: II No. of Hours Allotted: 15

Dabre par Suraj ka Bimb: Muktibodh - Introduction	1
Life Sketch of the Writer Muktibodh	2
Muktibodh: His works on Hindi Literature	2
Meanings of Hard Words and Explanation	2
Summary of the Lesson	4
Reference of the Context	2
Synopsis of the Dabre par Suraj ka Bimb	2

Signature of the Teacher
Name: Dr. Dasari Moulali

Head of the Department
Name: Dr. Avinash Jaiswal

LESSON PLAN FOR THE ACADEMIC YEAR 2017-18 (semester-II)

Class: B.A I_{st} Year section: No

Course/paper: Morden Language-II

Unit: III No. of Hours Allotted: 15

Chetana ka Sanskar: Sacchidanand Hiranand Vatsayayan Agney - Introduction	1
Life Sketch of the Writer - Agney	2
Agney: His works on Hindi Literature	2
Meanings of Hard Words and Explanation	2
Summary of the Lesson	4
Reference of the Context	3
Synopsis of the Chetana ka Sanskar	1

Signature of the Teacher
Name: Dr. Dasari Moulali

Head of the Department
Name: Dr. Avinash Jaiswal

LESSON PLAN FOR THE ACADEMIC YEAR 2017-18 (semester-II)

Class: B.A I_{st} Year section: No

Course/paper: Morden Language-II

Unit: IV No. of Hours Allotted: 15

Shesh Yatra (Novel): - Introduction	1
Upanyas (Novel): Meaning and Definition	1
Types of Upanyas (Novel)	2
Meanings of Hard Words and Explanation	3
Summary of the Novel	3
Characters of the Novel	2
Uddeshya (Content of the Novel)	2
Synopsis of the Shesh Yatra Upanyas	1

Signature of the Teacher Head of the Department

Name: Dr. Dasari Moulali Name: Dr. Avinash Jaiswal

NIZAM COLLEGE: DEPARTMENT OF HINDI

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (semester-V)

Class: B.A III$_{rd}$ Year section: No

Course/paper: Morden Language - V

Unit: I No. of Hours Allotted: 08

Bharat ki Durdarsha: Bharatendu Harichandra - Introduction	1
Life Sketch of the Writer Bharatendu Harichandra	1
He is works on the Literature	1
Meanings of Hard Words and Explanation	1
Summary of the Lesson	1
Reference of the Content	1
Synopsis of the Bharat ki Durdarsha	1

Signature of the Teacher
Name: Dr. Dasari Moulali

Head of the Department
Name:

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (semester-V)

Class: B.A III$_{rd}$ Year section: No

Course/paper: Morden Language - V

Unit: II No. of Hours Allotted: 08

Phool Aur Kanta: Ayodhya Singh Upadyay - Introduction	1
Life Sketch of the Writer Ayodhya Singh Upadyay	1
He is works on the Literature	1
Meanings of Hard Words and Explanation	1
Summary of the Lesson	1
Reference of the Content	1
Synopsis of the Bharat ki Phool Aur Kanta	1

Signature of the Teacher
Name: Dr. Dasari Moulali

Head of the Department
Name:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-18 (semester-V)

Class: B.A III$_{rd}$ Year section:

Course/paper: Morden Language - V

Unit: III No. of Hours Allotted: 08

Abhinay Geet: Jayashankar Prasad - Introduction	1
Life Sketch of the Writer Jayashankar Prasad	1
He is works on the Literature	1
Meanings of Hard Words and Explanation	1
Summary of the Lesson	1
Reference of the Content	1
Synopsis of the Bharat ki Abhinay Geet	1

Signature of the Teacher
Name: Dr. Dasari Moulali

Head of the Department
Name:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-18 (semester-V)

Class: B.A III$_{rd}$ Year section:

Course/paper: Morden Language - V

Unit: IV No. of Hours Allotted: 08

Bhikshuk: Suryakant Tripathi Nirala - Introduction	1
Life Sketch of the Writer Suryakant Tripathi Nirala	1
He is works on the Literature	1
Meanings of Hard Words and Explanation	1
Summary of the Lesson	2
Reference of the Content	1
Synopsis of the Bharat ki Bhikshuk	1

Signature of the Teacher
Name: Dr. Dasari Moulali

Head of the Department
Name:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-18 (semester-V)

Class: B.A III$_{rd}$ Year section:

Course/paper: Morden Language - V

Unit: V No. of Hours Allotted: 08

Moun Nimantran: Sumitranandn Pant - Introduction	1
Life Sketch of the Writer Sumitranandn Pant	1
He is works on the Literature	1
Meanings of Hard Words and Explanation	1
Summary of the Lesson	2
Reference of the Content	1
Synopsis of the Moun Nimantran	1

Signature of the Teacher
Name: Dr. Dasari Moulali

Head of the Department
Name:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-18 (semester-V)

Class: B.A III$_{rd}$ Year section:

Course/paper: Morden Language - V

Unit: VI No. of Hours Allotted: 08

Murjhaya Phool: Mahadevi Varma- Introduction	1
Life Sketch of the Writer Mahadevi Varma	1
She's works on the Literature	1
Meanings of Hard Words and Explanation	1
Summary of the Lesson	2
Reference of the Content	1
Synopsis of the Murjhaya Phool	1

Signature of the Teacher
Name: Dr. Dasari Moulali

Head of the Department
Name:

LESSON PLAN FOR THE ACADEMIC YEAR 2018-2019 (semester-V)

Class: B.A III$_{rd}$ Year section:

Course/paper: Morden Language - V

Unit: VII No. of Hours Allotted: 08

Alochana- Introduction, Defination and Structure	1
Types of Alochana	1
Importance of Alochana	1
Reference of the Content	1
Synopsis of the Alochana	1

Signature of the Teacher
Name: Dr. Dasari Moulali

Head of the Department
Name:

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (semester-V)

Class: B.A III$_{rd}$ Year section:

Course/paper: Morden Language - VI

Unit: I No. of Hours Allotted: 15

Hindi Sahitya ka Itihas - Introduction	2
Life Sketch of the Writer's in Adikaal	2
Writer's work on the Literature	2
Adikaal - Introduction	1
Adikal ki Paristitiyan – Samajik, Arthik, Rajanitik, Dharmik and Sanskritik etc.	2
Adikal ki Pravrutiyan – Sikh, Jain, Naath, Raaso ki Parichayam	2
Reference of the Content	2
Synopsis of the Adikal	2

Signature of the Teacher Head of the Department

Name: Dr. Dasari Moulali Name:

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (semester-V)

Class: B.A III$_{rd}$ Year section:

Course/paper: Morden Language - VI

Unit: II No. of Hours Allotted: 16

Bhaktikal - Introduction	2
Life Sketch of the Writer's in Prem marg And Gyan marg	2
Writer's work on the Literature	1
Bhaktikal – Naama karan	1
Bhaktikal ki Paristitiyan – Samajik, Arthik, Rajanitik, Dharmik and Sanskritik etc.	2
Bhaktikal ki Vargikaran aur Pravrutiyan	1
Sant Kaviyon ki Visheshtayen	1
Prem Kaviyon ki Visheshtaye	1
Ram Bhakti Kaviyon ki Visheshtayen	1
Krushna Bhakti Kaviyon ki Visheshtayen	1
Reference of the Content	1
Synopsis of the Bhaktikal	1

Signature of the Teacher Head of the Department

Name: Dr. Dasari Moulali Name:

Class: B.A III$_{rd}$ Year section:

Course/paper: Morden Language - VI

Unit: III No. of Hours Allotted: 12

Bhaktikal - Introduction	1
Life Sketch of the Writer's in Ram Bhakti and Krishna Bakti	1
Writer's work on the Literature	1
Bhaktikal – Naama karan	1
Bhaktikal ki Paristitiyan – Samajik, Arthik, Rajanitik, Dharmik and Sanskritik etc.	1
Bhaktikal ki Vargikaran aur Pravrutiyan	1
Ram Bhakti Kaviyon ki Visheshtayen	1
Krushna Bhakti Kaviyon ki Visheshtayen	1
Reference of the Content	1
Synopsis of the Bhaktikal	1

Signature of the Teacher Head of the Department

Name: Dr. Dasari Moulali Name:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-18 (semester-V)

Class: B.A III$_{rd}$ Year section:

Course/paper: Morden Language - VI

Unit: IV No. of Hours Allotted: 10

Prayojan Mulak Hindi - Introduction, Defination and Structure	1
Prayojan Mulak Hindi ki Avadharana Evam Swaroop	1
Alekhan Evam Tippan	1
Importance of Prayojan Mulak Hindi	1
Synopsis of the Prayojan Mulak Hindi	1

Signature of the Teacher
Name: Dr. Dasari Moulali

Head of the Department
Name:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-18 (semester-V)

Class: B.A III$_{rd}$ Year section:

Course/paper: Morden Language - VI

Unit: V No. of Hours Allotted: 05

Karyalayeen Hindi - Introduction, Defination and Structure	1
Karyalayeen ke Naam	1
Padnaam (English to Hindi)	1
Importance Karyalayeen Hindi	1
Synopsis of the Karyalayeen Hindi	1

Signature of the Teacher
Name: Dr. Dasari Moulali

Head of the Department
Name:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-18 (semester-VI)

Class: B.A III$_{rd}$ Year section:

Course/paper: Morden Language - VII

Unit: I No. of Hours Allotted: 14

Pranati: Ramdhari Singh Dinkar - Introduction	1
Life Sketch of the Writer Ramdhari Singh Dinkar	1
He is works on the Literature	1
Meanings of Hard Words and Explanation	1
Summary of the Lesson	2
Reference of the Content	1
Synopsis of the Pranati	1
Himalaya Prati: Ramdhari Singh Dinkar - Introduction	1
Meanings of Hard Words and Explanation	1
Summary of the Lesson	2
Reference of the Content	1
Synopsis of the Himalaya Prati	1

Signature of the Teacher Head of the Department

Name: Dr. Dasari Moulali Name:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-18 (semester-VI)

Class: B.A III$_{rd}$ Year section:

Course/paper: Morden Language - VII

Unit: II No. of Hours Allotted: 14

Mujhse Chand kaha karta hai: Harivamshray Bachan - Introduction	1
Life Sketch of the Writer Harivamshray Bachan	1
He is works on the Literature	1
Meanings of Hard Words and Explanation	1
Summary of the Lesson	2
Reference of the Content	1
Synopsis of the Mujhse Chand kaha karta hai	1
Need ka Nirman: Harivamshray Bachan - Introduction	1
Meanings of Hard Words and Explanation	1
Summary of the Lesson	2
Reference of the Content	1
Synopsis of the Need ka Nirman	1

Signature of the Teacher
Name: Dr. Dasari Moulali

Head of the Department
Name:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-18 (semester-VI)

Class: B.A III$_{rd}$ Year section:

Course/paper: Morden Language - VII

Unit: III No. of Hours Allotted: 16

Mitti ki Mahima: Agyey - Introduction	1
Life Sketch of the Writer Agyey	1
He is works on the Literature	1
Meanings of Hard Words and Explanation	1
Summary of the Lesson	2
Reference of the Content	1
Synopsis of the Mitti ki Mahima	1
Thake huye Kalakar Se: Bharmaveer Bharati - Introduction	1
Life Sketch of the Writer Bharmaveer Bharati	1
She's works on the Literature	1
Meanings of Hard Words and Explanation	1
Summary of the Lesson	2
Reference of the Content	1
Synopsis of the Thake huye Kalakar Se	1

Signature of the Teacher Head of the Department

Name: Dr. Dasari Moulali Name:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-18 (semester-V)

Class: B.A III$_{rd}$ Year section:

Course/paper: Morden Language - VII

Unit: IV No. of Hours Allotted:09

Alochana- Introduction, Defination	1
Types of Alochana	2
Importance of Alochana	2
Alochana ke Mahatv Evam Uddeshya	2
Alochana ke Avashyak Gun	1
Synopsis of the Alochana	1

Signature of the Teacher Head of the Department

Name: Dr. Dasari Moulali Name:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-18 (semester-III)

Class: B.A II_{nd} Year section:

Course/paper: Morden Language-III

Unit: I No. of Hours Allotted: 11

Kabirdas - Introduction	1
Life Sketch of the Kabirdas	1
Kabirdas: His works on Hindi Literature	1
Kabir ke Dohe – Short	2
Meanings of Hard Words and Explanation	1
Description of Dohe	2
Reference of the Content	1
Contribution of Kabirdas	1
Synopsis of the Kabir ke Dohe	1

Signature of the Teacher
Name: Dr. Dasari Moulali

Head of the Department
Name:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-18 (semester-III)

Class: B.A II_{nd} Year section:

Course/paper: Morden Language-III

Unit: II No. of Hours Allotted: 16

Tulasidas - Introduction	1
Life Sketch of the Tulasidas	1
Tulasidas: His works on Hindi Literature	1
Tulasidas ke Dohe	2
Meanings of Hard Words and Explanation	1
Description of Dohe	2
Tulasidas ke Pad – Pushpavatika	2
Meanings of Hard Words and Explanation	1
Description of Dohe and Pad	3
Contribution of Tulasidas	1
Synopsis of the Tulasidas ke Dohe and Pad	1

Signature of the Teacher Head of the Department

Name: Dr. Dasari Moulali Name:

LESSON PLAN FOR THE ACADEMIC YEAR 2018-2019(semester-III)

Class: B.A II_{nd} Year section:

Course/paper: Morden Language-III

Unit: III No. of Hours Allotted: 10

Soordas - Introduction	1
Life Sketch of the Soordas	1
Soordas: His works on Hindi Literature	1
Soordas ke Pad - Short	1
Description of Pad	1
Soordas ke Seven Pad – Bhramargeet	2
Meanings of Hard Words and Explanation	1
Contribution of Soordas	1
Synopsis of the Soordas ke Pad	1

Signature of the Teacher Head of the Department

Name: Dr. Dasari Moulali Name:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-18 (semester-III)

Class: B.A II$_{nd}$ Year section:

Course/paper: Morden Language-III

Unit: IV No. of Hours Allotted: 12

Biharilal - Introduction	1
Life Sketch of the Biharilal	1
Biharilal: His works on Hindi Literature	2
Biharilal ke Dohe – Short	1
Meanings of Hard Words and Explanation	2
Description of Dohe	2
Reference of the Content	1
Contribution of Biharilal	1
Synopsis of the Biharilal ke Dohe	1

Signature of the Teacher
Name: Dr. Dasari Moulali

Head of the Department
Name:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-18 (semester-III)

Class: B.A II_{nd} Year section:

Course/paper: Morden Language-III

Unit: V No. of Hours Allotted: 11

Ghananand - Introduction	1
Life Sketch of the Ghananand	2
Ghananand: His works on Hindi Literature	1
Ghananand ke Pad - Short	1
Meanings of Hard Words and Explanation	2
Description of Pad	2
Contribution of Ghananand	1
Synopsis of the Ghananand ke Pad	1

Signature of the Teacher Head of the Department

Name: Dr. Dasari Moulali Name:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-18 (semester-IV)

Class: B.A II_{nd} Year section:

Course/paper: Morden Language-IV

Unit: I No. of Hours Allotted: 10

Utsah: Acharya Ramachandra Shuklu - Introduction	1
Life Sketch of the Writer Acharya Ramachandra Shuklu	1
Acharya Ramachandra Shuklu: His works on Hindi Literature	1
Utsah: Defination and Structure	1
Meanings of Hard Words and Explanation	2
Summary of the Lesson	2
Reference of the Content	1
Synopsis of the Utsah	1

Signature of the Teacher
Name: Dr. Dasari Moulali

Head of the Department
Name:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-18 (semester-IV)

Class: B.A II_{nd} Year section:

Course/paper: Morden Language-IV

Unit: II No. of Hours Allotted: 08

Shraddha Bakti: Acharya Ramachandra Shuklu - Introduction	1
Life Sketch of the Writer Acharya Ramachandra Shuklu	1
Acharya Ramachandra Shuklu: His works on Hindi Literature	1
Shraddha Bakti: Defination and Structure	1
Meanings of Hard Words and Explanation	1
Summary of the Lesson	1
Reference of the Content	1
Synopsis of the Shraddha Bakti	1

Signature of the Teacher
Name: Dr. Dasari Moulali

Head of the Department
Name:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-18 (semester-IV)

Class: B.A II_{nd} Year section:

Course/paper: Morden Language-IV

Unit: III No. of Hours Allotted: 16

Ras: Introduction	2
Ras: Defination and Structure	2
Importance of Ras	2
Shrungaar Ras: Introduction, Defination and Importance	1
Veer Ras: Introduction, Defination and Importance	1
Roudra Ras: Introduction, Defination and Importance	1
Beebhats: Introduction, Defination and Importance	1
Adhbuth Ras: Introduction, Defination and Importance	1
Shanth Ras: Introduction, Defination and Importance	1
Hasya Ras: Introduction, Defination and Importance	1
Bhayanak Ras: Introduction, Defination and Importance	1
Karuna Ras: Introduction, Defination and Importance	1
Synopsis of Ras	1

Signature of the Teacher Head of the Department

Name: Dr. Dasari Moulali Name:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-18 (semester-IV)

Class: B.A II_{nd} Year section:

Course/paper: Morden Language-IV

Unit: IV No. of Hours Allotted: 13

Chand: Introduction	2
Chand: Defination and Structure	2
Importance of Chand	2
Doha: Introduction, Defination and Importance	2
Soratha: Introduction, Defination and Importance	1
Choupay: Introduction, Defination and Importance	1
Rola: Introduction, Defination and Importance	1
Gitika: Introduction, Defination and Importance	1
Synopsis of Chand	1

Signature of the Teacher Head of the Department

Name: Dr. Dasari Moulali Name:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-18 (semester-IV)

Class: B.A II_{nd} Year section:

Course/paper: Morden Language-IV

Unit: V No. of Hours Allotted: 15

Alankar: Introduction	2
Alankar: Defination and Structure	2
Importance of Alankar	2
Anupras: Introduction, Defination and Importance	1
Yamak: Introduction, Defination and Importance	1
Shlesh: Introduction, Defination and Importance	1
Vakrokti: Introduction, Defination and Importance	1
Upama: Introduction, Defination and Importance	1
Athishayokti: Introduction, Defination and Importance	1
Roopak: Introduction, Defination and Importance	1
Viradhabhas: Introduction, Defination and Importance	1
Synopsis of Alankar	1

Signature of the Teacher Head of the Department

Name: Dr. Dasari Moulali Name:

NIZAM COLLEGE: DEPARTMENT OF HINDI

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (semester-I)

Class: B.A I_{st} Year section: No

Course/paper: Morden Language - I

Unit: I No. of Hours Allotted: 15

Nibandh Niket: Meaning and Definition of Nibandh	1
Types of Nibandh	2
History of Hindi Essay	2
Man ki Drudhata: Balakrishna Batt - Introduction	1
Life Sketch of the Writer - Balakrishna Batt	2
Man ki Drudhata: Meanings of Hard Words and Explanation	1
Summary of the Lesson	2
Reference of the Context	2
Synopsis of the Man ki Drudhata	2

Signature of the Teacher Head of the Department

Name: Dr. Meena Singh Name:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-18 (semester-I)

Class: B.A I_{st} Year section: No

Course/paper: Morden Language

Unit: II No. of Hours Allotted: 15

Acharan ki Sabhyata: Sardaar Purnasingh - Introduction	1
Life Sketch of the Writer - Sardaar Purnasingh	2
Meanings of Hard Words and Explanation	2
Summary of the Lesson	4
Reference of the Context	2
Synopsis of the Acharan ki Sabhyatha	2
Sardaar Purnasingh: His works on Hindi Literature	2

Signature of the Teacher
Name: Dr. Meena Singh

Head of the Department
Name: Dr. Avinash Jaiswal

LESSON PLAN FOR THE ACADEMIC YEAR 2017-18 (semester-I)

Class: B.A I_{st} Year section: No

Course/paper: Morden Language

Unit: III No. of Hours Allotted: 15

Jeene ki Kala: Mahadevi Varma - Introduction	1
Life Sketch of the Writer - Mahadevi Varma	2
She's works on the Hindi Literature	2
Meanings of Hard Words and Explanation	2
Summary of the Lesson	4
Reference of the Context	2
Synopsis of the Jeene ki Kala	2

Signature of the Teacher
Name: Dr. Meena Singh

Head of the Department
Name: Dr. Avinash Jaiswal

LESSON PLAN FOR THE ACADEMIC YEAR 2017-18 (semester-I)

Class: B.A I_{st} Year section: No

Course/paper: Morden Language

Unit: IV No. of Hours Allotted: 15

Druvaswamini (Drama): Jaishanker Prasad - Introduction	1
Life Sketch of the Dramatist	1
Ithihasikata	2
Pratham Ank Explanation	2
Dwitiya Ank Explanation	2
Thrutiya Ank Explanation	2
Reference of the Context	2
Paatra Yojana (Characters in the Drama)	1
Uddeshya (Content of the Drama)	1
Synopsis of the Drama	1

Signature of the Teacher
Name: Dr. Meena Singh

Head of the Department
Name: Dr. Avinash Jaiswal

LESSON PLAN FOR THE ACADEMIC YEAR 2017-18 (semester-II)

Class: B.A I_{st} Year section: No

Course/paper: Morden Language-II

Unit: I No. of Hours Allotted: 15

Devadaru: Hajari Prasad Dwivedi - Introduction	1
Life Sketch of the Writer - Hajari Prasad Dwivedi	2
Hajari Prasad Dwivedi: His works on Hindi Literature	3
Meanings of Hard Words and Explanation	2
Summary of the Lesson	2
Reference of the Context	3
Synopsis of the Devadaru	2

Signature of the Teacher
Name: Dr. Meena Singh

Head of the Department
Name: Dr. Avinash Jaiswal

LESSON PLAN FOR THE ACADEMIC YEAR 2017-18 (semester-II)

Class: B.A I_{st} Year section: No

Course/paper: Morden Language-II

Unit: II No. of Hours Allotted: 15

Dabre par Suraj ka Bimb: Muktibodh - Introduction	1
Life Sketch of the Writer Muktibodh	2
Muktibodh: His works on Hindi Literature	2
Meanings of Hard Words and Explanation	2
Summary of the Lesson	4
Reference of the Context	2
Synopsis of the Dabre par Suraj ka Bimb	2

Signature of the Teacher Head of the Department

Name: Dr. Meena Singh Name: Dr. Avinash Jaiswal

LESSON PLAN FOR THE ACADEMIC YEAR 2017-18 (semester-II)

Class: B.A I_{st} Year section: No

Course/paper: Morden Language-II

Unit: III No. of Hours Allotted: 15

Chetana ka Sanskar: Sacchidanand Hiranand Vatsayayan Agney - Introduction	1
Life Sketch of the Writer - Agney	2
Agney: His works on Hindi Literature	2
Meanings of Hard Words and Explanation	2
Summary of the Lesson	4
Reference of the Context	3
Synopsis of the Chetana ka Sanskar	1

Signature of the Teacher
Name: Dr. Meena Singh

Head of the Department
Name: Dr. Avinash Jaiswal

LESSON PLAN FOR THE ACADEMIC YEAR 2017-18 (semester-II)

Class: B.A I_{st} Year section: No

Course/paper: Morden Language-II

Unit: IV No. of Hours Allotted: 15

Shesh Yatra (Novel): - Introduction	1
Upanyas (Novel): Meaning and Definition	1
Types of Upanyas (Novel)	2
Meanings of Hard Words and Explanation	3
Summary of the Novel	3
Characters of the Novel	2
Uddeshya (Content of the Novel)	2
Synopsis of the Shesh Yatra Upanyas	1

Signature of the Teacher
Name: Dr. Meena Singh

Head of the Department
Name: Dr. Avinash Jaiswal

NIZAM COLLEGE: DEPARTMENT OF HINDI

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (semester-III)

Class: B.A II_{nd} Year section:

Course/paper: Morden Language-III

Unit: I No. of Hours Allotted: 11

Kabirdas – Introduction	1
Life Sketch of the Kabirdas	1
Kabirdas: His works on Hindi Literature	1
Kabir ke Dohe – Short	2
Meanings of Hard Words and Explanation	1
Description of Dohe	2
Reference of the Content	1
Contribution of Kabirdas	1
Synopsis of the Kabir ke Dohe	1

Signature of the Teacher
Name: Dr. E. Sunitha

Head of the Department
Name:

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021(semester-III)

Class: B.A II_{nd} Year section:

Course/paper: Morden Language-III

Unit: II No. of Hours Allotted: 16

Tulasidas - Introduction	1
Life Sketch of the Tulasidas	1
Tulasidas: His works on Hindi Literature	1
Tulasidas ke Dohe	2
Meanings of Hard Words and Explanation	1
Description of Dohe	2
Tulasidas ke Pad – Pushpavatika	2
Meanings of Hard Words and Explanation	1
Description of Dohe and Pad	3
Contribution of Tulasidas	1
Synopsis of the Tulasidas ke Dohe and Pad	1

Signature of the Teacher Head of the Department

Name: Dr. E. Sunitha Name:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-18 (semester-III)

Class: B.A II_{nd} Year section:

Course/paper: Morden Language-III

Unit: III No. of Hours Allotted: 10

Soordas - Introduction	1
Life Sketch of the Soordas	1
Soordas: His works on Hindi Literature	1
Soordas ke Pad - Short	1
Description of Pad	1
Soordas ke Seven Pad – Bhramargeet	2
Meanings of Hard Words and Explanation	1
Contribution of Soordas	1
Synopsis of the Soordas ke Pad	1

Signature of the Teacher Head of the Department

Name: Dr. E. Sunitha Name:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-18 (semester-III)

Class: B.A II_{nd} Year section:

Course/paper: Morden Language-III

Unit: IV No. of Hours Allotted: 12

Biharilal - Introduction	1
Life Sketch of the Biharilal	1
Biharilal: His works on Hindi Literature	2
Biharilal ke Dohe – Short	1
Meanings of Hard Words and Explanation	2
Description of Dohe	2
Reference of the Content	1
Contribution of Biharilal	1
Synopsis of the Biharilal ke Dohe	1

Signature of the Teacher
Name: Dr. E. Sunitha

Head of the Department
Name:

LESSON PLAN FOR THE ACADEMIC YEAR 2018-2019 (semester-III)

Class: B.A II_{nd} Year section:

Course/paper: Morden Language-III

Unit: V No. of Hours Allotted: 11

Ghananand - Introduction	1
Life Sketch of the Ghananand	2
Ghananand: His works on Hindi Literature	1
Ghananand ke Pad - Short	1
Meanings of Hard Words and Explanation	2
Description of Pad	2
Contribution of Ghananand	1
Synopsis of the Ghananand ke Pad	1

Signature of the Teacher Head of the Department

Name: Dr. E. Sunitha Name:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-18 (semester-IV)

Class: B.A II_{nd} Year section:

Course/paper: Morden Language-IV

Unit: I No. of Hours Allotted: 10

Utsah: Acharya Ramachandra Shuklu - Introduction	1
Life Sketch of the Writer Acharya Ramachandra Shuklu	1
Acharya Ramachandra Shuklu: His works on Hindi Literature	1
Utsah: Defination and Structure	1
Meanings of Hard Words and Explanation	2
Summary of the Lesson	2
Reference of the Content	1
Synopsis of the Utsah	1

Signature of the Teacher Head of the Department

Name: Dr. E. Sunitha Name:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-18 (semester-IV)

Class: B.A II_{nd} Year section:

Course/paper: Morden Language-IV

Unit: II No. of Hours Allotted: 08

Shraddha Bakti: Acharya Ramachandra Shuklu - Introduction	1
Life Sketch of the Writer Acharya Ramachandra Shuklu	1
Acharya Ramachandra Shuklu: His works on Hindi Literature	1
Shraddha Bakti: Defination and Structure	1
Meanings of Hard Words and Explanation	1
Summary of the Lesson	1
Reference of the Content	1
Synopsis of the Shraddha Bakti	1

Signature of the Teacher Head of the Department

Name: Dr. E. Sunitha Name:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-18 (semester-IV)

Class: B.A II_{nd} Year section:

Course/paper: Morden Language-IV

Unit: III No. of Hours Allotted: 16

Ras: Introduction	2
Ras: Defination and Structure	2
Importance of Ras	2
Shrungaar Ras: Introduction, Defination and Importance	1
Veer Ras: Introduction, Defination and Importance	1
Roudra Ras: Introduction, Defination and Importance	1
Beebhats: Introduction, Defination and Importance	1
Adhbuth Ras: Introduction, Defination and Importance	1
Shanth Ras: Introduction, Defination and Importance	1
Hasya Ras: Introduction, Defination and Importance	1
Bhayanak Ras: Introduction, Defination and Importance	1
Karuna Ras: Introduction, Defination and Importance	1
Synopsis of Ras	1

Signature of the Teacher
Name: Dr. E. Sunitha

Head of the Department
Name:

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (semester-IV)

Class: B.A II_{nd} Year section:

Course/paper: Morden Language-IV

Unit: IV No. of Hours Allotted: 13

Chand: Introduction	2
Chand: Defination and Structure	2
Importance of Chand	2
Doha: Introduction, Defination and Importance	2
Soratha: Introduction, Defination and Importance	1
Choupay: Introduction, Defination and Importance	1
Rola: Introduction, Defination and Importance	1
Gitika: Introduction, Defination and Importance	1
Synopsis of Chand	1

Signature of the Teacher Head of the Department

Name: Dr. E. Sunitha Name:

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (semester-IV)

Class: B.A II_{nd} Year section:

Course/paper: Morden Language-IV

Unit: V No. of Hours Allotted: 15

Alankar: Introduction	2
Alankar: Defination and Structure	2
Importance of Alankar	2
Anupras: Introduction, Defination and Importance	1
Yamak: Introduction, Defination and Importance	1
Shlesh: Introduction, Defination and Importance	1
Vakrokti: Introduction, Defination and Importance	1
Upama: Introduction, Defination and Importance	1
Athishayokti: Introduction, Defination and Importance	1
Roopak: Introduction, Defination and Importance	1
Viradhabhas: Introduction, Defination and Importance	1
Synopsis of Alankar	1

Signature of the Teacher Head of the Department

Name: Dr. E. Sunitha Name:

NIZAM COLLEGE: DEPARTMENT OF HINDI

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (semester-II)

Class: BBA/BSC, I_{st} Year section:B

Course/paper: Second Language-II (Prose, Non-detailed, Grammar)

Unit: I No. of Hours Allotted: 15

	Topics to be covered	No of Hours
1	Dharti ka swarg - Introduction	1
	,, ,, -writer Introduction meaning of words	1
	,, ,, summary of the lesson	2
	,, ,, beauty of the Kashmir	2
	,, ,, According to the Dharti ka swarg	1
2	Taayi -Introduction writer Introduction meaning of words	1
	,, ,, summary of the lesson	2
	,, ,, Moral characterization and conclusion	1
3	Ande ke chilke - Introduction writer Introduction meaning of words	1
	,, ,, summary of the lesson	2
	-charitra ka chitran	1

Signature of the Teacher
Name: Dr. M.Sampath

Head of the Department
Name:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-18 (semester-II)

Class: BBA/BSC, I_{st} Year section: B

Course/paper: Second Language-II (Prose, Non-detailed, Grammar)

Unit: II No. of Hours Allotted: 15

	Topics to be covered	No of Hours
4	Rajaneethi ka Bantwara - Introduction of writer	1
	,, ,, summary of the lesson	2
	,, ,, charitra ka chitran, Language	1
	,, ,, udhyeshya	1
5	Swamy Vivekananda Introduction of the writer	1
	,, ,, summary of the lesson	2
	,, ,, character of the swami vivekananda	1
	,, ,, language of the lesson	1
3	Paryavaran our Hum -Introduction of the lesson	1
	,, ,, - summary of the lesson	2
	-pollution, different types of pollution like, Air, sound, water, wise	2

Signature of the Teacher Head of the Department

Name: Dr. M.Sampath Name:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-18 (semester-II)

Class: BBA/BSC, I_{st} Year Section: B

Course/paper: Second Language-II (Prose, Non-detailed, Grammar)

Unit: III No. of Hours Allotted: 15

	Topics to be covered	No of Hours
7	Deputy collectory - Introduction	1
	,, ,, summary of the lesson	2
	,, ,, patra and charitra ka chitran	1
	,, ,, Explain of different types of words and meaning	1
8	Hansoon ya Roun Introduction/ writer	1
	,, ,, summary of the lesson	2
	,, ,, patra/charita chitran	1
	,, , , Ref to context explaining and meaning of the words	1
9	Vapasi - Introduction/ Introduction of the writer	1
	,, ,, summary of the lesson	2
	,, ,, patra,and charitra ka chitran	1
	,, ,, Explain meaning of words	1

Signature of the Teacher Head of the Department

Name: Dr. M.Sampath Name:

LESSON PLAN FOR THE ACADEMIC YEAR 2018-2019 (semester-II)

Class: BBA/BSC, I_{st} Year section: B

Course/paper: Second Language-II (Prose, Non-detailed, Grammar)

Unit: IV No. of Hours Allotted: 10

	Topics to be covered	No of Hours
10	Sewa Introduction of the writer	1
	,, ,, summary of the lesson	2
	,, ,, patra,and charitra ka chitran	1
	,, ,, Explain meaning of words	1
11	Siliya Introduction of the writer	1
	,, ,, summary of the lesson	2
	,, ,, patra,and charitra ka chitran	1
	,, ,, Explain meaning of words	1

Signature of the Teacher Head of the Department

Name: Dr. M.Sampath Name:

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (semester-II)

Class: BBA/BSC, I_{st} Year section: B

Course/paper: Second Language-II (Prose, Non-detailed, Grammar)

Unit: V No. of Hours Allotted: 5

	Topics to be covered	No of Hours
12	Grammar - oppsite words, Introduction different types of opposite words	1
	,, ,, practice work	1
13	,, ,, correction of sentences definition of correction	1
	Common from, Gender and volume	1
14	Adm Hindi introduction Different structure of adm Hind Definition of port then lecturer of the vice.	1

Signature of the Teacher Head of the Department

Name: Dr. M.Sampath Name:

MARKETING

NIZAM COLLEGE : DEPARTMENT OF MARKETING

LESSON PLAN FOR THE ACADEMIC YEAR 2015-2018 (Semester I)

Class :B.A (PSM,PEM)1st Year **Section:** Marketing

Course/Paper: I - (PSM,PEM) **Unit: I** – Marketing Communication
No. of Hours Allotted : 15

Topics to be covered	No. of Hours
Basic concepts of marketing (production concepts, product concept, societal concept, marketing concept, market concept), Origin of marketing.	2
Marketing Vs Market, Marketing Mix(4pc's product, price, promotion, physical distribution.) , marketing Strategy	2
Marketing environment in brief (Internal environment- Company, suppliers, marketing intermediates)	1
Internal environment – middlemen, agent middlemen, merchant middlemen, financial intermediates, customers, competitors, public, internal public.	2
External environment- Economic environment, unemployment, agricultural, per capita income, pattern of savings and expenditure, price level change, impact of govt policies.	1
External environment - Industrial conditions, supply conditions, demography conditions, social and cultural environment, consumerism.	2
political environment, natural environment, legal environment.	1
Marketing strategy, its applications and usages in brief .	1
Functions of marketing , scope of marketing.	2
Characteristics of marketing.	1
TOTAL	**15hrs**

Name of the Teacher: A. Lakshmi Head, Department of Marketing

Signature: Signature:

NIZAM COLLEGE : DEPARTMENT OF MARKETING

LESSON PLAN FOR THE ACADEMIC YEAR 2015-2018 (Semester I)

Class :B.A (PSM,PEM)1st Year **Section:** Marketing

Course/Paper: I - (PSM,PEM) **Unit:** II – Communication
No. of Hours Allotted : 15

Topics to be covered	No. of Hours
General communication – nature of communication	2
Objectives of communication – communication process (sender , encoding, message, decoding , receive , feedback)	3
Importance of communication (for all the fields)	4
Barriers of communication (semantic barriers, physical barriers, psychological barriers)	2
Steps in developing effective marketing communication	2
Inter–personnel communication Vs Intra personnel communication.	2
TOTAL	**15hrs**

Name of the Teacher: A. Lakshmi Head, Department of Marketing

Signature: Signature:

NIZAM COLLEGE : DEPARTMENT OF MARKETING

LESSON PLAN FOR THE ACADEMIC YEAR 2015-2018 (Semester I)

Class :B.A (PSM,PEM)1st Year **Section:** Marketing

Course/Paper: I - (PSM,PEM) Communication **Unit: III** – Overview of Marketing
No. of Hours Allotted : 15

Topics to be covered	No. of Hours
Overview of Marketing communication: Marketing communication	2
Why we need marketing communication	3
Role and importance of marketing communication	4
Elements in marketing communication	2
Process of marketing communication	2
Limitations of marketing communication	2
TOTAL	**15hrs**

Name of the Teacher: A. Lakshmi Head, Department of Marketing

Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF MARKETING

LESSON PLAN FOR THE ACADEMIC YEAR 2015-2018 (Semester I)

Class :B.A (PSM,PEM)1st Year **Section:** Marketing

Course/Paper: I - (PSM,PEM) **Unit: IV** – Types of Communication
No. of Hours Allotted : 15

Topics to be covered	No. of Hours
Types of communication- Vertical communication (Downward, upward)	2
Horizontal communication	3
Grapevine communication	2
Consensus communication	2
Limitations	2
Inter personal communication	2
Formal and informal communication.	2
TOTAL	**15hrs**

Name of the Teacher: A. Lakshmi Head, Department of Marketing

Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF MARKETING

LESSON PLAN FOR THE ACADEMIC YEAR 2015-2018 (Semester I)

Class: B.A (PSM,PEM)1st Year **Section:** Marketing

Course/Paper: I - (PSM,PEM) **Unit:** V – Media for marketing communication
No. of Hours Allotted: 15

Topics to be covered	No. of Hours
Overview of media ,Introduction to media	2
Media analysis	3
Integrated communication in marketing	4
Rural Marketing Vs. Urban Marketing	2
Contemporary Issues in marketing.	4
TOTAL	**15hrs**

Name of the Teacher: A. Lakshmi Head, Department of Marketing

Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF MARKETING

LESSON PLAN FOR THE ACADEMIC YEAR 2015-2018 (Semester II)

Class: B.A (PSM, PEM) 1st Year **Section:** Marketing

Course/Paper: II - (PSM, PEM)
No. of Hours Allotted:15 **Unit: I –** Advertising

Topics to be covered	No. of Hours
Advertizing , Marketing Characteristics	2
Origin and Growth of advertising	3
Objectives of advertising	4
Importance of advertising in Modern marketing	2
Advertising Vs. Marketing	2
Advertising Vs. Communication.	2
TOTAL	**15hrs**

Name of the Teacher: A. Lakshmi Head, Department of Marketing

Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF MARKETING

LESSON PLAN FOR THE ACADEMIC YEAR 2015-2018 (Semester II)

Class: B.A (PSM, PEM) 1st Year **Section:** Marketing

Course/Paper: II - (PSM, PEM)
Unit: II – No. of Hours Allotted: 15 **Unit: II-** Types of advertising

Topics to be covered	No. of Hours
Types of advertising	2
Commercial, Non-Commercial, , Institution	3
National & Local, comparative , Co-operative,	4
Classified and Display, Persuasive	2
Consumer & Industrial advertising	2
Primary & Selective demand advertising.	2
TOTAL	**15hrs**

Name of the Teacher: A. Lakshmi Head, Department of Marketing

Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF MARKETING

LESSON PLAN FOR THE ACADEMIC YEAR 2015-2018 (Semester II)

Class: B.A (PSM, PEM) 1st Year **Section:** Marketing

Course/Paper: II - (PSM, PEM) **Unit: III –** Role of advertising in the Global Marketing

No**. of Hours Allotted:** 15

Topics to be covered	No. of Hours
Role of advertising in the Global Marketing	5
Scope of Advertising	5
Functions of Advertising.	3
Advertising vs. Marketing	2
TOTAL	**15hrs**

Name of the Teacher: A. Lakshmi Head, Department of Marketing

Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF MARKETING

LESSON PLAN FOR THE ACADEMIC YEAR 2015-2018 (Semester II)

Class: B.A (PSM, PEM)1st Year **Section:** Marketing

Course/Paper: II - (PSM, PEM) **Unit: IV –** Advertising plan
No**. of Hours Allotted:** 15

Topics to be covered	No. of Hours
Introduction to Advertising Strategy	3
Campaign, Campaign Planning , Basis of Campaign planning.	3
Phase of campaign planning,	3
Advertising Agency Features, Function , Structure.	3
Function, Structure of ad agency.	3
TOTAL	**15hrs**

Name of the Teacher: A. Lakshmi Head, Department of Marketing

Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF MARKETING

LESSON PLAN FOR THE ACADEMIC YEAR 2015-2018 (Semester II)

Class: B.A (PSM, PEM)1st Year **Section:** Marketing

Course/Paper: II - (PSM, PEM) **Unit: V –** Advertising Budget
No**. of Hours Allotted:** 15

Topics to be covered	No. of Hours
Introduction to advertising budget , Steps involved in preparing budget	4
Methods involved in framing.	3
Factors effecting the advertising expenditure in company	3
Features of Advertising budget	3
Functions of advertising budget	3
TOTAL	**15hrs**

Name of the Teacher: A. Lakshmi Head, Department of Marketing

Signature: Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2015-2018 (Semester III)

Class: B.A (PSM, PEM) 2nd Year **Section:** Marketing

Course/Paper: III - (PSM, PEM) **Unit: I –** Ad agency
No. of Hours Allotted: 15

Topics to be covered	No. of Hours
Ad agency to Introduction	3
History of Ad agency	3
Functions of ad agency	2
Features of ad agency	2
Role and Importance in advertising	2
Structure of ad agency	2
Selection of an ad agency	3
TOTAL	**15hrs**

Name of the Teacher: A. Swathi Head, Department of Marketing

Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF MARKETING

LESSON PLAN FOR THE ACADEMIC YEAR 2015-2018 (Semester III)

Class: B.A (PSM, PEM) 2nd Year **Section:** Marketing

Course/Paper: III - (PSM, PEM) **Unit: II –** Advertising Media
No. of Hours Allotted: 15

Topics to be covered	No. of Hours
Advertising Media: Meaning – Classification of ad-media	2
Indoor media (Newspaper, Magazines, Radio, TV. Cinema, Video)	3
Outdoor media (Poster, Displays, Electronic Signboards, Travelling Displays, Sandwich men etc.)	3
Display media (Postcard, Envelop enclosure, booklet, Catalogues- Sales letter, Widow Display, Country Display (interior Decoration), Show Room – Exhibitions, Show Cases, Trade Fairs)	3
Direct media	2
Factors to be kept in mind while selecting advertising media	2
TOTAL	**15hrs**

Name of the Teacher: A. Swathi Head, Department of Marketing

Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF MARKETING

LESSON PLAN FOR THE ACADEMIC YEAR 2015-2018 (Semester III)

Class: B.A (PSM, PEM) 2nd Year **Section:** Marketing

Course/Paper: III - (PSM, PEM) **Unit: III –** Media Planning
No. of Hours Allotted: 15

Topics to be covered	No. of Hours
Media Planning: Introduction	3
Importance of media planning	4
Steps involved in media planning	4
Factors influencing Media planning	4
TOTAL	**15hrs**

Name of the Teacher: A. Swathi Head, Department of Marketing

Signature: Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2015-2018 (Semester III)

Class: B.A (PSM, PEM) 2nd Year **Section:** Marketing

Course/Paper: III - (PSM, PEM) **Unit: IV –** Media Scheduling
No. of Hours Allotted: 15

Topics to be covered	No. of Hours
Media Scheduling: Introduction	5
Importance of Media Scheduling	5
Methods of media scheduling	5
TOTAL	**15hrs**

Name of the Teacher: A. Swathi Head, Department of Marketing

Signature: Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2015-2018 (Semester III)

Class: B.A (PSM, PEM) 2nd Year **Section:** Marketing

Course/Paper: III - (PSM, PEM) **Unit: V –** Evaluation of Advertising Effectiveness

No. of Hours Allotted: 15

Topics to be covered	No. of Hours
Evaluation of Advertising Effectiveness: Introduction	3
Importance	4
Methods of measuring Advertising Effectiveness	4
Pre - testing and Post – testing	4
TOTAL	**15hrs**

Name of the Teacher: A. Swathi Head, Department of Marketing

Signature: Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2015-2018 (Semester IV)

Class: B.A (PSM, PEM) 2nd Year **Section:** Marketing

Course/Paper: IV - (PSM, PEM) **Unit: I –** Personal selling
No. of Hours Allotted: 15

Topics to be covered	No. of Hours
Personal selling: Introduction	3
Nature and Importance of Personal Selling	3
Objectives of Personal selling	3
Advantages of personal selling	3
Limitation of Personal selling	3
TOTAL	**15hrs**

Name of the Teacher: A. Swathi Head, Department of Marketing

Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF MARKETING

LESSON PLAN FOR THE ACADEMIC YEAR 2015-2018 (Semester IV)

Class: B.A (PSM, PEM) 2nd Year **Section:** Marketing

Course/Paper: IV - (PSM, PEM) **Unit: II –** Psychology in selling and Buying Motives

No. of Hours Allotted: 15

Topics to be covered	No. of Hours
Psychology in selling and Buying Motives: Introduction to Psychology Selling	5
Stages in Psychology process of Buying Motives and Selling points	5
Buying Motives and Group Influence	5
TOTAL	**15hrs**

Name of the Teacher: A. Swathi Head, Department of Marketing

Signature: Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2015-2018 (Semester IV)

Class: B.A (PSM, PEM) 2nd Year **Section:** Marketing

Course/Paper: IV - (PSM, PEM) **Unit: III –** Process of Effective Selling
No. of Hours Allotted: 15

Topics to be covered	No. of Hours
Process of Effective Selling: Introduction	1
Stages involved in Selling process	2
Prospecting	1
Pre-approach	1
Approach	1
Presentation Demonstration	1
Handling	1
Objectives	3
Closing of sales	2
Post Sales activities	2
TOTAL	**15hrs**

Name of the Teacher: A. Swathi Head, Department of Marketing

Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF MARKETING

LESSON PLAN FOR THE ACADEMIC YEAR 2015-2018 (Semester IV)

Class: B.A (PSM, PEM) 2nd Year **Section:** Marketing

Course/Paper: IV - (PSM, PEM) **Unit: IV –** Salesmanship
No. of Hours Allotted: 15

Topics to be covered	No. of Hours
Salesmanship: Introduction to Salesmanship	3
Origin and Evolution of Salesmanship	3
Essential features of Good Salesmanship	3
Nature of Salesmanship	3
Scope of Salesmanship	3
TOTAL	**15hrs**

Name of the Teacher: A. Swathi Head, Department of Marketing

Signature: Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2015-2018 (Semester V)

Class: B.A (PSM, PEM) 3rd Year **Section:** Marketing

Course/Paper: V - (PSM, PEM) **Unit: I –** Sales force management
No. of Hours Allotted: 15

Topics to be covered	No. of Hours
Sales force: Meaning	3
Need of Sales force	3
Objectives of Sales force	3
Functions of Sales force	3
Importance of Sales force skills possessed by sales force	3
TOTAL	**15hrs**

Name of the Teacher: A. Lakshmi Head, Department of Marketing

Signature: Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2015-2018 (Semester V)

Class: B.A (PSM, PEM) 3rd Year **Section:** Marketing

Course/Paper: V - (PSM, PEM) **Unit: II –** Personnel Management in the selling field

No. of Hours Allotted: 15

Topics to be covered	No. of Hours
Personnel Management in the selling field	3
Activities of Sales force Management	4
Sales Execution	4
Sales force management	4
TOTAL	**15hrs**

Name of the Teacher: A. Lakshmi Head, Department of Marketing

Signature: Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2015-2018 (Semester V)

Class: B.A (PSM, PEM) 3rd Year **Section:** Marketing

Course/Paper: V - (PSM, PEM) **Unit: III –** Recruitment and Selection of sales personnel.

No. of Hours Allotted: 15

Topics to be covered	No. of Hours
Recruitment and Selection of sales personnel: Recruitment sources	2
Recruitment Process	3
Recruitment Techniques	2
Selection sources	2
Selection Process	3
Selection Techniques	3
TOTAL	**15hrs**

Name of the Teacher: A. Lakshmi Head, Department of Marketing

Signature: Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2015-2018 (Semester V)

Class: B.A (PSM, PEM) 3rd Year **Section:** Marketing

Course/Paper: V - (PSM, PEM) **Unit: IV–** Sales force Training
No. of Hours Allotted: 15

Topics to be covered	No. of Hours
Sales force Training	2
Aims of training	3
Identification of training needs	3
Contents of the training programme	2
Training methods	2
Executive and evaluation of sales training programmes	3
TOTAL	**15hrs**

Name of the Teacher: A. Lakshmi Head, Department of Marketing

Signature: Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2015-2018 (Semester V)

Class: B.A (PSM, PEM) 3rd Year **Section:** Marketing

Course/Paper: V - (PSM, PEM) **Unit: V–** Motivation and Moral of sales force
No. of Hours Allotted: 15

Topics to be covered	No. of Hours
Motivation and Moral of sales force	5
Compensation of sales force	5
Performance Appraisal of sales force	5
TOTAL	**15hrs**

Name of the Teacher: A. Lakshmi Head, Department of Marketing

Signature: Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2015-2018 (Semester IV)

Class: B.A (PSM, PEM) 2nd Year **Section:** Marketing

Course/Paper: IV - (PSM, PEM) **Unit: V –** Sales Organization
No. of Hours Allotted: 15

Topics to be covered	No. of Hours
Sales Organization: Introduction to Sales Organization	2
Structure of Sales Organization	2
Objectives of Sales Organization	3
Functions of Sales Organization	3
Importance of Sales Organization	2
Types of Sales Organization	3
TOTAL	**15hrs**

Name of the Teacher: A. Swathi Head, Department of Marketing

Signature: Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2015-2018 (Semester V)

Class: B.A (PSM, PEM) 3rd Year **Section:** Marketing

Course/Paper: VI (a) - (PSM, PEM) **Unit:** I– Elements of Entrepreneurship
No. of Hours Allotted: 15

Topics to be covered	No. of Hours
Entrepreneurship – Meaning	1
Need of entrepreneurship	2
Characteristics of entrepreneurship	2
Evolution and Development of entrepreneurship	3
Factors influencing entrepreneurial growth	2
Entrepreneur	1
Classification and Types of Entrepreneurs	2
Qualities of entrepreneurs : Creativity, innovation and Entrepreneurship	2
TOTAL	**15hrs**

Name of the Teacher: B. Neeraja Head, Department of Marketing

Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF MARKETING

LESSON PLAN FOR THE ACADEMIC YEAR 2015-2018 (Semester V)

Class: B.A (PSM, PEM) 3rd Year **Section:** Marketing

Course/Paper: VI (a) - (PSM, PEM) **Unit: II–** Market Survey
No. of Hours Allotted: 15

Topics to be covered	No. of Hours
Market Survey	2
Objectives of market survey	3
Techniques of market survey	3
PERT	2
CPM (Applications – Advantages- Limitations)	3
PERT Vs CPM	2
TOTAL	**15hrs**

Name of the Teacher: B. Neeraja Head, Department of Marketing

Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF MARKETING

LESSON PLAN FOR THE ACADEMIC YEAR 2015-2018 (Semester V)

Class: B.A (PSM, PEM) 3rd Year **Section:** Marketing

Course/Paper: VI (a) - (PSM, PEM) **Unit:** **III–** Identification of Opportunities

No. of Hours Allotted: 15

Topics to be covered	No. of Hours
Identification of Opportunities	3
Project Identification	3
Criteria for selecting a particular project	3
Converting Business opportunities into reality	3
SWOT Analysis	3
TOTAL	**15hrs**

Name of the Teacher: B. Neeraja Head, Department of Marketing

Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF MARKETING

LESSON PLAN FOR THE ACADEMIC YEAR 2015-2018 (Semester V)

Class: B.A (PSM, PEM) 3rd Year **Section:** Marketing

Course/Paper: VI (a) - (PSM, PEM) **Unit: IV–** Location problems
No. of Hours Allotted: 15

Topics to be covered	No. of Hours
Location problems	3
Factors influencing location of projects	3
Environmental problems	3
Measures and actions	3
Technology utilization and Quality control	3
TOTAL	**15hrs**

Name of the Teacher: B. Neeraja Head, Department of Marketing

Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF MARKETING

LESSON PLAN FOR THE ACADEMIC YEAR 2015-2018 (Semester V)

Class: B.A (PSM, PEM) 3rd Year **Section:** Marketing

Course/Paper: VI (a) - (PSM, PEM) **Unit: V–** Setting up of Small Scale Industry

No. of Hours Allotted: 15

Topics to be covered	No. of Hours
Setting up of Small Scale Industry	3
Steps involved in setting up Small Scale Industry	4
Preparation of feasibility report	4
Guidelines for feasibility report	4
TOTAL	**15hrs**

Name of the Teacher: B. Neeraja Head, Department of Marketing

Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF MARKETING

LESSON PLAN FOR THE ACADEMIC YEAR 2015-2018 (Semester V)

Class: B.A (PSM, PEM) 3rd Year **Section:** Marketing

Course/Paper: VI (b) - (PSM, PEM) **Unit:** **I–** Concept of services marketing
No. of Hours Allotted: 15

Topics to be covered	No. of Hours
Concept of services marketing	1
Nature of services marketing	2
Scope of services marketing	2
Characteristics of services marketing	1
Importance of services marketing	2
Goods Vs Services	1
Emergence and Reasons for growth of service sector in India	2
Classifications of services marketing	2
Environment of services marketing	2
TOTAL	**15hrs**

Name of the Teacher: L.V.Saritha Head, Department of Marketing

Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF MARKETING

LESSON PLAN FOR THE ACADEMIC YEAR 2015-2018 (Semester V)

Class: B.A (PSM, PEM) 3rd Year **Section:** Marketing

Course/Paper: VI (b) - (PSM, PEM) **Unit: II–** Marketing Mix of Services
No. of Hours Allotted: 15

Topics to be covered	No. of Hours
Marketing Mix of Services: 8 P's of marketing mix-Product, Price, Promotion	2
Marketing Mix of Services: Place, Physical evidence, People	2
Marketing Mix of Services: Processes, Planning and creating of services	2
Identifying and classifying supplementary services	3
Product life cycle of services	2
Branding of services	2
New Service development	2
TOTAL	**15hrs**

Name of the Teacher: L.V.Saritha Head, Department of Marketing

Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF MARKETING

LESSON PLAN FOR THE ACADEMIC YEAR 2015-2018 (Semester V)

Class: B.A (PSM, PEM) 3rd Year **Section:** Marketing

Course/Paper: VI (b) - (PSM, PEM) **Unit: III–** Pricing of Services
No. of Hours Allotted: 15

Topics to be covered	No. of Hours
Pricing of Services	1
Objectives	1
Approaches	1
Methods	1
Problems in pricing. Promotion and Personal Selling in service industry, designing the communication mix for services	3
Objectives of communication	2
Challenges and Opportunities	2
Distribution channels for services	1
Options for service delivery	1
Modes of delivery	1
The role of intermediaries	1
TOTAL	**15hrs**

Name of the Teacher: L.V.Saritha Head, Department of Marketing

Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF MARKETING

LESSON PLAN FOR THE ACADEMIC YEAR 2015-2018 (Semester V)

Class: B.A (PSM, PEM) 3rd Year **Section:** Marketing

Course/Paper: VI (b) - (PSM, PEM)

Unit: IV–Importance of people in Service marketing

No. of Hours Allotted: 15

Topics to be covered	No. of Hours
Importance of people in service marketing	2
Role of various people involved	2
Physical Evidence	2
Concept of Physical Evidence	2
Importance	2
Types of Physical Evidence in various services	2
Process concept	1
Types of process	1
Role of process in various services	1
TOTAL	**15hrs**

Name of the Teacher: L.V.Saritha Head, Department of Marketing

Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF MARKETING

LESSON PLAN FOR THE ACADEMIC YEAR 2015-2018 (Semester V)

Class: B.A (PSM, PEM) 3rd Year **Section:** Marketing

Course/Paper: VI (b) - (PSM, PEM) **Unit: V–** Challenges in marketing of services

No. of Hours Allotted: 15

Topics to be covered	No. of Hours
Challenges in marketing of services	3
Application of Service Marketing to Hospitals	3
Application of Service Marketing to Educational Institutions	3
Application of Service Marketing to Tourism	3
Application of Service Marketing to Banking and Hospitality Industries	3
TOTAL	**15hrs**

Name of the Teacher: L.V.Saritha Head, Department of Marketing

Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF MARKETING

LESSON PLAN FOR THE ACADEMIC YEAR 2015-2018 (Semester VI)

Class: B.A (PSM, PEM) 3rd Year **Section:** Marketing

Course/Paper: VII - (PSM, PEM) **Unit: I–** Sales promotion
No. of Hours Allotted: 15

Topics to be covered	No. of Hours
Meaning of sales promotion	3
Nature and growing Importance of sales promotion	3
Methods of sales promotion: Consumer oriented sales promotion	3
Manufacturing oriented sales promotion	3
Trade oriented sales promotion	3
TOTAL	**15hrs**

Name of the Teacher: B. Neeraja Head, Department of Marketing

Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF MARKETING

LESSON PLAN FOR THE ACADEMIC YEAR 2015-2018 (Semester VI)

Class: B.A (PSM, PEM) 3rd Year **Section:** Marketing

Course/Paper: VII - (PSM, PEM) **Unit: II–** Tools of Sales promotion
No. of Hours Allotted: 15

Topics to be covered	No. of Hours
Major tools of sales promotion – Samples , Point of purchases , Display , Demonstrations	3
Yellow Pages , Exhibitions , Fashion shows , Consumer contest	3
Coupons, Lotteries , Gifts , Premiums , free goods	3
Conventions , Conference , Trade Shows	3
Rebate Patronage , Rewards , Sales promotion on internet	3
TOTAL	**15hrs**

Name of the Teacher: B. Neeraja Head, Department of Marketing

Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF MARKETING

LESSON PLAN FOR THE ACADEMIC YEAR 2015-2018 (Semester VI)

Class: B.A (PSM, PEM) 3rd Year **Section:** Marketing

Course/Paper: VII - (PSM, PEM) **Unit: III–** Developing sales promotion program

No. of Hours Allotted: 15

Topics to be covered	No. of Hours
Developing sales promotion program	3
Pretesting	3
Post testing	3
Implementing and evaluating the sales promotion programs	3
Making necessary modifications for effective sales promotion program	3
TOTAL	**15hrs**

Name of the Teacher: B. Neeraja Head, Department of Marketing

Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF MARKETING

LESSON PLAN FOR THE ACADEMIC YEAR 2015-2018 (Semester VI)

Class: B.A (PSM, PEM) 3rd Year **Section:** Marketing

Course/Paper: VII - (PSM, PEM) **Unit: IV–** Public Relations
No. of Hours Allotted: 15

Topics to be covered	No. of Hours
Meaning of Public Relations	4
Functions of Public Relations	4
Public Relations and Marketing	3
Evaluation of Public Relations	4
TOTAL	**15hrs**

Name of the Teacher: B. Neeraja Head, Department of Marketing

Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF MARKETING

LESSON PLAN FOR THE ACADEMIC YEAR 2015-2018 (Semester VI)

Class: B.A (PSM, PEM) 3rd Year **Section:** Marketing

Course/Paper: VII - (PSM, PEM) **Unit: V–** Corporate Image Building
No. of Hours Allotted: 15

Topics to be covered	No. of Hours
Corporate Image Building	2
Media Relations	3
Internal communications	2
Newsletters	1
Events marketing and sponsorship	2
Sports promotion	2
Crisis communication	3
TOTAL	**15hrs**

Name of the Teacher: B. Neeraja Head, Department of Marketing

Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF MARKETING

LESSON PLAN FOR THE ACADEMIC YEAR 2015-2018 (Semester VI)

Class: B.A (PSM, PEM) 3rd Year **Section:** Marketing

Course/Paper: VIII - (PSM, PEM) **PROJECT**
Marks: Project work-70 Viva-voice-30 marks.

OBJECTIVES:

1. To impart skills among the students to write a report of their choice in a given area/field.

2. To enable the students to develop necessary insights into the practical field by making use of functional knowledge of different area attained in the previous years.

Internship:

During the summer vacation, at the end of the second year, students have to undergo an internship for one month with companies and other Business organizations (including Chartered Accounting Firms)

The student should submit a brief report not exceeding 10 pages on learning's of internship and a certificate from the organization, along with the project work.

Project Work Guidelines:

The students have to submit a project report on a selected topic of their choice , Selecting from the broad areas of their curriculum, guided by a Faculty member.

The students are expected to prepare a project report on a selected topic that should comprise of 50 to 80 pages. The project report is to be valued by the External Examiners suggested by the Board of Studies in Commerce. The project report is to be submitted at the college by 31st December of the year.

Name of the Teachers: A. Lakshmi Head, Department of Marketing
A. Swathi
B. Neeraja Signature:
L.V. Saritha

MATHEMATICS

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021

B.SC. III- YEAR , V -SEMSTER

PAPER-V- RINGS, VECTOR CALCULUS

Units: 04 **No. of Hours Allotted: 60 Hours**

Topics to be covered	No. of Hours
Unit-1 Definitions and basics properties, Fields, Integral domains, divisors of zero and Cancellation laws, Integral domains, the characteristic of a ring, some non-commutative rings, Examples, Matrices over a field, The real quaternion Ring.	20 Hours
Unit-2 Homomorphism of Rings- Definition and elementary properties, Maximal and Prime ideals, Prime fields. Rings of Polynomials in an indeterminate form, The evaluation of homomorphism.	15 Hours
Unit-3 Vector Differentiation, Ordinary Derivatives of Vectors, Space Curves, Continuity, Differentiability, Gradient, Divergence, Curl operators, Formulae involving this operators,	15 Hours
Unit-4 Vector Integration, theorems of Guass , Stokes and Green's theorem in plane and applications of this theorems.	10 Hours
	60 Hours

Name of the Teacher: Mr. **B. Mallesh** Head, Department of
Signature: Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018

B.SC.IIIrd YEAR – VI -SEMSTER

PAPER-VII -LINEAR ALGEBRA

Units: 04 **No. of Hours Allotted: 60 Hours**

Topics to be covered	No. of Hours
Unit-1 Vector spaces, subspaces, Linear Combinations, Linear Span, Linear Dependence, Linear Independence, Basis and Dimension, Dimension of Subspace.	20 Hours
Unit-2 Linear Transformation/ Operators, Null spaces and Ranges Rank-Nullity theorem, Composition of Linear Transformations, Invertibility , Isomorphism and , The matrix representation of linear transformation.	15 Hours
Unit-3 System of Linear Equations, Matrix Operations a Elementary Matrices, The rank of a Matrix , Eigen values and Eigen vectors, Sylvestor's law of Nullity, Diagonalizability, Cayley Hamilton theorem.	15 Hours
Unit-4 Inner products, Euclidian and Unitary Spaces, Norm or Length of a Vector, Schwartz Inequality, Orthogonality, Orthonormal Set, Complete orthonormal set, The Gram- Schmidt Orthogonaliztion Process.	10 Hours
	60 Hours

Name of the Teacher: Mr. **B. Mallesh** Head, Department of
Signature: Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018

I - B.Sc., – I - Semester

Paper - I - DIFFERENTIAL EQUATIONS

Units: 04 **No. of Hours Allotted: 60 Hours**

Topics to be covered	No. of Hours
Unit-1 Differential Equations of first order and first degree: Exact differential equations – Integrating Factors – Linear differential equations – Bernoullis equations – Change in variables – Total Differential Equations – Simultaneous Total Differential Equations – Equations of the form dx/ P = dy/ Q = dz/ R	20 Hours
Unit-2 Higher order linear differential equations: Solution of homogeneous linear differential equations with constant coefficients – Solution of non-homogeneous differential equations P(D)y= Q(x) with constant coefficients by means of polynomial operators when Q(x)= e^{ax} , *sinbx* , *cosbx* , x^k , $e^{ax}V$, *xv* where *v* is a function of*x*.	15 Hours
Unit-3 Method of undetermined coefficients – Method of variation of parameters – Linear differential equations with non constant coefficients – The Cauchy – Euler Equation	10 Hours
Partial Differential equations- Formation and solution- Equations easily integrable – Linear equations of first order – Non linear equations of first order – Charpit's method – Non homogeneous linear partial differential equations – Separation of variables	15 Hours
	60 Hours

Name of the Teacher: Mr. **B. Mallesh** Head, Department of

Signature: Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021

I - B.Sc., – I - Semester

Paper - I - DIFFERENTIAL EQUATIONS

Units: 04 **No. of Hours Allotted: 60 Hours**

Topics to be covered	No. of Hours
Unit-1 Successive differentiation- Expansions of Functions- Mean value theorems (Lagrange's, Roll's Cauchy –mean value theorem and Taylor's theorem)	20 Hours
Unit-2 Indeterminate forms – Curvature and Evolutes, Involutes,Curve Tracing in Cartesian co-ordinates	15 Hours
Unit-3 Partial differentiation – Homogeneous functions- Eulers Theorem- Total derivative	10 Hours
Unit-4 Maxima and Minima of functions of two variables – Lagrange's Method of multipliers –Asymptotes- Envelopes	15 Hours
	60 Hours

Name of the Teacher: Mr. **B. Mallesh** Head, Department of

Signature: Signature:

MICROBIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester V)

Class : B.Sc **Section:** Mb.G.C

Course/Paper: Medical micrbiology-5

Unit: I **No. of Hours Allotted**: 12

Topics to be covered	No. of Hours
History of medical microbiology	1
General principles of Diagnostic microbiology	1
Collection of Clinical samples	1
Transport of clinical samples	1
Processing of clinical samples	1
General methods of laboratory Diagnosis	1
Cultural methods	1
Biochemical methods	1
Serological methods	1
Molecular methods	1
Normal flora of human body	2
Properties of pathogenic Microorganisms	1

Name of the Teacher: A.Chetana Head, Department of Microbiology

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester I)

Class :B.Sc I Year **Section:** Mb.G.C

Course/Paper: General Microbiology-1

Unit: I **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Scope and Importance of Microbiology.	2
Different branches of Microbiology	2
Importance of Microorganisms in human welfare	2
Spontaneous generation – biogenesis theory germ theory of diseases	2
Development of microbiology in 20th century.	2
Important contributions of Leeuwenhoek, Louis Pasteur.	1
Robertkoch, Edward jenner, Iwanowsky.	2
Beizerinck, Winogradsky to microbiology.	2

Name of the Teacher: A.Chetana Head, Department of Microbiology

Signature: Signature:

NIZAM COLLEGE : DEPARTMENT OF MICROBIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2018-2019 (Semester I)

Class : B.ScI Year **Section:** Mb.G.C

Course/Paper: General Microbiology-1

Unit: II **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Principles of microscopy-bright field, fluorescent	2
Dark field , Phase contrast	2
Electron microscopy (SEM & TEM)	2
Microbial staining- simple, differential.	2
Negative, Spore and Acid fast staining techniques	2
Sterilization methods- Physical methods	1
Autoclaving, hot air oven, filteration, Radiation	2
Chemical methods	2

Name of the Teacher: A.Chetana Head, Department of

Signature: Signature:

NIZAM COLLEGE : DEPARTMENT OF MICROBIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester I)

Class : B.Sc IYear **Section:** Mb.G.C

Course/Paper: General Microbiology-1

Unit: III **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Morphology of bacterial cell	2
UltraStructure of bacterial cell	2
Gram positive bacterial cell	2
Gram negative bacterial cell	2
Structures outside cell membrane	2
Capsule, Flagella	1
Pili, cell wall & cell membrane	1
Components within cell membrane	1
Nucleoid, cytoplasm	1
Ribosomes, Mesosomes, cytoskeleton	1

Name of the Teacher: A.Chetana Head, Department of

Signature: Signature:

NIZAM COLLEGE : DEPARTMENT OF MICROBIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester I)

Class : B.Sc IYear **Section:** Mb.G.C

Course/Paper: General Microbiology-1

Unit: IV **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Characterization of microorganisms	1
Morphology, Cultural characters	2
Biochemical, Metabolic, Antigenic characters	1
Molecular, Pathogenic, ecological characters	1
FAMS Membrane fatty acids	1
Outlines of bacterial classification	1
Bergeys manual of Systematic Bacteriology	1
Important characters of special groups of bacteria	1
Mycoplasma	1
Rickettsiae	1
Chlamydiae	1
Actinomyces	1
Cyanobacteria	1
Archaea bacteria	**1**

Name of the Teacher: Dr.Chand Pasha Head, Department of

Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF MICROBIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester II)

Class: B. Sc I Year **Section:** Microbiology

Course/Paper: II- Microbial Biochemistry and Metabolism

Unit I: Biochemistry of Biomolecules **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Biomolecules of Microorganisms	1
General Characteristics of Carbohydrates	2
Monosaccharides	1
Disaccharides	1
Polysaccharides	1
General Characteristics of Amino acids	2
General Characteristics of Proteins	1
General Characteristics of Fatty acids (saturated)	1
General Characteristics of Fatty acids (Un-saturated)	1
General Characteristics of Lipids	1
Sphingo Lipids, Sterols, Phospholipids	1
Structure of peptidoglycan	1
Synthesis of peptidoglycan	1
	15hrs

Name of the Teacher: Dr. Shaik Naseeruddin Head, Department of Microbiology

Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF MICROBIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester II)

Class: B. Sc I Year **Section:** Microbiology

Course/Paper: II- Microbial Biochemistry and Metabolism

Unit II: Biochemistry of Metabolism **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Hydrogen ion concentration in biological fluids	2
pH measurement	1
Types of buffer	1
Uses of buffer in biological reactions	1
Enzymes Introduction, enzyme unit	1
Enzymes properties and classification	2
Biocatalysis – Induced fit model	1
Biocatalysis – lock and key model	1
co –enzymes and co factors	1
Inhibition of enzyme activity – competitive	1
Inhibition of enzyme activity – non-competitive	1
Inhibition of enzyme activity – un-competitive	1
Inhibition of enzyme activity – allosteric inhibition	1
	15hrs

Name of the Teacher: Dr. Shaik Naseeruddin Head, Department of Microbiology

Signature: Signature:

NIZAM COLLEGE : DEPARTMENT OF MICROBIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2018-2019 (Semester II)

Class : B.ScI Year **Section:** Mb.G.C

Course/Paper: Microbial Biochemistry & Metabolism-2

Unit: III **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Nutritional types of bacteria	2
Photoautotrophs	1
Chemoautotrophs	2
Chemohetrotrophs	2
Acetogens	2
Methanogens	1
Microbial Culture media	1
Types of Media-Natural, Semisynthetic media	1
Synthetic media, Selective media	1
Differential media, Enrichment media and Transport media	1
Bacterial photosynthesis	1

Name of the Teacher: A. chetana Head, Department of

Signature: Signature:

NIZAM COLLEGE : DEPARTMENT OF MICROBIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2018-2019 (Semester II)

Class :B.Sc **Section:** Mb.G.C

Course/Paper: Microbial Biochemistry & Metabolism-2

Unit: IV **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Bacterial Growth	2
Growth curve- Lag, Log/Exponential, Stationary and Death Phases	1
Factors affecting bacterial Growth	2
Continous Growth	2
Synchronous Growth	2
Measurement of Bacterial Growth	1
Sporulation in bacteria	1
Isolation of Pure cultures	1
Maintainance of pure cultures	2
Preservation of Microbial Cultures	1
	15 hrs

Name of the Teacher: A.Chetana Head,
Department of
Signature: Signature:

NIZAM COLLEGE : DEPARTMENT OF MICROBIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2018-2019 (Semester III)

Class : B.Sc II Year **Section:** Mb.G.C

Course/Paper: Virology and Immunology-3

Unit: I **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Discovery of viruses	2
Nature of viruses.	1
Biological, physical and Biochemical properties of viruses	2
Nomenclature of viruses	2
Classification of viruses as per ICTV	2
Cultivation and assay of bacteriophages, plant and animal viruses	1
General methods of viral replication	1
Lytic cycle	1
Lysogenic cycle	1
Morphology, Structure and multiplication of TMV	1
Structure and multiplication of HIV	1
	15 hrs

Name of the Teacher: A. Chetana Head,
Department of
Signature: Signature:

NIZAM COLLEGE : DEPARTMENT OF MICROBIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester II)

Class : B.sc II Year **Section:Mb.G.C**

Course/Paper: Virology and Immunology-3

Unit: II **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
History of Immunlogy.	2
Development of Immunology	2
Types of Immunity-Innate Immunity	2
Aquired Immunity	2
Active and Passive Immunity	2
Humoral and cell mediated Immunity	2
Primary organs of Immune system-Thymus, Bone marrow etc.	1
Secondary organs of Immune system- Lymph nodes, Spleen etc.	2

Name of the Teacher: A. Chetana Head, Department of

Signature: Signature:

NIZAM COLLEGE : DEPARTMENT OF MICROBIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester II)

Class : B.Sc II Year **Section:** Mb.G.C

Course/Paper: Virology and Immunology-3

Unit: III **No. of Hours Allotted**:15

Topics to be covered	No. of Hours
Cells of Immune system	1
B and T Lymphocytes	1
Null cells, Monocytes, Macrophages	2
Neutrophils, Basophils and Eosinophils.	1
Antigens-Types	2
Chemical nature of antigens	1
Antigenic Determinants, Haptens	1
Factors affecting antigenicity	2
Antibodies	1
Basic structure of antibodies	1
Types and properties of antibodies	1
Functions of Immunoglobulins	1

Name of the Teacher: A.Chetana
Signature:

Head, Department of
Signature:

NIZAM COLLEGE : DEPARTMENT OF MICROBIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester II)

Class :B.Sc II year **Section:** Mb.G.C

Course/Paper: Virology and Immunology-3

Unit: IV **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Types of antigen antibody reactions-Introduction	1
Agglutination	1
Blood Groups	1
Precipitation	1
Neutarlization	1
Complement fixation	1
Labelled antibody based techniques- ELISA	1
RIA	1
Immunofluroscence	1
Types of Hypersensitivity	1
Autoimmunity and its significance	1
Preventive control of Diseases	1
Active and Passive Immunization	1
Vaccines	1
Natural vaccines & Recombinant vaccines	1

Name of the Teacher: A.Chetana
Signature:

Head, Department of
Signature:

NIZAM COLLEGE : DEPARTMENT OF MICROBIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester II)

Class : B.Sc II year **Section:** Mb.G.C

Course/Paper: Food and Agricultural micrbiology-4

Unit: I **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Microorganisms of food spoilage and their sources	1
Spoilage of different food materials	1
Spoilage of different food materials-Fruits and vegetables	1
Spoilage of different food materials-Meat, fish	1
Spoilage of different food materials-Canned foods	1
Food intoxication-Botulinum	2
Food intoxication-Staphylococcal food poisoning	2
Food borne Diseases- Salmonellosis	2
Food borne Diseases-Shigellosis	2
Food borne Diseases- Salmonellosis-Development and its Detection	1
Food borne Diseases-Shigellosis- Development and its Detection	1

Name of the Teacher: A.Chetana Head, Department of

Signature: Signature:

NIZAM COLLEGE : DEPARTMENT OF MICROBIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester II)

Class : B.Sc II year **Section:** Mb.G.C

Course/Paper: Food and Agricultural micrbiology-4

Unit: II **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
General account of food preservation	1
Different methods of food preservation	3
Microbiological production of food and dairy products	2
Microbiological production of food and dairy products-Bread	2
Microbiological production of food and dairy products-cheese	1
Microbiological production of food and dairy products-Yoghurt	1
Concept of Probiotics	2
Microbial flora of milk	1
Microbial flora of milk products	1
Pasteurization of milk	1

Name of the Teacher: A.Chetana Head,
Department of
Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF MICROBIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester IV)

Class: B. ScII Year **Section:** Microbiology

Course/Paper: IV- Food and Agricultural Microbiology

Unit III: Environmental Microbiology **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Microbiology of potable water	1
Microbiology of polluted water	1
Sanitary quality of potable water	1
Primary Sewage treatment	1
Secondary Sewage treatment	1
Tertiary Sewage treatment	1
Microorganisms of environment – Soil	2
Microorganisms of environment – water	2
Microorganisms of environment – Air	2
Microbial Decomposition of Organic matter	1
Carbon cycle	1
Nitrogen cycle	1
	15 hrs

Name of the Teacher: Dr. Shaik Naseeruddin Head, Department of Microbiology

Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF MICROBIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester IV)

Class: B. ScII Year **Section:** Microbiology

Course/Paper: IV- Food and Agricultural Microbiology

Unit IV: Environmental Microbiology **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Microorganisms in relation to plant growth	1
Rhizosphere	1
Phyllosphere	1
Plant Growth promoting microorganisms	1
Nitrogen fixation	1
Symbiotic nitrogen fixation	2
Non- Symbiotic nitrogen fixation	2
Biofertilizers	2
Biological control of plant diseases	2
Biopesticides	2
	15 hrs

Name of the Teacher: Dr. Shaik Naseeruddin Head, Department of Microbiology

Signature: Signature:

NIZAM COLLEGE : DEPARTMENT OF MICROBIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester V)

Class : B.Sc **Section:** Mb.G.C

Course/Paper: Medical micrbiology-5

Unit: I **No. of Hours Allotted**: 12

Topics to be covered	No. of Hours
History of medical microbiology	1
General principles of Diagnostic microbiology	1
Collection of Clinical samples	1
Transport of clinical samples	1
Processing of clinical samples	1
General methods of laboratory Diagnosis	1
Cultural methods	1
Biochemical methods	1
Serological methods	1
Molecular methods	1
Normal flora of human body	2
Properties of pathogenic Microorganisms	1

Name of the Teacher: A.Chetana Head, Department of

Signature: Signature:

NIZAM COLLEGE : DEPARTMENT OF MICROBIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester V)

Class : B.Sc **Section:** Mb.G.C

Course/Paper: Medical micrbiology-5

Unit: II **No. of Hours Allotted**: 12

Topics to be covered	No. of Hours
Definition of Infection	1
Types of Infection	1
Non-specific defense mechanism	1
Mechanical barriers	1
Antagonism of indigenous flora	1
Anti-bacterial substances	1
Anti-bacterial substances-Lysozyme	1
Anti-bacterial substances-Complement	1
Anti-bacterial substances-properdin	1
Antiviral substances	1
Antiviral substances-Inteerferons	1
Antiviral substances-Base analogues	1
Phagocytosis	1

Name of the Teacher: A.Chetana Head, Department of

Signature: Signature:

NIZAM COLLEGE : DEPARTMENT OF MICROBIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester V)

Class : B.Sc **Section:** Mb.G.C

Course/Paper: Medical micrbiology-5

Unit: III **No. of Hours Allotted**:11

Topics to be covered	No. of Hours
Bacterial Toxins	1
Virulence	1
Attenuation	1
Air borne diseases	1
Air borne diseases – Tuberculosis	1
Air borne diseases – Influenza	1
Food and water borne diseases – Cholera	2
Food and water borne diseases – Typhoid	1
Food and water borne diseases – Amoebiasis	2

Name of the Teacher: A.Chetana Head, Department of

Signature: Signature:

NIZAM COLLEGE : DEPARTMENT OF MICROBIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester V)

Class : B.Sc **Section:** Mb.G.C

Course/Paper: Medical micrbiology-5

Unit: IV **No. of Hours Allotted**: 10

Topics to be covered	No. of Hours
Insect borne diseases – Malaria	1
Insect borne diseases – Dengue fever	1
Contact diseases- Syphilis	2
Zoonotic Diseases- Rabies	2
Zoonotic Diseases- Anthrax	1
Blood borne Diseases- Serum Hepatitis	2
Blood borne Diseases- AIDS	1

Name of the Teacher: A.Chetana Head,
Department of
Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF MICROBIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester V)

Class: B. Sc III Year **Section:** Microbiology
Course/Paper: Recombinant DNA technology

Unit I: **No. of Hours Allotted**: 12

Topics to be covered	No. of Hours
Techniques & enzymes in rDNA technology	1
Restriction digestion	1
Ligation	1
Transformation	1
Restriction endonucleases	1
DNA ligases	1
Properties & Specificity	1
S1 nuclease	1
DNA polymerase	1
Polynucleotide kinase	1
Phosphatase	1
Reverse transcriptase	1
	12 hrs

Name of the Teacher: Dr. Chand Pasha Head, Department of Microbiology

Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF MICROBIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester V)

Class: B. Sc III Year **Section:** Microbiology

Course/Paper: Recombinant DNA technology

Unit II: **No. of Hours Allotted**: 11

Topics to be covered	No. of Hours
Plasmids	1
Plasmids Incompatibility	1
Isolation & purification	2
Plasmid vectors	1
PBR 322	1
Single stranded plasmids	1
Cosmids	1
Phagmids	1
Lambda vectors	1
M13 vectors	1
	11 hrs

Name of the Teacher: Dr. Chand Pasha Head, Department of Microbiology

Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF MICROBIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester V)

Class: B. Sc III Year **Section:** Microbiology
Course/Paper: Recombinant DNA technology

Unit III: **No. of Hours Allotted**: 10

Topics to be covered	No. of Hours
Specialized cloning strategies	2
Expression vectors	1
Library construction vectors	1
DNA libraries	1
cDNA libraries	1
Shot gun cloning	1
Directed cloning	1
Phage display	1
Chromosomal integration	1
	10 hrs

Name of the Teacher: Dr.Chand Pasha Head, Department of Microbiology

Signature: Signature

NIZAM COLLEGE: DEPARTMENT OF MICROBIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester IV)

Class: B. Sc III Year **Section:** Microbiology

Course/Paper: Microbiology

Unit IV: **No. of Hours Allotted**: 12

Topics to be covered	No. of Hours
PCR methods	1
Applications of PCR	1
Normal PCR	1
Gradient PCR	1
Reverse Transcriptase PCR	1
Electrophoresis	1
SDS	1
PAGE	1
Agarose gel electrophoresis	1
Chromatography	1
Paper chromatography, TLC	1
Centrifugation methods	**1**

Name of the Teacher: Dr. Chand Pasha Head, Department of Microbiology

Signature: Signature:

NIZAM COLLEGE : DEPARTMENT OF MICROBIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2018-2019 (Semester VI)

Class : B.Sc **Section:** Mb.G.C

Course/Paper: Pharmaceutical micrbiology-7

Unit: I **No. of Hours Allotted**: 12

Topics to be covered	No. of Hours
Types of microorganisms in Pharmaceutical products	1
Types of microorganisms in Pharmaceutical products and industry	2
Microbiological spoilage	1
Microbiological spoilage prevention of pharmaceutical products	2
Antimicrobial agents	2
Antimicrobial agents used as preservatives	2
Evaluation of Microbial stability of formulation	2
	12 hrs

Name of the Teacher: A.Chetana Head,
Department of
Signature: Signature:

NIZAM COLLEGE : DEPARTMENT OF MICROBIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2018-2019 (Semester VI)

Class : B.Sc **Section:** Mb.G.C

Course/Paper: Pharmaceutical micrbiology-7

Unit: II **No. of Hours Allotted**: 12

Topics to be covered	No. of Hours
Antimicrobial agents- Bacteriostatic agents	1
Antimicrobial agents- Bactericidal agents	1
Factors affecting antimicrobial activity	1
Non medicinal antimicrobial agents	1
Non medicinal antimicrobial agents- sanitizers	1
Disinfectants, antiseptics	1
Antimicrobial action of phenols, Phenolic compounds,	1
Alcohols, Halogens, Heavy metals	1
Dyes, aldehydes, Detergents	1
Medicinal antimicrobial agents	1
History of Chemotherapy –Paul Ehrlich and his contributions	1
Selective toxicity	1
Target sites of drug action in microbes	1
	12 hrs

Name of the Teacher: A.Chetana Head,
Department of
Signature: Signature:

NIZAM COLLEGE : DEPARTMENT OF MICROBIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester VI)

Class : B.Sc IIIYear **Section:** Mb.G.C

Course/Paper: Pharmaceutical micrbiology-7

Unit: III **No. of Hours Allotted**:11

Topics to be covered	No. of Hours
Antibiotics- Origin, development and definition	1
Mode of action of important drugs	1
Cell wall inhibitors	1
Cell membrane inhibitors	1
Macrommolecular synthesis inhibitors	1
Metabolite analogues	2
Antifungal antibiotics	2
Anti viral agents	2
	11 hrs

Name of the Teacher: A.Chetana Head, Department of

Signature: Signature:

NIZAM COLLEGE : DEPARTMENT OF MICROBIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester VI)

Class : B.Sc **Section:** Mb.G.C

Course/Paper: Pharmaceutical micrbiology-7

Unit: IV **No. of Hours Allotted**: 12

Topics to be covered	No. of Hours
Microbiological assays	1
Assay for growth inhibiting substances	1
Assay for non medicinal antimicrobials	1
Drug sensitivity testing methods	1
Assay for antibiotics	1
Determination of MIC	1
Liquid, solid tube agar assay	1
Agar plate assay	1
Drug Resistance	1
Clinical basis of drug Resistance	1
Biochemistry of drug Resistance	1
Genetics of Drug Resistance in bacteria	1
	12 hrs

Name of the Teacher: A.Chetana Head,
Department of
Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF MICROBIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester VI)

Class: B. Sc III Year **Section:** Microbiology

Course/Paper: VIII- Industrial Microbiology

Unit I: History of Industrial Microbiology **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Introduction to industrial microbiology	1
History of industrial Microbiology	2
Scope of industrial Microbiology	2
Microorganisms of industrial importance	1
Microorganisms of industrial importance – Bacteria	2
Microorganisms of industrial importance – Actinomycetes	2
Microorganisms of industrial importance – Yeasts	2
Microorganisms of industrial importance – Moulds	2
Exploitation of Microorganisms in industry	1
	15hrs

Name of the Teacher: Dr. Shaik Naseeruddin Head, Department of Microbiology

Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF MICROBIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2018-2019 (Semester VI)

Class: B. Sc III Year **Section:** Microbiology

Course/Paper: VIII- Industrial Microbiology

Unit II: Upstream processing **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Screening and isolation of industrially useful microbes	2
Strain improvement	3
Raw materials	2
Fermentation media	2
Types of Fermentation – aerobic, anaerobic	1
Batch and continuous fermentation	2
Submerged fermentation	1
Surface fermentation	1
Solid state fermentation	1
	15hrs

Name of the Teacher: Dr. Shaik Naseeruddin Head, Department of Microbiology

Signature: Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester VI)

Class: B. Sc III Year **Section:** Microbiology

Course/Paper: VIII- Industrial Microbiology

Unit III: Fermentor and downstream processing **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Detection and assay of fermentation products	1
Physiochemical methods	3
Biological assays	3
Fermentation equipment and its use	2
Design of fermentor	2
Type of fermenter	2
Control of fermentation parameters – aeration, agitation, antifoam, pH and temperature	2
	15hrs

Name of the Teacher: Dr. Shaik Naseeruddin Head, Department of Microbiology

Signature: Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester VI)

Class: B. Sc III Year **Section:** Microbiology

Course/Paper: VIII- Industrial Microbiology

Unit IV: Industrial production **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Industrial production (Microorganisms, Media, Fermentation, Product recovery)	
A. Alcohols – Ethyl alcohol	3
B. Beverages – Beer	2
C. Enzymes – Amylases	3
D. Antibiotics – Penicillin	3
E. Amino acids – Glutamic acid	2
F. Vitamins – B12	2
	15hrs

Name of the Teacher: Dr. Shaik Naseeruddin Head, Department of Microbiology

Signature: Signature:

Topics to be covered

Sub: Logic

Topics to be covered	Number of Hours
1. What is Logic	2
2. Branches of logic (Philosophy)	2
3. Deductive Logic	2
4. Induction	2
5. Nature of Logic	2
6. Scope of Logic	2
7. Logic as science of science and Art's of Art's	2
8. Logic of positive science	2
9. Logic of Normative science Reasoning	3
10. Fundamental laws of thought	3
11. Law of preposition	3
12. Law of contradiction	2
13. Law of excluded	2
14. Middle reason	2
15. Law of sufficient reason	3
16. Proporition Induction	2
17. Distiction between a proposition And gramatical sentence	3
18. Kinds of proposition	2
19. Clarification of pro position	5
20. Defination of opposition	3
21. Opposition of proposition	2
22. Square of opposition in A .E .I .O	3
23. Syllagism Introduction	3
24.Charetterision of syllogism	2
25. Kinds of syllogism	2
26. General rules of syllogism	2
27.Catergorical syllogism	2
28.Moods	3
29.Study of figures	4

DEPORTMET OF PHILOPHY : NIZAM COLLAGE , OU

TOPICS OF COVERED

Sub:Logic Sem- 4

Topics to covered	Num of periods
1. Introduction to Logic	2
2. Inductive Logic	2
3. Nature and history of inductive Logic	3
4. Inductive Method	2
5. Inductiive method and science	3
6. Kinds of Induction	3
7. Meaning of Hypothesis	2
8. Origin of Hypotheism	3
9. Forms of Hypotheism	3
10.Condition of valid Hypotheism	3
11.Proofs of Hypotheism	3
12.Observation – Eupersment	3
13.role of observation in Science	4
14.Kinds of Observation	3
15.Advantage of Observation	2
16.defination of Expeirment	2
17. Nature of experiment in Science	3
18. Advantage of experiment	2
19. Symbolic Logic	2
20. Uses of symbolic Logic	3
21. Symbolic Logic it's organ and development	3
22. Modern classification of proportion	3
23. Truth Table	2
24. Negation	2
25. Hypothetical Altenative	3
26. Disjunction and conjunction	4
27. Inferance and analogy	3
28. Meaning and definition of analogy	2
29. Nature of Analogy	2
30. Analogy or scienlific induction	3
31. Analogy and simple arguement	2
32. Strength of Analogical argument	2

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Topics to be covered

Sub: Logic

Topics to be covered	Number of Hours
30. What is Logic	2
31. Branches of logic (Philosophy)	2
32. Deductive Logic	2
33. Induction	2
34. Nature of Logic	2
35. Scope of Logic	2
36. Logic as science of science and Art's of Art's	2
37. Logic of positive science	2
38. Logic of Normative science Reasoning	3
39. Fundamental laws of thought	3
40. Law of preposition	3
41. Law of contradiction	2
42. Law of excluded	2
43. Middle reason	2
44. Law of sufficient reason	3
45. Proporition Induction	2
46. Distiction between a proposition And gramatical sentence	3
47. Kinds of proposition	2
48. Clarification of pro position	5
49. Defination of opposition	3
50. Opposition of proposition	2
51. Square of opposition in A .E .I .O	3
52. Syllagism Introduction	3
53. Charetterision of syllogism	2
54. Kinds of syllogism	2
55. General rules of syllogism	2
56. Catergorical syllogism	2
57. Moods	3
58. Study of figures	4

DEPORTMET OF PHILOPHY : NIZAM COLLAGE , OU

TOPICS OF COVERED

Sub:Logic Sem- 4

Topics to covered	Num of periods
1. Introduction to Logic	2
2. Inductive Logic	2
3. Nature and history of inductive Logic	3
10. Inductive Method	2
11. Inductiive method and science	3
12.Kinds of Induction	3
13.Meaning of Hypothesis	2
14.Origin of Hypotheism	3
15.Forms of Hypotheism	3
10.Condition of valid Hypotheism	3
11.Proofs of Hypotheism	3
12.Observation – Eupersment	3
13.role of observation in Science	4
14.Kinds of Observation	3
15.Advantage of Observation	2
16.defination of Expeirment	2
17. Nature of experiment in Science	3
18. Advantage of experiment	2
19. Symbolic Logic	2
20. Uses of symbolic Logic	3
21. Symbolic Logic it's organ and development	3
22. Modern classification of proportion	3
23. Truth Table	2
24. Negation	2
25. Hypothetical Altenative	3
26. Disjunction and conjunction	4
27. Inferance and analogy	3
28. Meaning and definition of analogy	2
29. Nature of Analogy	2
30. Analogy or scienlific induction	3
31. Analogy and simple arguement	2
32. Strength of Analogical argument	2

Department of Philosophy : Nizam college, OU

Topics to be covered

Sub: Logic

Topics to be covered	Number of Hours
59. What is Logic	2
60. Branches of logic (Philosophy)	2
61. Deductive Logic	2
62. Induction	2
63. Nature of Logic	2
64. Scope of Logic	2
65. Logic as science of science and Art's of Art's	2
66. Logic of positive science	2
67. Logic of Normative science Reasoning	3
68. Fundamental laws of thought	3
69. Law of preposition	3
70. Law of contradiction	2
71. Law of excluded	2
72. Middle reason	2
73. Law of sufficient reason	3
74. Proporition Induction	2
75. Distiction between a proposition And gramatical sentence	3
76. Kinds of proposition	2
77. Clarification of pro position	5
78. Defination of opposition	3
79. Opposition of proposition	2
80. Square of opposition in A .E .I .O	3
81. Syllagism Introduction	3
82. Chareterision of syllogism	2
83. Kinds of syllogism	2
84. General rules of syllogism	2
85. Catergorical syllogism	2
86. Moods	3
87. Study of figures	4

DEPORTMET OF PHILOPHY : NIZAM COLLAGE , OU

TOPICS OF COVERED

Sub:Logic Sem- 4

Topics to covered	Num of periods
1. Introduction to Logic	2
2. Inductive Logic	2
3. Nature and history of inductive Logic	3
16.Inductive Method	2
17.Inductiive method and science	3
18.Kinds of Induction	3
19.Meaning of Hypothesis	2
20.Origin of Hypotheism	3
21.Forms of Hypotheism	3
10.Condition of valid Hypotheism	3
11.Proofs of Hypotheism	3
12.Observation – Eupersment	3
13.role of observation in Science	4
14.Kinds of Observation	3
15.Advantage of Observation	2
16.defination of Expeirment	2
17. Nature of experiment in Science	3
18. Advantage of experiment	2
19. Symbolic Logic	2
20. Uses of symbolic Logic	3
21. Symbolic Logic it's organ and development	3
22. Modern classification of proportion	3
23. Truth Table	2
24. Negation	2
25. Hypothetical Altenative	3
26. Disjunction and conjunction	4
27. Inferance and analogy	3
28. Meaning and definition of analogy	2
29. Nature of Analogy	2
30. Analogy or scienlific induction	3
31. Analogy and simple arguement	2
32. Strength of Analogical argument	2

Department of Philosophy : Nizam college, OU

Topics to be covered

Sub: Logic

Topics to be covered	Number of Hours
88. What is Logic	2
89. Branches of logic (Philosophy)	2
90. Deductive Logic	2
91. Induction	2
92. Nature of Logic	2
93. Scope of Logic	2
94. Logic as science of science and Art's of Art's	2
95. Logic of positive science	2
96. Logic of Normative science Reasoning	3
97. Fundamental laws of thought	3
98. Law of preposition	3
99. Law of contradiction	2
100. Law of excluded	2
101. Middle reason	2
102. Law of sufficient reason	3
103. Proporition Induction	2
104. Distiction between a proposition And gramatical sentence	3
105. Kinds of proposition	2
106. Clarification of pro position	5
107. Defination of opposition	3
108. Opposition of proposition	2
109. Square of opposition in A .E .I .O	3
110. Syllagism Introduction	3
111. Chareterision of syllogism	2
112. Kinds of syllogism	2
113. General rules of syllogism	2
114. Catergorical syllogism	2
115. Moods	3
116. Study of figures	4

DEPORTMET OF PHILOPHY : NIZAM COLLAGE , OU

TOPICS OF COVERED

Sub:Logic Sem- 4

Topics to covered	Num of periods
1. Introduction to Logic	2
2. Inductive Logic	2
3. Nature and history of inductive Logic	3
22. Inductive Method	2
23. Inductiive method and science	3
24.Kinds of Induction	3
25.Meaning of Hypothesis	2
26.Origin of Hypotheism	3
27.Forms of Hypotheism	3
10.Condition of valid Hypotheism	3
11.Proofs of Hypotheism	3
12.Observation – Eupersment	3
13.role of observation in Science	4
14.Kinds of Observation	3
15.Advantage of Observation	2
16.defination of Expeirment	2

Department of Philosophy : Nizam college, OU

Topics to be covered

Sub: Logic

Topics to be covered		Number of Hours
117.	What is Logic	2
118.	Branches of logic (Philosophy)	2
119.	Deductive Logic	2
120.	Induction	2
121.	Nature of Logic	2
122.	Scope of Logic	2
123.	Logic as science of science and Art's of Art's	2
124.	Logic of positive science	2
125.	Logic of Normative science Reasoning	3
126.	Fundamental laws of thought	3
127.	Law of Iduhli	3
128.	Law of contradiction	2
129.	Law of excluded	2
130.	Middle reason	2
131.	Law of sufficient reason	3
132.	Proporition Induction	2
133.	Dirtiction between a proposition And grarnatical sentence	3
134.	Kinds of proposition	2
135.	Clarification of pro position	5
136.	Defination of opposition	3
137.	Opposition of proposition	2
138.	Square of opposition in A .E .I .O	3
139.	Sullagism Introduction	3
140.	Chareterision of syllogism	2
141.	Krnds of syllogism	2
142.	General rnles of syllogism	2
143.	Catergorical syllogism	2
144.	Moods	3
145.	Study of figures	4

DEPORTMET OF PHILOPHY : NIZAM COLLAGE , OU

TOPICS OF COVERED

Sub:Logic Sem- 4

Topics to covered	Num of periods
1. Introduction to Logic	2
2. Induclie Logic	2
3. Nature and history of indueive Logic	3
28.Induclive Method	2
29.Induclive method and science	3
30.Kinds of Induction	3
31.Meaning of Hypothenis	2
32.Oviginm of Hypothesm	3
33.Forms of Hypothsn	3
10.Condition of valid Hypothesh	3
11.Proofs of Hypothesm	3
12.Observation – Eupersment	3
13.Vole of observation in Science	4
14.Kinds of Observation	3
15.Advantage of Observation	2
16.Pefination of Expeirment	2
17. Nature of experiment in Science	3
18. Advantage of experiment	2
19. Symbolic Logic	2
20. Uses of symbolic Logic	3
21. Symbolic Logic it's orgim and development	3
22. Modem clamification of proportion	3
23. Truth Table	2
24. Negation	2
25. Hypothetical Altenaline	3
26. Dinjunclion and canjunction	4
27. Inferane and analogy	3
28. Meaning and definition of analogy	2
29. Nature of Analogy	2
30. Analogy or scienlific induction	3
31. Analogy and simple chumaration	2
32. Sfrengh of Analogical argument	2
17. Nature of experiment in Science	3
18. Advantage of experiment	2
19. Symbolic Logic	2
20. Uses of symbolic Logic	3
21. Symbolic Logic it's organ and development	3
22. Modern classification of proportion	3
23. Truth Table	2

24. Negation 2
25. Hypothetical Altenative 3
26. Disjunction and conjunction 4
27. Inferance and analogy 3
28. Meaning and definition of analogy 2
29. Nature of Analogy 2
30. Analogy or scienlific induction 3
31. Analogy and simple arguement 2
32. Strength of Analogical argument 2

POLITICAL SCIENCE

NIZAM COLLEGE : DEPARTMENT OF POLITICAL SCIENCE

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester III)

Class : BA(II year) **Section:** Political science

Course/Paper: 3 – Political Theory

Unit 1: Introduction to Political theory

No. of Hours Allotted: **15**

Topics to be covered	No. of Hours
Introduction	1
Political theory, political thought and their difference	2
Greek Political thought- Milesian school	2
Greek political thought – Sophists	3
Greek political thought - Socrates and sophists	1
Greek political thought – Plato (Epistemology, idealism, state and justice)	2
Greek political thought – Aristotle (Golden mean, form)	2
Aristotle – best possible states	2
	15hrs

Name of the Teacher: Harita Salla

Signature:

Head of Department

Signature:

NIZAM COLLEGE : DEPARTMENT OF POLITICAL SCIENCE

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester III)

Class : BA (II year) **Section:** Political science

Course/Paper: 3 – Political theory

Unit 2: Medieval period

No. of Hours Allotted: **15**

Topics to be covered	**No. of Hours**
Greek political thought and its impact	2
Shift from ancient to medieval Greek political thought	2
The church rising in power(Religious power)	2
Citizens understanding the false use of authority by church	2
Church – state controversy	2
Partisans of the state	2
Machiavelli – The Prince and the discourses	1
Machiavelli – Separation of politics and ethics	2
	15hrs

Name of the Teacher: Harita Salla Head of Department

Signature: Signature:

NIZAM COLLEGE : DEPARTMENT OF POLITICAL SCIENCE

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester III)

Class : BA (II year) **Section:** Political science

Course/Paper: 3 – Political theory

Unit 3: Modern Period and rise of liberalism

No. of Hours Allotted: **15**

Topics to be covered	**No. of Hours**
Fall of Church power (Holy roman empire) and rise of Liberalism	1
The social Contract theory	2
The social contractualist – Thoms Hobbes	2
The social Contractualist – John Locke	2
The Contractualist – Jean Jacques Rousseau	2
Comparing social contract theory of Hobbes and Locke	1
Comparing social contract theory of Locke and Rousseau	1
Comparing social contract theory of Rousseau and Hobbes	1
Comparing social contract theory of Hobbes, Locke and Rousseau	2
Comparing and giving the different reasons behind their perspective	1
	15hrs

Name of the Teacher: Harita Salla

Signature:

Head of Department

Signature:

NIZAM COLLEGE : DEPARTMENT OF POLITICAL SCIENCE

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester III)

Class : BA (II year) **Section:** Political science

Course/Paper: 3 – Political theory

Unit 4 : The German intervention

No. of Hours Allotted: **15**

Topics to be covered	No. of Hours
Shift from medieval political thought to modern political thought (Greek)	2
Domination of German political thought over Greek political thought	1
German intervention by Hegel – Dialectics	2
Hegel – Purpose of history, the Enlightened Geist and the State	2
Karl Marx – History	2
Karl Marx – Historical Materialism	2
Karl Marx – Class war, revolution	2
Karl Marx – State as an instrument	2
	15hrs

Name of the Teacher: Harita Salla Head of Department

Signature: Signature:

NIZAM COLLEGE : DEPARTMENT OF POLITICAL SCIENCE

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester III)

Class : BA **Section:** Political science

Course/Paper: III – Political theory

Unit 5: Liberalism redefined - Utilitarianism

No. of Hours Allotted: **15**

Topics to be covered	**No. of Hours**
Political thought entering post modern thinking i.e., Liberalism	2
Explanation about Liberalism – reasons and impacts	2
European Political thought (second phase) from Social contract theory to liberal theory	2
Liberalism redefined as Utilitarianism	2
Utilitarianism by Jeremy Bentham – Felicific Calculus	2
Utilitarianism by J.S. Mill – Liberty	2
J.S. Mill on Utilitarianism	1
Comparison of liberal political thought redefined as Utilitarianism between Jeremy Bentham(agreements and disagreements)	2
	15hrs

Name of the Teacher: Harita Salla Head of Department

Signature: Signature:

NIZAM COLLEGE : DEPARTMENT OF POLITICAL SCIENCE

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester IV)

Class : BA (II year) **Section:** Political science

Course/Paper: IV – International Relations

Unit 1 : The peace of Westphalia and the emergence of the concept of Sovereignty

No. of Hours Allotted: 15

Topics to be covered	No. of Hours
Introduction about sovereignty and a brief explanation	2
History about Europe	2
The rise of capitalism	1
European History and the nation-state system	2
Spread of Capitalism	2
Capitalism in other parts of the world	1
Extreme capitalism and its lead to rise of colonialism	2
Behavioural changes of colonialist among the colonizers and civilians	1
Relationship between Colonies and colonisers	1
Different forms of Colonization	1
	15 hrs

Name of the Teacher: Harita Salla

Signature:

Head of Department

Signature:

NIZAM COLLEGE : DEPARTMENT OF POLITICAL SCIENCE

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester IV)

Class : BA (II year) **Section:** Political science

Course/Paper: IV – International Relations

Unit 2: International relations in the 20th century

No. of Hours Allotted: 15

Topics to be covered	No. of Hours
Explaining the connection between the rise of colonialism with extreme capitalism.	1
The reasons for the drastic changes in the International relations	1
The shift of world politics from medieval centuries to the modern century	1
World in 20th century	1
Reasons for World War 1 and its consequences	2
Treaty of Versailles and end of World war 1	2
Extension of WW1 and Reasons which lead to World war 2	2
Bolshevik Revolution	2
Reasons and impacts of World War 2	2
Making of UNO	1
	15hrs

Name of the Teacher: Harita Salla

Signature:

Head of Department

Signature:

NIZAM COLLEGE : DEPARTMENT OF POLITICAL SCIENCE

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester IV)

Class : BA (II year) **Section:** Political science

Course/Paper: IV – International Relations

Unit 3: End of the second world war and emergence of Super powers

No. of Hours Allotted: 12

Topics to be covered	No. of Hours
Introduction	1
Consequences of World War 2	1
Explanation about Power Vacuum	1
Complete fall of League of nations and emergence of USSR as super power	2
Emergence of USA as super power	1
Emerging super powers and their impact on the International relations	2
Balance of Power	2
Cold War	2
Formation of UNO	2
Conclusion	1
	15hrs

Name of the Teacher: Harita Salla

Signature:

Head of Department

Signature:

NIZAM COLLEGE : DEPARTMENT OF POLITICAL SCIENCE

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester IV)

Class : BA (II year) **Section:** Political science

Course/Paper: IV – International Relations

Unit 4 : Arms Control and Disarmament

No. of Hours Allotted: 11

Topics to be covered	No. of Hours
Introduction	1
Rough explanation about the previous chapter	2
Impact of UNO on different countries	2
Détente	1
Arms control	1
Disarmament and its types	2
Non- proliferation treaty	1
Comprehensive test ban treaty	1
Strategic Arms Reduction Treaty	1
Strategic Arms Limitation Talks	1
Results of these treaties taken	1
Conclusion	1
	15 Hrs

Name of the Teacher: Harita Salla

Signature:

Head of Department

Signature:

NIZAM COLLEGE : DEPARTMENT OF POLITICAL SCIENCE

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester IV)

Class : BA (II year) **Section:** Political science

Course/Paper: IV – International Relations

Unit 5 : The disintegration of USSR and emergence of unipolarity

No. of Hours Allotted: 15

Topics to be covered	No. of Hours
Introduction	1
Impact of UNO and its works on rest on the world	1
Execution and impact of all treaties, which is based on arms	2
Unification of Italy	1
Unification of Germany	2
Political and economical changes in USSR	2
Disintegration of USSR	1
European Economic Community	1
European Union	2
Conversion of EEC to European Union	1
Conclusion	1
	15hrs

Name of the Teacher: Harita Salla

Signature:

Head of Department

Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester V)

Class : BA (III year) **Section:** Political science

Course/Paper: 5 - Advanced Indian Politics and Government (Compulsory paper)

Unit 4: Indian foreign policy

No. of Hours Allotted: 15

Topics to be covered	No. of Hours
A brief history of dependent India	1
Indian History (Freedom struggle)	1
About Nehru , M.K.Gandhi, Mohd. Jinha.	1
Nehru as a freedom fighter, politician and pillar of Indian foreign policy	1
Panchsheel policy of Nehru	2
The then situation in the world i.e., balance of power, growing super powers, détente	2
The rise of Non – alignment movement	2
The demise of Non – alignment movement	1
The achievements of Independent India	1
India after Independence	2
Changes in Indian foreign policy post 1990	1
	15hrs

Name of the Teacher: Harita Salla

Signature:

Head of Department

Signature:

NIZAM COLLEGE : DEPARTMENT OF POLITICAL SCIENCE

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester V)

Class : BA (III year) **Section:** Political science

Course/Paper: 5 - Advance Indian Politics and Government (Compulsory paper)

Unit 5 : Problems with borders

No. of Hours Allotted: 15

Topics to be covered	No. of Hours
India's relation with neighboring countries	1
India's relation with Pakistan (Pre and post Independence)	2
India's problem with Pakistan (Concentrating more on Radcliff line and Kashmir)	3
India's relation with china (pre and post independence)	2
India's problem with China	1
India's Leh-Aksai Chin problem with China	2
The rejection of McMohan line by china	2
India's present relation with Pakistan and China	2
	15hrs

Name of the Teacher: Harita Salla

Signature:

Head of Department

Signature:

NIZAM COLLEGE : DEPARTMENT OF POLITICAL SCIENCE

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester V)

Class : BA (III year) **Section:** Political science

Course/Paper: 5 - Advance Indian Politics and Government (Compulsory paper)

Unit 6 : Impact of Liberalization on Indian economy politics

No. of Hours Allotted: 15

Topics to be covered	No. of Hours
Post – Independent India	1
India's foreign policy, Russian influence over Nehru about the economic system	2
Nehru's efforts to bring mixed economic system in India	2
Non-alignment movement, End of Cold war	1
Globalization and political economy of International relations	2
Integration into global economy	1
Structural integration, privatization and economic growth	2
India nuclear policy : No-first use; Credible minimum deterrent; Nuclear command authority	2
Shift in nuclear policy and Indo- American Nuclear treaty	2
	15hrs

Name of the Teacher: Harita Salla

Signature:

Head of Department

Signature:

NIZAM COLLEGE : DEPARTMENT OF POLITICAL SCIENCE

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester V)

Class: BA (III year) **Section:** Political science

Course/Paper: 6 - Governance and Development (Optional paper)

Unit 1: Introduction to the concepts of Governance **a**nd development

No. of Hours Allotted: 15

Topics to be covered	**No. of Hours**
Introduction	1
Concept of governance	2
Concept of government	2
Concept of Growth	2
Concept of development	2
Distinguishing concept of Governance and Government	2
Difference between growth and development	2
Conclusion	2
	15hrs

Name of the Teacher: Harita Salla

Signature:

Head of Department

Signature:

NIZAM COLLEGE : DEPARTMENT OF POLITICAL SCIENCE

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester III)

Class : BA (III year) **Section:** Political science

Course/Paper:6 - Governance and Development (Optional paper)

Unit 2: Government and its emergence as an institution of the state

No. of Hours Allotted: 15

Topics to be covered	No. of Hours
Introduction	1
Brief history regarding state	2
Emergence of Nation state	1
The state as nation - state	2
Understanding about government as an institution on state	2
Study about government	2
Different forms of government	1
Impact of totalitarian regimes	1
Impact of different regimes and their own style of government	2
Conclusion	1
	15hrs

Name of the Teacher: Harita Salla Head of Department

Signature: Signature:

NIZAM COLLEGE : DEPARTMENT OF POLITICAL SCIENCE

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester V)

Class : BA (III year) **Section:** Political science

Course/Paper: 6 - Governance and Development (Optional paper)

Unit 3: Understanding development

No. of Hours Allotted: **15**

Topics to be covered	No. of Hours
Introduction	1
Understanding the term development	2
Understanding the concept development	1
Comparing the term development in political science and economics	2
Linking development to GDP or GNP	2
Linking development to PCI and PCE	1
Understanding development and growth	2
Knowing the concept of growth	2
Measurement of development and growth	1
Conclusion	1
	15hrs

Name of the Teacher: Harita Salla

Signature:

Head of Department

Signature:

NIZAM COLLEGE : DEPARTMENT OF POLITICAL SCIENCE

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester V)

Class : BA (III year) **Section:** Political science

Course/Paper: 6 - Governance and Development (Optional paper)

Unit 4: Moving from the language of government to that of governance

No. of Hours Allotted:

Topics to be covered	No. of Hours
Introduction	1
The meaning of governance	2
Good Governance	1
Bad Governance	1
Understanding the difference between government and governance	2
The transformation of term government to that of governance	2
Limitations of term government	2
The use of the word governance instead of government	3
Conclusion	1
	15hrs

Name of the Teacher: Harita Salla

Signature:

Head of Department

Signature:

NIZAM COLLEGE : DEPARTMENT OF POLITICAL SCIENCE

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester V)

Class : BA (III year) **Section:** Political science

Course/Paper: 6 - Governance and Development (Optional paper)

Unit 5: Globalization, Bretton woods Institutions and Development

No. of Hours Allotted:

Topics to be covered	No. of Hours
Introduction	1
Globalization and development	2
Bretton woods institutions	1
IMF, IBRD	1
The relevance of nationalities and national boundaries	2
Understanding Global Politics	2
Understanding Global Economics	2
Global politics v/s Global Economics	1
Global politics v/s Global Economics and its impact on governance	2
Conclusion	1
	15hrs

Name of the Teacher: Harita Salla Head of Department

Signature: Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2018-2019 (Semester VI)

Class : BA (III year) **Section:** Political science

Course/Paper: 7- Modern Political Analysis.

Unit 1: The rise of empiricism in political analysis

No. of Hours Allotted: 15

Topics to be covered	No. of Hours
Expanding the view on the terms like Politics, political science, Political thought, political theory, political analysis.	2
Learning about Medieval Political theory and thought and its impact on the rise of empiricism in any field.	2
Meaning and nature of approaches and methods- Philosophical approach, historical approach, legal approach.	2
Normative approach, institutional- structural approach, Empirical approach	2
Normative approach and Positivism	2
Logical Positivism	3
Logical Positivism- Ludwig and Rudolf	2
	15Hrs

Name of the Teacher: Dr. B. Sudarshan Head of Department

Signature: Signature:

NIZAM COLLEGE : DEPARTMENT OF POLITICAL SCIENCE

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester VI)

Class : BA (III year) **Section:** Political science

Course/Paper: 7- Modern Political Analysis.

Unit 2: American influence on political analysis

No. of Hours Allotted: 15

Topics to be covered	No. of Hours
Little deeper study on Political thought – Types and significance	2
Difference between ancient, medieval and modern political thought	2
Indian Political thought and Political analysis (ancient, medieval and modern)	2
Greek Political thought and its analysis (ancient, medieval and modern)	2
American political thought and its analysis (ancient, medieval and modern)	3
Church state relationship and theory of two swords	1
Behaviorism	1
Behaviouralism	2
	15hrs

Name of the Teacher: Dr. B. Sudarshan Head of Department

Signature: Signature:

NIZAM COLLEGE : DEPARTMENT OF POLITICAL SCIENCE

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester VI)

Class : BA (III year) **Section:** Political science

Course/Paper: 7- Modern Political Analysis.

Unit 3: Post- behaviorist thinking

No. of Hours Allotted: 15

Topics to be covered	No. of Hours
Point of views of different Behaviouralist	1
Post – Behaviouralist thinking	1
Comparing Behaviorism and Behaviouralism	1
Post – Behaviouralist thinkers - Gabriel Almond and David Easton	2
Liberal approach to politics - Structural – Functionalism by Gabriel Almond	2
Liberal approach to politics - System Analysis of David Easton	2
Flow Model of System analysis	1
Input output analysis	1
Functionalism in Political Science	1
Decision Making Approach to politics	1
	13hrs

Name of the Teacher: Harita Salla and Dr. B. Sudarshan Head of Department

Signature: Signature:

NIZAM COLLEGE : DEPARTMENT OF POLITICAL SCIENCE

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester VI)

Class : BA (III year) **Section:** Political science

Course/Paper: 7- Modern Political Analysis.

Unit 4: Rise of post modern thinking

No. of Hours Allotted: 15

Topics to be covered	No. of Hours
Reasons behind the fall of Post – Behaviouralist thinking	2
Rise of modern thinking	1
Modern political thought from Hobbes to J.S.Mill	2
Thinking different from traditional , historical and liberal in terms of Politics	2
Study of post modern thinking	2
Structuralism	3
Post – Structuralism	3
	15hrs

Name of the Teacher: Harita Salla

Signature:

Head of Department

Signature:

NIZAM COLLEGE : DEPARTMENT OF POLITICAL SCIENCE

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester VI)

Class : BA (III year) **Section:** Political science

Course/Paper: 7- Modern Political Analysis.

Unit 5: The concept of civil society

No. of Hours Allotted: 15

Topics to be covered	No. of Hours
The instances which lead to post modern thinking about politics , political science, philosophy and sociology	2
Traditional and modern society	2
The concept of civil society	2
Political society	1
Civil society	1
Political system	1
Civil system	1
Civil system and legal system	1
Civil system V/S Political system	2
Civil Society V/S Political system	2
	15hrs

Name of the Teacher: Harita Salla

Signature:

Head of Department

Signature:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-18 (Semester V)

Class: B. A **Section**: EPP & HTP

Course/Paper: Advanced Political Theory VI

Unit: I **No. Of Hours Allotted**: 15

Topics to be covered	No. Of Hours
The rise of critical Marxism in the early 20th Century	2
A. **George Lukacs**: Biography, works and contribution	2
Controversy of differences in the early Marx	1
Critical theoretical thinking within the Marxism	1
B. **Antonio Gramsci:** Life history, works and his contributions.	2
Hegemony	2
Passive revolution, New Prince and dominance of Roman Catholic church.	2

Name of the Teacher: B. Sudarshan **Head**

Department of Political Science

Signature: **Signature**:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-18 (Semester V)

Class: B. A **Section**: EPP & HTP

Course/Paper: Advanced Political Theory VI

Unit: II **No. Of Hours Allotted**: 15

Topics to be covered	No. Of Hours
Revival of Positivism as "Logical Positivism"	1
A. **Moritz Schlick**: Biography, works and contribution	1
Special Relativity	1
General Theory of Knowledge	2
B. **Rudolph Carnap:** Life history, works and his contributions.	1
Logical syntax	2
Rejection of metaphysics	1
C. Otto Neurath: Life history, works and his contributions	1
From economic theory to scientific epistemology	1
Philosophy of science and language	1

Name of the Teacher: B. Sudarshan **Head**

Department of Political Science

Signature: **Signature**:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-18 (Semester V)

Class: B. A **Section**: EPP & HTP

Course/Paper: Advanced Political Theory VI

Unit: III **No. Of Hours Allotted**: 15

Topics to be covered	No. Of Hours
The Critical Theory or Frankfurt School	1
A. **Max Horkheimer**: Biography, works and contribution	1
Eclipse of Reason	1
Dialectic of Enlightenment	2
B. **Theodor Adorno:** Life history, works and his contributions.	1
Identity thinking and instrumental reason	2
Morality and nihilism	1
Culture Industry	
C. **Jurgen Habermas:** life sketch	1
Communicative Action	1
Public Sphere	1

Name of the Teacher: B. Sudarshan **Head**

Department of Political Science

Signature: **Signature**:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-18 (Semester V)

Class: B. A **Section**: EPP & HTP

Course/Paper: Advanced Political Theory VI

Unit: IV **No. Of Hours Allotted**: 15

Topics to be covered	No. Of Hours
The intervention of Hermeneutics	1
A. **Wilhelm Dilthey**: Biography, works and contribution	2
Structural articulation	1
Historical Understanding and hermeneutics	2
Critical framework	
B. Hans Gadamer: Life history	2
Philosophical hermeneutics	1
Truth and Method	2
Contributions to communication ethics	1

Name of the Teacher: B. Sudarshan **Head**

Department of Political Science

Signature: **Signature**:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-18 (Semester V)

Class: B. A **Section**: EPP & HTP

Course/Paper: Advanced Political Theory VI

Unit: V **No. Of Hours Allotted**: 15

Topics to be covered	No. Of Hours
Political theory in 20th century	1
A. **Libertarianism – Robert Nozick**:	3
B. Liberalism redefined – John Rawls	4
C. Democratic theory	1
Emergence of Multiculturalism	2
Pluralism	1

Name of the Teacher: B. Sudarshan **Head**

Department of Political Science

Signature: **Signature**:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-18 (Semester VI)

Class: B. A **Section**: EPP & HTP

Course/Paper: Modern Political Analysis VII

Unit: I **No. Of Hours Allotted**: 15

Topics to be covered	No. Of Hours
The rise of empiricism in political analysis	1
A. **Positivism:** etymology	2
History	1
Positivists and their works and contributions	2
B. Logical Positivism	2
Critique on positivism	1
History	2
Positivists and their works and contributions	1

Name of the Teacher: B. Sudarshan **Head**

Department of Political Science

Signature: **Signature**:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-18 (Semester VI)

Class: B. A **Section**: EPP & HTP

Course/Paper: Modern Political Analysis VII

Unit: II **No. Of Hours Allotted**: 15

Topics to be covered	No. Of Hours
American influence on political analysis	1
A. **Behaviourism:** etymology	2
History	1
Behaviourists and their works and contributions	2
B. Behaviouralism	2
History	2
Behaviourist and their works and contributions	2

Name of the Teacher: B. Sudarshan **Head**

Department of Political Science

Signature: **Signature**:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-18 (Semester VI)

Class: B. A **Section**: EPP & HTP

Course/Paper: Modern Political Analysis VII

Unit: III **No. Of Hours Allotted**: 15

Topics to be covered	No. Of Hours
Post – Behaviouralist thinking	1
A. **Structural – Functionalism of Gabriel Almond:** etymology	5
B. Systems Analysis of David Easton	6

Name of the Teacher: B. Sudarshan **Head**

Department of Political Science

Signature: **Signature**:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-18 (Semester VI)

Class: B. A **Section**: EPP & HTP

Course/Paper: Modern Political Analysis VII

Unit: IV **No. Of Hours Allotted**: 15

Topics to be covered	No. Of Hours
Rise of Post Modern thinking	1
A. **Structuralism:** History and background	2
Literary theory and criticism	3
B. Post – Structuralism:	1
History	1
Key features of post structuralism	3

Name of the Teacher: B. Sudarshan **Head**

Department of Political Science

Signature: **Signature**:

LESSON PLAN FOR THE ACADEMIC YEAR 2017-18 (Semester VI)

Class: B. A **Section**: EPP & HTP

Course/Paper: Modern Political Analysis VII

Unit: V **No. Of Hours Allotted**: 15

Topics to be covered	No. Of Hours
The concept of Civil Society	2
A. **Changes in the notion of Civil System:**	2
Meaning of civil society	1
Notions and transformation of civil society.	2
B. Civil Society Vs Political Society:	1
Difference	1
Contradictions	3

Name of the Teacher: B. Sudarshan **Head**

Department of Political Science

Signature: **Signature**:

NIZAM COLLEGE : DEPARTMENT OF POLITICAL SCIENCE

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester III)

Class : M.A. Final **Section:** Political Science

Course/Paper: PSC 302 : Comparative Government and Politics

Unit I : **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Introduction to Comparative Politics	1
Approaches to the study	1
Behavioral Approach	3
Post – Behavioral Approach	3
Systems Approach	3
Structural – Functional Approach	3
Conclusion	1
	15hrs

NIZAM COLLEGE : DEPARTMENT OF POLITICAL SCIENCE

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester III)

Class : M.A. Final **Section:** Political Science

Course/Paper: PSC 302 : Comparative Government and Politics

Unit II : Nature of State **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Introduction	1
Liberal	2
Marxian – nature of State	2
Neo – Marxian	2
Role of Civil Society	3
Role of NGO's	2
Role of MNC's	2
Conclusion	1
	15hrs

NIZAM COLLEGE : DEPARTMENT OF POLITICAL SCIENCE

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester III)

Class : M.A. Final **Section:** Political Science

Course/Paper: PSC 302 : Comparative Government and Politics

Unit III : Constitutionalism **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Introduction of Constitutionalism	2
Evolution and Growth	4
Political Institutions	4
Civil Military relation	4
Conclusion	1
	15hrs

NIZAM COLLEGE : DEPARTMENT OF POLITICAL SCIENCE

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester III)

Class : M.A. Final **Section:** Political Science

Course/Paper: PSC 302 : Comparative Government and Politics

Unit IV : Typology of Political Systems **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Introduction	1
Typology of Political System	1
Traditional and Modern	4
Comparative Federalism	4
Comparative Public Policy Analisis	4
Conclusion	1
	15hrs

NIZAM COLLEGE : DEPARTMENT OF POLITICAL SCIENCE

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester III)

Class : M.A. Final **Section:** Political Science

Course/Paper: PSC 302 : Comparative Government and Politics

Unit V : Electoral Process **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Introduction	1
Political Parties and Presure Groups	4
Governance	4
Democratic Process and Decentralization	3
Decentralization	2
Conclusion	1
	15hrs

Name of the Teacher : Dr. Yasmin Head, Department of Political Science

Signature : Signature :

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester I)

Class : M.A. Previous **Section:** Political Science

Course/Paper: PSC 102 (International Relations - I)

Unit I : International Relations as a field of Study **No. of Hours Allotted**: 15

Topics to be covered	**No. of Hours**
Introduction to International Relations – As a field of Study	1
History and evolution of International Relations	1
Nature and Scope of International Relations	2
Multi disciplinary approach to International Relations	1
Inter disciplinary relations with other disciplines	2
State as an actor in IR	2
Non – State actors – Role of MNC's	2
Inter governmental organization	1
International non-governmental organizations-their role	1
Challenges to the State from non-state actors	2
	15hrs

NIZAM COLLEGE : DEPARTMENT OF POLITICAL SCIENCE

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester I)

Class : M.A. Previous **Section:** Political Science

Course/Paper: PSC 102 (International Relations - I)

Unit II : Theories of International Relations – I : Liberal Theories **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Introduction to Idealist Theory	1
Basic Assumptions of idealist theory	1
Critical evaluation and the relevance of idealist theory in modern day	1
Introduction to Realist theory	1
Meaning and explanation of Realist theory	1
Assumptions of Realist theory	1
Morgenthauls Six Principles of Realist theory	1
Critical evaluation of Realist theory	1
Introduction to Systems theory	1
Basic assumptions of Systems theory and its usage in International Relations	2
Game theory – its relevance in IR	2
Decision making theory and its importance in IR	2
	15hrs

NIZAM COLLEGE : DEPARTMENT OF POLITICAL SCIENCE

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester I)

Class : M.A. Previous **Section:** Political Science

Course/Paper: PSC 102 (International Relations - I)

Unit III : Theories of International Relations – II : Marxian and other theories

No. of Hours Allotted: 15

Topics to be covered	No. of Hours
Introduction	1
Introduction to Marxist theory	1
Different interpretations of Marxist theory	1
Basic Assumptions of Marxist theory	1
Evaluation of Marxist Theory of International Relations	1
Introduction to Gramcian theory	1
Basic Assumptions of Gramcian theory	2
Critical evaluation of Gramcian theory	1
Feminist theory in International Relations	1
Basic features and different schools of thought in feminist theory	1
Critical evaluation of Feminist theory	1
Introduction of Critical theory of IR and its importance to the study	1
Evaluation of the Critical Theory	1
Conclusion	1
	15hrs

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester I)

Class : M.A. Previous **Section:** Political Science

Course/Paper: PSC 102 (International Relations - I)

Unit VI : Concepts in International Relations – I : **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Introduction	1
1. Concept of Power and its importance in IR	1
Elements of Power	1
2. War as a concept in IR	1
Different theories of War	1
Alternatives to War	1
3. Peace as a Concept in IR ; Essential ingredients of Peace building. Importance of Peace Studies	1
4. Diplomacy and role of diplomacy in IR. The various methods of diplomacy and howl helps in conflict resolution	2
5. Security as a concept in IR. Security dilemma	2
6. Conflict Resolution – Introduction – Different methods of Conflict Resolution	1
Different methods of Conflict resolution like use of diplomacy, mediation, arbitration	2
Conclution	1
	15hrs

NIZAM COLLEGE : DEPARTMENT OF POLITICAL SCIENCE

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester I)

Class : M.A. Previous **Section:** Political Science

Course/Paper: PSC 102 (International Relations - I)

Unit V : International Relations in the era of Globalization **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Introduction	1
1. Power distribution - : Unipolarity in today's Globalized World. Its advantages and disadvantages	2
2. Bipolarity its introduction after the Second World War. The reasons that led to Bipolarity.	3
3. Multipolarity Scenario – Introduction, the Current Multipolar Politics	2
4. Globalization – Introduction, different interpretations of it	2
5. The effects of Globalization on different Countries. Its advantages and disadvantages	2
6. Post Cold War Politics - Introduction. The establishment of American hegemony in IR	2
Conclution	1
	15hrs

Name of the Teacher : Dr. Yasmin Head, Department of Political Science

Signature : Signature :

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester I)

Class : M.A. Previous **Section:** Political Science

Course/Paper: PSC 202 (International Relations - II)

Unit I **No. of Hours Allotted**: 15

Topics to be covered	**No. of Hours**
Introduction to International law and International Organisation	1
Bsis, Sources and Types	3
International Organisation : The united Nations	3
United Nations and its activities, Developmental	2
Social and Humanitarian	3
Debates on Reforms	2
Conclusion	1
	15hrs

NIZAM COLLEGE : DEPARTMENT OF POLITICAL SCIENCE

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester I)

Class : M.A. Previous **Section:** Political Science

Course/Paper: PSC 202 (International Relations - II)

Unit II : International Security **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Introduction	1
Arms Race; Arms Control ; Verificaton; Compliance;	2
Disarmament	1
Proliferation : Conventional, Nuclear, Chemical an Biological	3
Efforts at Non-Proliferation – NPT, CTBT	3
MTCR, Chemical and Biological	3
Deterence	1
Conclusion	1
	15hrs

NIZAM COLLEGE : DEPARTMENT OF POLITICAL SCIENCE

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester I)

Class : M.A. Previous **Section:** Political Science

Course/Paper: PSC 202 (International Relations - II)

Unit III : International Political Economy **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Introduction	1
Post War Economic order :	1
Bretton Woos System and Institutions World Bank	2
IMF	2
GATT	2
Post Cold War Economic order	1
WTO	2
Bricks Bank and New Development Bank, AIIB	3
Conclusion	1
	15hrs

NIZAM COLLEGE : DEPARTMENT OF POLITICAL SCIENCE

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester I)

Class : M.A. Previous **Section:** Political Science

Course/Paper: PSC 202 (International Relations - II)

Unit IV : Topics to be covered – Non – State Actors **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Introduction	1
TNC's	2
Terrorist Organisation	3
Diaspora	3
Diaspora	3
Civil Society	2
Conclusion	1
	15hrs

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester II)

Class : M.A. Previous **Section:** Political Science

Course/Paper: PSC 204 D : Peace and Conflict Studies (Elective-1)

Unit - I **No. of Hours Allotted**: 15

Topics to be covered	**No. of Hours**
Introduction	1
Academic Discipline – Phases and Traditions	2
Liberal theory of Peace and Conflict	3
Marxist theory	3
Feminist theory	2
Gandhian theory	3
Conclusion	1
	15hrs

NIZAM COLLEGE : DEPARTMENT OF POLITICAL SCIENCE

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester II)

Class : M.A. Previous **Section:** Political Science

Course/Paper: PSC 204 D : Peace and Conflict Studies (Elective-1)

Unit – II : Concepts of Peace and Conflict **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Introduction	1
Peace Reeping, Peace building, peace making	3
Peace Enforcemnt, Conflict prevention, Conflict Resolution	3
Conflict Management and Conflict Regulation	3
Types of Conflict : Intra State and Inter State in Developing World	4
Conclusion	1
	15hrs

NIZAM COLLEGE : DEPARTMENT OF POLITICAL SCIENCE

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester II)

Class : M.A. Previous **Section:** Political Science

Course/Paper: PSC 204 D : Peace and Conflict Studies (Elective-1)

Unit – III : Peace Making Process **No. of Hours Allotted**: 15

Topics to be covered	**No. of Hours**
Introduction	1
Role of State and NGO's	3
Institutions and Individuals – their role in peace process	3
Conflict Regulation / Management Mechanism : Arbitration	2
Conciliation as a Mechanism	2
Mediation and Negotiation	3
Conclusion	1
	15hrs

NIZAM COLLEGE : DEPARTMENT OF POLITICAL SCIENCE

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester II)

Class : M.A. Previous **Section:** Political Science

Course/Paper: PSC 204 D : Peace and Conflict Studies (Elective-1)

Unit – III : Case Studies **No. of Hours Allotted**: 15

Topics to be covered	**No. of Hours**
Introduction	1
South Asia : India – Pakistan	4
Ethnic Conflict in Sri Lanka	3
West Asia : - Arab – Isracli Conflict	3
Conflict in Sudan	3
Conclusion	1
	15hrs

Name of the Teacher : Dr. Yasmin Head, Department of Political Science

Signature : Signature :

NIZAM COLLEGE : DEPARTMENT OF POLITICAL SCIENCE

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester IV)

Class : M.A. Final **Section:** Political Science

Course/Paper: PSC 401 : Research Methodology

No. of Hours Allotted: 15

Topics to be covered	**No. of Hours**
Unit 1 : Research in Social Sciences	
Introduction	1
Categories of Research Basic	2
Applied Research	2
Classical	2
Scientific Research method	2
Self – Reflexive Research	2
Nature and Scope of Research in Political Science	2
Transition	1
Conclusion	1
	15hrs

NIZAM COLLEGE : DEPARTMENT OF POLITICAL SCIENCE

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester IV)

Class : M.A. Final **Section:** Political Science

Course/Paper: PSC 401 : Research Methodology

Unit II : Methods of Research **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Introduction	1
Theoritical - Empirical	2
Qualitative - Quantitative	2
Inductyive - Mixed Methods Research	2
Value – Fact Dichotomy – Objectivity in Social Science Research : Theory and Practive	2
Deductive and Comparative	2
Ethnographic	1
Case Study Methods	2
Conclusion	1
	15hrs

NIZAM COLLEGE : DEPARTMENT OF POLITICAL SCIENCE

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester IV)

Class : M.A. Final **Section:** Political Science

Course/Paper: PSC 401 : Research Methodology

Unit III : Source Materials in Research **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Introduction	1
Data : Primary and Secondary Sources of Primary and Secondary Data : Web Sources : Potentials and Risks	2
Techniques of Research : Survey and Field Work	2
Interview and Questionaire	2
Content Analysis	1
Participation – Observation	2
Random Sampling	2
Use of SPSS in Political Science research	2
Conclusion	1
	15hrs

NIZAM COLLEGE : DEPARTMENT OF POLITICAL SCIENCE

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester IV)

Class : M.A. Final **Section:** Political Science

Course/Paper: PSC 401 : Research Methodology

Unit IV : Stages in Report Writing - I **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Introduction	1
Research Problem	2
Research Design	2
Types of Design	2
Review of literature	2
Conceptualizing Research Questions	3
Formulation of Hypothesis	2
Conclusion	1
	15hrs

NIZAM COLLEGE : DEPARTMENT OF POLITICAL SCIENCE

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester IV)

Class : M.A. Final **Section:** Political Science

Course/Paper: PSC 401 : Research Methodology

Unit V : Source Materials in Research **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Introduction	1
Processing of Data	3
Classification of Data and Analysis of Data – Quantification and Verification	3
Final Report	2
Styles of References or Report Writing	2
Methods of Citation	3
Conclusion	1
	15hrs

Name of the Teacher : Dr. Yasmin Head, Department of Political Science

Signature : Signature :

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester I)

Class : M.A. Previous **Section:** Political Science

Course/Paper: PSC 105 A : South Asia (Elective-2)

Unit - I **No. of Hours Allotted**: 15

Topics to be covered	**No. of Hours**
South Asia and its Geo-Political features	3
Introduction	1
A brief historical and political background	3
Decolonization and partition	3
Into - Centrism	3
Conclusion	2
	15hrs

NIZAM COLLEGE : DEPARTMENT OF POLITICAL SCIENCE

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester I)

Class : M.A. Previous **Section:** Political Science

Course/Paper: PSC 105 A : South Asia (Elective-2)

Unit - II **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Issues of Peace and Conflict in South Asia (Other than India)	2
Introduction	2
Internal Conflicts in the region – Problems of Governance and Development	2
Military and Politics in South Asia	3
Terrorism	3
Regional and extra – regional dimension	2
Conclusion	1
	15hrs

NIZAM COLLEGE : DEPARTMENT OF POLITICAL SCIENCE

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester I)

Class : M.A. Previous **Section:** Political Science

Course/Paper: PSC 105 A : South Asia (Elective-2)

Unit - IIII Allotted: **No. of Hours**

Topics to be covered: Foreign Policies of :	**No. of Hours**
Introduction to foreign policy	1
1. Afghanistan's foreign policy	2
2. Foreign Policy of Bangladesh	2
3. Maldives's Foreign Policy – its changing equation with India	2
4. Nepal's foreign policy	2
5. Pakistan's foreign policy	3
6. Foreign Policy of Sri Lanka	2
Conclusion	1
	15hrs

NIZAM COLLEGE : DEPARTMENT OF POLITICAL SCIENCE

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester I)

Class : M.A. Previous **Section:** Political Science

Course/Paper: PSC 105 A : South Asia (Elective-2)

Unit - IVI Allotted: **No. of Hours**

Topics to be covered : South Asian Economic Relations	**No. of Hours**
Introduction	1
Economic profile of the Region	3
Problems of Trade	3
Regional Economic cooperation	3
Prospects of SAfta	2
Problems and Prospects	2
Conclusion	1
	15hrs

Name of the Teacher : Dr. Yasmin Head, Department of Political Science

Signature : Signature :

NIZAM COLLEGE : DEPARTMENT OF POLITICAL SCIENCE

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester I)

Class : M.A. Previous **Section:** Political Science

Course/Paper: PSC 202 (International Relations - II)

Unit V : Topics to be covered : Contemporary Issues **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Introduction	1
Energy	3
Environment issues	2
Human Rights	3
Ethnicity	2
Religion	3
Conclusion	1
	15hrs

Name of the Teacher : Dr. Yasmin Head, Department of Political Science

Signature : Signature :

PSYCHOLOGY

NIZAM COLLEGE – DEPARTMENT OF PSYCHOLOGY

LESSOPN PLAN FOR THE ACADEMIC YEAR 2020-2021(Semester III)

Class: BA Subject: Psychology

Course Paper: III (Basic Cognitive processes**)**

Unit -I Perception No. of Hours 15

Topics to be covered	No of Hours
Perception – Introduction ,Definition, Nature	2hrs
Principles of perceptual organization.(ICT – Pictorial Presentation)	3hrs
Perception of movement	3hrs
Depth Perception – Definition, Monocular and Binocular cues of depth perception. (ICT – Pictorial Presentation)	3hrs
Concept of Perceptual Constancy, Types of Constancies – Size, Shape, Color, and Brightness. (ICT – Pictorial Presentation)	2hrs
Perceptual Abnormalities – Illusion and Hallucinations (ICT – Pictorial Presentation)	2hrs

Name of the Teacher Head. Department

S. Swapna Jyothi V.Venu Mohan Reddy

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NIZAM COLLEGE – DEPARTMENT OF PSYCHOLOGY

LESSOPN PLAN FOR THE ACADEMIC YEAR 2018-2019(Semester III)

Class: BA Subject: Psychology

Course Paper: III (Basic Cognitive processes**)**

Unit –II Learning No. of Hours 15

Topics to be covered	No of Hours
Learning- Definition and Nature of learning	1
Theories of learning – Conditioning Theories (Trial and Error, Classical conditioning and Operant conditioning),	1
Concept of Association, Stimulus and Response, S-R Reinforcement R-R	2
Classical conditioning theory	1
Operant conditioning theory	1
Trial and Error Theory	1
Comparison between classical conditioning and operant conditioning.	2
Cognitive Theories - Sign learning and Insightful learning	2
Social learning – Bandura, Walter Mischael	1
Learning Styles – Perceptual, Tactile, Kinesthetic, Visual and Auditory	2
Effective ways of learning.	1

Name of the Teacher Head. Department

S. Swapna Jyothi V.Venu Mohan Reddy

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NIZAM COLLEGE – DEPARTMENT OF PSYCHOLOGY

LESSOPN PLAN FOR THE ACADEMIC YEAR 2018-2019(Semester III)

Class: BA Subject: Psychology

Course Paper: III (Basic Cognitive processes**)**

Unit –III Memory & Forgetting No. of Hours 15

Topics to be covered	No of Hours
Memory - Definition and Nature of memory.	2
Information Processing – Encoding, Storage and Retrieval.	2
Stages of memory – Sensory, Short- Term and Long- Term.	2
Kinds of memory – Episodic, Semantic and Procedural.	2
Forgetting - Definition and Nature. Types of Forgetting	2
Causes of forgetting – Decay theory.	2
Interference theory	1
Methods of improving memory.	2

Name of the Teacher Head. Department

S. Swapna Jyothi V.Venu Mohan Reddy

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NIZAM COLLEGE – DEPARTMENT OF PSYCHOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2018-2019(Semester IV)

Class: BA Subject: Psychology

Course Paper: IV (**Dynamics of Behavior and Personality)**

Unit –I No. of Hours 15

Topics to be covered	No of Hours
Motivation- Definition, Nature and Types	2
Concept of Instincts, Drives, Motives, and Incentives.	2
Concept of Homeostasis, Maslow's Need-hierarchy theory,	2
Theories of motivation – Drive Reduction Theory	2
Concept of Unconscious Motivation.	2
Conflicts in Motives, Types of Conflicts , Conflict Resolution	2
Specific forms of Motivation – Affiliation, Achievement and Power	2
Measurement of motivation.	1

Name of the Teacher Head. Department

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NIZAM COLLEGE – DEPARTMENT OF PSYCHOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2018-2019(Semester IV)

Class: BA Subject: Psychology

Course Paper: IV

Unit –II - (**Emotions)** No. of Hours 15

Topics to be covered	No of Hours
Emotions : Definition, nature, and Components of emotions	2
Development of emotions	2
Role of Brain and Endocrine glands in Emotion	4
Theories of Emotions – James-Lange, Cannon- Bard,	2
Sachachter -Singer, and Donald Lindsley.	2
Adaptive and Disruptive functions of Emotions.	2
Measurement of Emotions	1

Name of the Teacher Head. Department

S. Swapna Jyothi V.Venu Mohan Reddy

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NIZAM COLLEGE – DEPARTMENT OF PSYCHOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2018-2019Semester IV

Class: BA Subject: Psychology

Course Paper: IV (**Dynamics of Behavior and Personality)**

Unit –IV- Personality No. of Hours 15

Topics to be covered	No of Hours
Approaches to Personality Approaches to Personality – Trait (Cattell and Allport),	3
Type -Kretschmer and Sheldon	2
Factorial approach & Dimensional approach to personality	3
Psychoanalytic approach to personality	3
Psychosocial approach to personality	2
Measurement of Personality	2

Name of the Teacher Head. Department

S. Swapna Jyothi V.Venu Mohan Reddy

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NIZAM COLLEGE – DEPARTMENT OF PSYCHOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2018-2019(Semester V)

Class: BA Subject: Psychology

Course Paper: VI B (**Health Psychology)**

Unit –I No. of Hours 20

Topics to be covered	No of Hours
Introduction to Health Psychology - Concept of Health and Illness Continuum	2
Concept of Well-being – Physical	2
Concept of Well-being Psychological	2
Concept of Well-being Social	2
Concept of Well-being Emotional	2
Concept of Well-being Economical.	2
Determinants of health behavior – Biological factors	2
Determinants of health behavior –Psychological factors	2
Cultural factors (superstitions, beliefs and practices)	2
Environmental factors (crowding, pollution, noise, rapid technological change).	2

Name of the Teacher Head. Department

S. Swapna Jyothi V.Venu Mohan Reddy

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NIZAM COLLEGE – DEPARTMENT OF PSYCHOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021(Semester V)

Class: BA Subject: Psychology

Course Paper: VI B(Health Psychology**)**

Unit –II No. of Hours 15

Topics to be covered	No of Hours
Concept of Stress Sources of stress- Frustration, Role ambiguity,	3
Conflict, Social support	2
Self- Concept	2
Types of Personality and Stress.	2
Physiological reactions to stress (GAS- General Adaptation Syndrome)	3
Emotional and Behavioura reactions to stress (Anxiety, Withdrawal and Suicide).	3

Name of the Teacher Head. Department

S. Swapna Jyothi V.Venu Mohan Reddy

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NIZAM COLLEGE – DEPARTMENT OF PSYCHOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2018-2019(Semester V)

Class: BA Subject: Psychology

Course Paper: VI B (**Health Psychology)**

Unit –III No. of Hours 15

Topics to be covered	No of Hours
Coping with stress ▪ Social Engineering Techniques (Conflict management)	5
▪ Personality Engineering Techniques (Cognitive models).	5
▪ Personality Engineering Techniques (Behaviour models).	5

Name of the Teacher

S. Swapna Jyothi

Signature

Head. Department

V.Venu Mohan Reddy

Signature

NIZAM COLLEGE – DEPARTMENT OF PSYCHOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2018-2019(Semester V)

Class: BA Subject: Psychology

Course Paper: VI - B (**Health Psychology)**

Unit –IV Health Promotions No. of Hours 15

Topics to be covered	No of Hours
Health Promotion - Adopting Healthy Life Style	3
Changing Attitudes or Beliefs	3
Attitude formation, Concept of Persuasion	2
Using Cognitive and Behavioural Change Techniques	4
Appeals, Mass-media and Self-help Groups	3

Name of the Teacher

S. Swapna Jyothi

Signature

Head. Department

V.Venu Mohan Reddy

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NIZAM COLLEGE – DEPARTMENT OF PSYCHOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2018-2019(Semester V)

Class: BA Subject: Psychology

Course Paper: VI - B (**Health Psychology)**

Unit –V- Counseling No. of Hours 15

Topics to be covered	No of Hours
Counseling : Concept and Nature of Counseling	2
Basic assumptions	2
Goals and Objectives of Counseling	3
Role of a Counselor	4
Qualities of an Effective Counselor.	3

Name of the Teacher Head. Department

S. Swapna Jyothi V.Venu Mohan Reddy

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NIZAM COLLEGE – DEPARTMENT OF PSYCHOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2018-2019(Semester VII)

Class: BA Subject: Psychology

Course Paper: VIII - A (**Adolescent Psychology)**

Unit –I- No. of Hours 15

Topics to be covered	No of Hours
Introduction The Nature and Principles of Human Development	2
Determinants of Human Development	3
Stages of Human Development (Infancy to old age)	5
Concept of Development tasks (Mile stones)	2
Developmental tasks at Adolescence. Physical, Cognitive, Social, emotional	3

Name of the Teacher Head. Department

S. Swapna Jyothi V.Venu Mohan Reddy

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NIZAM COLLEGE – DEPARTMENT OF PSYCHOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2018-2019(Semester VII)

Class: BA Subject: Psychology

Course Paper: VIII - A (**Adolescent Psychology)**

Unit –II No. of Hours 15

Topics to be covered	No of Hours
Physical Development in Adolescence -Pubertal changes	2
Physical Development in Adolescence - Body growth	2
Psychological impact of Puberty	3
Reaction to Pubertal changes	4
Early and Late Maturation	3

Name of the Teacher Head. Department

S. Swapna Jyothi V.Venu Mohan Reddy

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NIZAM COLLEGE – DEPARTMENT OF PSYCHOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2018-2019(Semester VII)

Class: BA Subject: Psychology

Course Paper: VIII - A (**Adolescent Psychology)**

Unit –III- No. of Hours 15

Topics to be covered	No of Hours
Emotional and Social Development in Adolescence Erickson's theory – Identity versus Identity Confusion	4
Factors that affect Identity Development	3
Changes in Self – Concept and Self-esteem.	3
Social development: **C**hanges in Family roles and responsibilities	3
Changes in Friendship and Social life.	2

Name of the Teacher Head. Department

S. Swapna Jyothi V.Venu Mohan Reddy

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NIZAM COLLEGE – DEPARTMENT OF PSYCHOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2018-2019(Semester VII)

Class: BA Subject: Psychology

Course Paper: VIII - A (**Adolescent Psychology)**

Unit –IV- No. of Hours 15

Topics to be covered	No of Hours
Issues in adolescence period Health Issues – Eating Disorders, Nutritional Disorders and Heterosexual Relationship	3
Social Issues – Sexually Transmitted Diseases, Adolescent Pregnancy, Substance Abuse	3
Psychological Issues – Teenage Suicide, Depression, Delinquent behavior	3
Educational Issues – School Transitions, Academic achievement, Drop out	3
Selection of Vocation, Factors influencing Vocational choice and Vocational preparation.	3

Name of the Teacher Head. Department

S. Swapna Jyothi V.Venu Mohan Reddy

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NIZAM COLLEGE – DEPARTMENT OF PSYCHOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2018-2019(Semester VII)

Class: BA Subject: Psychology

Course Paper: VIII - A (**Adolescent Psychology)**

Unit –V- No. of Hours 15

Topics to be covered	No of Hours
Personality Development of Adolescence	2
Enhancing Confidence	4
Decision- Making Skills	3
Improving Interpersonal Relationships	4
Emotional Competency (Importance of EQ and its relevance in the wellbeing)	2

Name of the Teacher

S. Swapna Jyothi

Signature

Head. Department

V.Venu Mohan Reddy

Signature

Session II

Course II — Biological Basis of Behaviour

Unit – I

Heredity and Environment:

- concept of ~~inheritance~~ and Types of inheritance — 1
- structure and functions of chromosomes — 2
- Genetic abnormalities — 3
- Genetic counselling — 2
- methods of studying heredity influenced on behaviour } — 3
- Environmental factors influencing behaviour } — 3
- Nature – Nurture controversy } — 1

Total 15

Sem II

Course II Unit - II

	hrs
The nervous system	
- structure, of neurons	- 2
- Types and functions of neurons	- 2
- nature of nerve conduction	
- simple reflex action	
- structure of central nervous system	- 3
- The limbic system	
- Localization of functions in the brain	- 2
- Reticular Activating system	- 1
- sypathetic and para sympathetic divisions	2

Sem. V.

Course V : Unit – I

Unit I : Basic Social Psychology

Basic Process of Social Interaction

- Introduction to Social Psychology: Definition, nature and scope – 2
- concept of social interaction — 1
- ways and levels of soc. interaction — 1
- Social influence: conformity — 2
  compliance, and
  obedience
- social perception — 2
- Attribution theories: Heider 1
  Kelley's theory 1
- Jones & Nisbett's theory 1
- Impression formation 1
- Impression management 1

Sem-V, course V

Unit – II

Attitudes and social behavior

- concept of social behavior — 1
- Attitudes, definition, components and functions of attitudes } — 2
- Attitude formation and development } 2
- Attitude change; Festinger's cognitive dissonance theory } 2
- Bem's self-perception theory — 1
- Heider's balance theory; Psychological reactance } — 1
- Attitude measurement scales and attitude scales: Bogardus social distance scale } — 1
- Thurstone's equal appearing interval scale } — 2
- Likert's summated ratings scale } — 2
- Semantic differential — 1

Total 15

Sem V

Course-V . Unit-III

Prejudice 7 Hrs

- Meaning and nature — 2
- Psychological and Social basis of Prejudice } — 2
- Consequences of Prejudice — 5
- Methods of reducing Prejudice — 5

Total 15 hrs.

Course-I, Unit-V Sem-I.

★ Basic ~~statistics~~:-
Uses of Statistics in Psychology } — 1
~~★~~ Frequency distribution — 2
— Graphic Presentation of data } — ~~4~~
- Measures of central tendency } — ~~4~~
- measures of variability — 4

Total 15 hrs

lesson plan for 2017 - 1

sem - I course - I, Un

1. Psychology : Definition, nature } 2

- scope and goals — 2
- Nature of scientific res : steps in and types of res — 2
- Approaches to sci. res nomothetic & Idiographic — 1
- Methods of Psy : observation meth — 1
- case study / history meth — 2
- survey method — 1
- Interview " — 1
- Experimental meth 2
- merits and demerits of methods — 1

15

VMR

Name of teacher : Dr. V. Venu Mohan Reddy

Dept of Psychology

Teaching Lesson Plan PSYCHOLOGY (B.A Degree Prog).

M. LAVANYA
Asst. Prof (PTC)
Dept of Psychology

Semester-I

Paper-I: Introduction To Psychology

S.No	Unit No.	Title of the unit	Topics.	No. of Instructional hours
1	II	Brief Introduction to schools of Psychology.	a. Introduction to schools of Psychology.	1
			b. Concept of Body-Mind Interaction.	3
			c. Structuralism school of thought	2
			d. Functionalism school of thought	2
			e. Psychoanalytic school	3
			d. Behaviourism school of thought	3
			e. Gestalt school of thought	1
			Total Instructional hrs.	15 hrs.
2	III	Contemporary Approaches to Psychology.	a. Introduction to contemporary approaches to Psychology.	1
			b. Cognitive Approach	2
			c. Humanistic Approach	3
			d. Existential Approach	2
			e. Bio-Psychological Approach	2
			d. Socio-cultural Approach	3
			e. Evolutionary Approach	2
			Total Instructional hrs.	15 hrs.
3	IV	Branches of Psychology.	a. Introduction to Branches of Psychology.	1
			b. Pure Fields:	
			★ General, Physiological, Developmental	3
			★ Abnormal, Social, Experimental & Geo-Psychology	4
			c. Applied Fields:	
			★ Counselling, clinical, organizational, Health	4
			★ Sports, Educational, & Forensic Psychology	3
			Total Instructional hrs.	15 hrs

Semester - II

Paper - II : Biological Basis of Behavior.

S.No.	Unit No.	Title of the Unit	Topics.	No. of Instructional hours
1.	III	Endocrine system	a. Location, structure of Endocrine glands.	2
			b. Functions of Endocrine glands	2
			c. Pineal, Pituitary & Thyroid glands.	4
			d. Parathyroid, Adrenal, & Pancreas	3
			e. Gonads & Thymus glands	2
			f. Effect of under & over functioning of Endocrine glands on behaviour.	2
			Total Instructional hrs.	15 hrs
2	IV	Sensation and Attention.	a. Definition and Nature of Attention	1
			b. Shifting & Fluctuation in Attention	1
			c. Division & Span of Attention	2
			d. Factors influencing Attention — Objective & subjective factors.	3
			Total Instructional hrs	7 hrs
3.	V	States of consciousness	a. Introduction to Consciousness	1
			b. Nature & Importance of Altered States of consciousness	3
			c. Waking state	2
			d. Sleep & disorders	2
			e. Dreams	2
			f. Induced state of consciousness — work shift, Drugs, Hypnosis	3
			g. Meditation.	2
			Total Instructional hrs.	15 hrs

Semester – III

Paper – III : Basic cognitive Processes.

S.NO	Unit No.	Title of the Unit.	Topics.	No. of Instructional hours.
1	IV	Thinking	a. Definition and Nature of thinking	1
			b. Role of Imagery and Language in thinking.	2
			c. Concepts – Definition and types of concepts.	3
			d. Steps involved in concept Formation.	2
			e. Definition and Types of Reasoning – Inductive & Deductive.	2
			f. Problem solving, Decision Making	3
			g. creativity.	2
			Total Instructional hrs.	15 hrs
2.	V	Intelligence	a. Introduction to Intelligence	1
			b. Brief history of Testing Movement – contribution of Binet	3
			c. Introduction to Theories of Intelligence	2
			d. Thorndike & Spearman Theory	2
			e. Thurstone, Sternberg and Gardener	4
			f. Measurement of Intelligence	3
			Total Instructional hrs.	15 hrs

Semester - IV

Paper - IV : Dynamics of Behavior and Personality.

S.No.	Unit No.	Title of the unit.	Topics	No. of Instructional hrs.
1.	III	Self and Personality.	a. Concept and dimensions of self	2
			b. Factors influencing the development of self.	2
			c. Roger's theory of self	2
			d. Definition and Nature of Personality	2
			e. Introduction to Factors influencing the development of Personality.	1
			f. Genetic & Constitutional Factors	2
			g. Socio-cultural Factors.	2
			h. Significant Personal Experiences.	2
			Total Instructional hrs.	15 hrs
2	V	Concept of Adjustment and Mal-adjustment	a. Concept & Elements of Adjustment	2
			b. Non-Adjustment Reactions	2
			c. Maladjustment Reactions	2
			d. Causes of Non-Adjustment behaviour & Mal-Adjustment Behaviour	3
			e. Frustration	1
			f. Conflicts & Anxiety.	3
			g. Impact on Behavior and personality.	2
			Total Instructional hrs.	15 hrs

Semester-V

Paper-VI (A): Organisational Behaviour (Optional)

S.No	Unit No.	Title of the unit	Topics	No. of Instruc. hours
1	I	Introduction	a. Introduction and Definition of organisational Behavior.	2 hrs
			b. Concept and Scope of organisational Behavior	3
			c. Significance of organisational Behavior	3
			d. Contemporary changes in organisational Behavior.	7
			Total Instructional hours	15 hrs
2	II	Structure of an organisation	a. Structure, Elements & characteristics of organisational structure.	3
			b. Horizontal organisational structure	2
			c. Vertical organisational structure	2
			d. Virtual organisational structure	2
			e. Communication in Organization.	3
			f. Modern trends in organization.	3
			Total Instructional hrs	15 hrs
3	III	Work Motivation and Job satisfaction	a. Definition and concept of Work Motivation	2
			b. Introduction to Approaches to Work Motivation	1
			c. Maslow Hierarchy of Needs Theory	2
			d. Herzberg's Two Factors Theory of Motivation & Alderfer's ERG Theory	3
			e. Concept of Job Satisfaction	1
			f. Influences on Job Satisfaction.	3
			g. Outcomes of Job Satisfaction	3
			Total Instructional hrs.	15 hrs.
4	IV	Occupational Stress.	a. Definition of occupational Stress and the Relation of Burnout	2
			b. Causes of Stress	1
			c. Extra organisational Stressors	2
			d. organisational Stressors	2
			e. Group and Individual Stressors	2
			f. Reactions of Stress - Physical, Psychological & Behavioral	4
			g. Coping strategies for occupational Stress - Individual & organisational strategies.	2
			Total Instructional hrs.	15 hrs

S.No.	Unit No.	Title of the unit.	Topics	No. of Instruct hours
5	V	Decision Making in organisation	a. Definition and Nature of Decision Making.	2
			b. Behaviorally oriented Decision Making Techniques.	1
			c. Traditional and Modern Participative Techniques.	3
			d. Creativity	2
			e. Group Design Making	2
			f. Process of Creativity	2
			g. Concept of Group Decision Making	1
			* The ~~Delphi~~ Delpi Technique	1
			* The Nominal Group Technique	1
			Total Instructional hours	15 hrs

Semester - VI

Paper - VIII (B) Consumer Behaviour (Optional)

S.No	Unit No.	Title of the unit	Topics	Total No. of Instruct. hours
1	I	Introduction	a. Introduction, Definition and Concept of consumer Behavior.	2
			b. Scope of consumer Behavior.	2
			c. consumer Research Paradigms	2
			d. Quantitative Research & Qualitative Research.	3
			e. Introduction to the consumer Research process.	2
			f. Quantitative and Qualitative Research Designs.	4
			Total Instructional hrs.	15 hrs
2	II	Consumer Motivation	a. Concept of consumer Motivation	2
			b. Needs of consumers	1
			c. Goals and their Interdependence	2
			d. Positive and Negative Motivation	2
			e. Rational versus Emotional Motive	1
			f. Types of consumer Needs.	4
			g. A Trio of Needs — Power, Affiliation and Achievement.	3
			Total Instructional hrs.	15 hrs
3	III	Personality and consumer Behavior.	a. Personality & consumer Behavior — Introduction.	2
			b. Personality Traits of a Consumer	3
			c. Self & Self-Image of a Consumer	3
			d. Cognitive Factors of consumer	2
			e. consumer Ethnocentrism	2
			f. Brand Personality and Brand Personification.	2
			g. Product personality — Gender & colour.	1
			Total Instructional hours	15 hrs

S.No	Unit No.	Title of the unit	Topics.	Total Instructional Hours
4	IV	Consumer in social and cultural settings.	a. Socialization of Family Members	2
			b. Consumer socialization of children and Adults.	2
			c. Intergenerational socialization.	2
			d. Family Decision Making.	3
			e. Consumption-related Roles.	2
			f. Dynamics of Husband-wife Decision Making.	2
			g. Family & Non traditional Family Life cycle.	2
			Total Instructional hours	15 hrs
5	V	Consumer Decision Making Process.	a. Introduction and Levels of Consumer Decision Making.	2
			b. Extensive & Limited Problem solving.	3
			c. Routinised Response Behavior.	1
			d. An Emotional view of Consumer Decision Making	4
			e. A Model of consumer Decision Making — Input, Process, output	5
			Total Instructional hours	15 hrs

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SOCIOLOGY

NIZAM COLLEGE
DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester III)

Class: B.A. Sociology **Section:** Sociology

Course/Paper: III (A)-RESEARCH METHODOLOGY

Unit: I **No.of Hours Allotted**: 15

Topics to be covered	No. of Hours
Introduction to Research Methodology	2
Sociology as Science	3
Social Research - Concept	2
Theory and Research	1
Hypothesis- Concept and Types	2
Importance of Concept and Construct in Research	1
Major Steps in Social Research	4
	15hrs

Name of the Teacher: Dr. K. Bhavani Shankar

Signature:

Head, Department of Sociology

Signature:

NIZAM COLLEGE: DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester III)

Class: B.A. Sociology **Section:** Sociology

Course/Paper: III(A)-RESEARCH METHODOLOGY

Unit: II **No.of Hours Allotted**: 15

Topics to be covered	No. of Hours
Concept of Qualitative Research – Meaning and Importance	2
Concept of Quantitative Research – Meaning and Importance	2
Differences between Quantitative and Qualitative Research Methods	2
Methods of Qualitative Research	3
Research Design – Meaning, Importance and Steps	3
Exploratory Research Design	1
Descriptive Research Design	1
Experimental Research Design	1
	15 hrs

Name of the Teacher: Dr. K. Bhavani Shankar Head, Department of Sociology

Signature: Signature:

NIZAM COLLEGE
DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester III)

Class: B.A. Sociology **Section:** Sociology

Course/Paper: III(A)-RESEARCH METHODOLOGY

Unit: III **No.of Hours Allotted**: 15

Topics to be covered	No. of Hours
Meaning types of Data; Overview of methods of data collection	2
Observation – Meaning, Types and Steps	2
Questionnaire – Meaning, Types and Steps	2
Interview Schedule – Meaning, Types and Steps	2
Sampling – Meaning and Importance	2
Probability Sampling	3
Non-Probability Sampling	2
	15hrs

Name of the Teacher: Dr. K. Bhavani Shankar Head, Department of Sociology

Signature: Signature:

NIZAM COLLEGE
DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester III)

Class: B.A. Sociology **Section:** Sociology

Course/Paper: III(A)-RESEARCH METHODOLOGY

Unit: IV **No.of Hours Allotted**: 15

Topics to be covered	No. of Hours
Introduction to Measures of Central Tendency	2
Mean- Theory and Calculation(Ungroup, Discrete and Group)	3.5
Median- Theory and Calculation (Ungroup, Discrete and Group)	3.5
Mode- Theory and Calculation (Ungroup, Discrete and Group)	3
Graphic Representation – Overview	1
Bar Graphs	1
Histogram	1
	15hrs

Name of the Teacher: Dr. K. Bhavani Shankar Head, Department of Sociology

Signature: Signature:

NIZAM COLLEGE

DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester III)

Class: B.A. Sociology **Section:** Sociology

Course/Paper: III(A)-RESEARCH METHODOLOGY

Unit: V **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Research Writing – Steps and Formats	5
Technical Reports	2
Popular Reports	2
Evaluative Reports	2
Academic Writing	1
Ph.D. Thesis writing	2
Research Paper writing	1
	15hrs

Name of the Teacher: Dr. K. Bhavani Shankar

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Head, Department of Sociology

Signature:

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DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester IV)

Class : B.A **Section: SOCIOLOGY**

Course/Paper: **IV**: **Sociology of Development and Planning**

Unit: I **No. of Hours Allotted**: 18

Topics to be covered	No. of Hours
Development: Concepts and Paradigms; Modernization and Development; Definition of Development; Changing Paradigms of Development; Concept of Underdevelopment	03
Indicators of development: Socio-Economic Development; Sustainable Development	02
Human Development: Definition; Human Development Perspective; Indicators of Human Development; Human Development Index; Human Development in India	03
Economic Growth and Economic Development: Definition; Economic Growth Perspective; Indicators of Economic Growth; Economic Growth in India	02
Social Development: Definition; Social Development Perspective; Indicators of Social Development; Social Development in India	02
Sustainable Development: Perspective; Definition; need for Sustainable Development; policies for sustainable Development; Measuring Sustainable Development	03
Total	**15 hrs**

Name of the Teacher: Dr. K. Bhavani Shankar Department of Sociology

Signature: Signature:

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DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester IV)

Class : B.A **Section: SOCIOLOGY**

Course/Paper: **IV**: **Sociology of Development and Planning**

Unit: II **No. of Hours Allotted**: 18

Topics to be covered	No. of Hours
Perspective: Meaning; Theoretical Perspectives on Development	01
Marxian theory of Economic Development; Process of Economic Development; Downfall of Capitalism; Stages of Growth	02
Weberian theory of economic development; Religion and Economy; Protestant Ethics and Capitalism	02
World System Theory	01
A.G. Frank theory of underdevelopment: Historical account of Underdevelopment; relationship between Developed and Underdeveloped Countries	02
Wallerstein's theory of underdevelopment: The Core; Periphery, Semi-periphery; External Areas; Salient features of the theory	02
Amartya Sen: Human Development Approach - Key Elements; Human Development Reports; Gender Equity and the Human Development Approach	02
Mahbub-ul Haq: Human Development Approach of Economic Growth; Human Development Paradigm: Concept, application and its influence, HDI and GDP; Relevance of HDI for Developing Countries	03
Total	**15 hrs**

Name of the Teacher: Dr. K. Bhavani Shankar Department of Sociology

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DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester IV)

Class : B.A **Section: SOCIOLOGY**

Course/Paper: **IV**: **Sociology of Development and Planning**

Unit: III **No. of Hours Allotted**: 18

Topics to be covered	No. of Hours
International Institutions and Development Policies	02
World Bank: Organization History, Mission; Functions	01
IMF: Organization History, Mission; Functions	01
WTO: Organization History, Mission; Functions	01
ILO: Organization History, Mission; Functions	01
UNO: Organization History, Mission; Functions	02
UNICEF: Organization History, Mission; Functions	01
Democracy and People's participation for Development; its advantages; Strategy for 1990s, Peoples participation through Panchayat, information, education and communication	02
Modernization and Development: Definition, Domains of Modernization; Modernization in India; changes in caste system, family system, education system	02
Globalization and Development: Definition, effects of globalization, types, Globalisation and local identity	02
Total	**15 hrs**

Name of the Teacher: Dr. K. Bhavani Shankar Department of Sociology

NIZAM COLLEGE

DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester IV)

Class : B.A **Section: SOCIOLOGY**

Course/Paper: **IV**: **Sociology of Development and Planning**

Unit: IV **No. of Hours Allotted**: 18

Topics to be covered	No. of Hours
Development and Migration: Factors of Migration; Pull Factors, Causes and Consequences of Migration	03
Development and Displacement: Problems of the displaced; peoples movement against development	02
Victims of development: Rehabilitation and Resettlement; resettlement processes in India	03
Civil society and Development: Definition, Origin, Role in Development	02
NGOs and Development: History of NGOs in India; Role of NGOs in Development	02
SEZs/AEZs and Development: Definition; Evolution of the Zones; Key Features; Impact of the scheme	03
Total	**15 hrs**

Name of the Teacher: Dr. K. Bhavani Shankar Department of Sociology

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DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester IV)

Class : B.A **Section: SOCIOLOGY**

Course/Paper: **IV**: **Sociology of Development and Planning**

Unit: V **No. of Hours Allotted**: 18

Topics to be covered	No. of Hours
Concept and Definition of Planning; need for planning	01
Social Planning: Objectives of Social Planning	03
Economic Planning: Features and Objectives of Economic Planning	03
Planning and Development with reference to Five Year Plans in India (Discuss the objectives and outcomes of planning in India)	01
Intervention Programmes – Education (Sarva Siksha Abhiyan, Free and Compulsory Education, Fee reimbursement, etc) Health (Rajiv Arograya Sree Health Card, ESI) Livelihood and Skills promotion programmes (Skill India, JRY, MGNREGS, etc)	03
E-Governance/ Mobile Governance and Development:	03
Total	**18 hrs**

Name of the Teacher: Dr. K. Bhavani Shankar Department of Sociology

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DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester I)

Class: M.A Section: SOCIOLOGY

Course/Paper: **III: RESEARCH METHODOLOGY – SOCIAL STATISTICS AND COMPUTER APPLICATIONS**

Unit: I **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Sociology as a Science	1
Scientific Method and Social Research	2
Ethical Issues in Social Research: Subjectivity vs Objective Debate, Value Neutrality	2
Types of Research: Pure and Applied	1
Qualitative and Quantitative	1
Cross-sectional and Time Series	1
Purpose of Research: Exploratory, Descriptive and Explanatory	2
Theory and Research –Concepts, Construct, Values	1
Hypothesis; Types	2
Major Steps in Social Research	2
	15hrs

Name of the Teacher: Dr. K. Bhavani Shankar Department of sociology

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DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester I)

Class: M.A Section: SOCIOLOGY

Course/Paper: **III: RESEARCH METHODOLOGY – SOCIAL STATISTICS AND COMPUTER APPLICATIONS**

Unit: II **No. of Hours Allotted**: 15

Topics to be covered	**No. of Hours**
Quantitative and Qualitative Research	2
Research Design – Aims and Importance	3
Types of Research Design	1
Exploratory Design - Advantages and Disadvantages	3
Descriptive Design - Advantages and Disadvantages	3
Experimental Design - Advantages and Disadvantages	3
	15hrs

Name of the Teacher: Dr. K. Bhavani Shankar Department of sociology

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DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester I)

Class: M.A Section: SOCIOLOGY

Course/Paper: **III: RESEARCH METHODOLOGY – SOCIAL STATISTICS AND COMPUTER APPLICATIONS**
Unit: III **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Sampling Techniques: Universe/Population, Characteristics of Sample, Criteria for Sample Size – Sample Size Formulas.	1
Sampling Design: Probability and Non-Probability Methods - Sampling Errors	2
Methods and Tools of Data Collection: Question and Answer Method, Method of Doubt	1
Observation	2
Interview Schedule	1.5
Questionnaire	1.5
Social Survey	1
Case Study	1
Ethnography & Ethno-methodology	1
Focus Group Study	1
PRA/PLA	1
Content Analysis, Oral History	1
	15hrs

Name of the Teacher: Dr. K. Bhavani Shankar Department of sociology

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DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester I)

Class: M.A Section: SOCIOLOGY

Course/Paper: **III: RESEARCH METHODOLOGY – SOCIAL STATISTICS AND COMPUTER APPLICATIONS**

Unit: IV **No. of Hours Allotted**: 15

Topics to be covered	**No. of Hours**
Data Processing, Classification, Tabulation and Analysis.	3
Social Statistics - Importance and Usage	1
Typological Statistical Data – Formation of Frequency Distribution Tables – Diagrammatic and Graphic Representation of Data	3
Measures of Central Tendency: Mean, Median, Mode, Quartile, Decile, Percentile	3
Measures of Dispersion: Range, Skewness, Kurtosis	2.5
Deviation: Standard and Mean Deviation	2.5
	15hrs

Name of the Teacher: Dr. K. Bhavani Shankar Department of sociology

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DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2018-2019 (Semester I)

Class: M.A Section: SOCIOLOGY

Course/Paper: **III: RESEARCH METHODOLOGY – SOCIAL STATISTICS AND COMPUTER APPLICATIONS**

Unit: V **No. of Hours Allotted**: 15

Topics to be covered	**No. of Hours**
Measures of Association/Relations: Correlation and Regression.	2
Measures of Testing of Hypothesis: Parametric tests: T-test, Z-test, ANOVA & MANOVA (F-test)	3.5
Non-Parametric tests: Chi-square, Phi-test, R-test etc. Introduction to Spread Sheet Packages: Ms-Excel	3.5
SPSS –Coding and Recoding – Their Silent Features - Usage in Data Analysis	4
Research Report Writing – Purpose, Audience – Format, Tones & Styles (Citation & References)	2
	15hrs

Name of the Teacher: Dr. K. Bhavani Shankar Department of sociology

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DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2018-2019 (Semester IV)

Class: M.A Section: SOCIOLOGY

Course/Paper: **PAPER – IV (b): THEORY AND PRACTICE OF SOCIAL WORK**

Unit: I **No. of Hours Allotted**: 15

Topics to be covered	**No. of Hours**
Social Work Profession, Philosophy and Ideology	3
Concept of Social Welfare, Social Service and Social Work	2
Religious Philanthropic base of Social Work	2
Rationalistic humanistic base of Social Work	2
modern philosophical base of Social Work	2
Objectives and Goals of Social Work Service	2
Development and Remedial	2
	15hrs

Name of the Teacher: Dr. K. Bhavani Shankar Department of sociology

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DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester IV)

Class: M.A Section: SOCIOLOGY

Course/Paper: **PAPER – IV (B): THEORY AND PRACTICE OF SOCIAL WORK**

Unit: II **No. of Hours Allotted**: 15

Topics to be covered	**No. of Hours**
Historical Development of Social Work in India	2.5
Voluntary Action and Role of Voluntary Organisations in India	3
Voluntary Action	2.5
Social Change	2
Development	2.5
Voluntary Action, Social Change and Development	2.5
	15hrs

Name of the Teacher: Dr. K. Bhavani Shankar Department of sociology

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DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester IV)

Class: M.A Section: SOCIOLOGY

Course/Paper: **PAPER – IV (B): THEORY AND PRACTICE OF SOCIAL WORK**

Unit: III **No. of Hours Allotted**: 15

Topics to be covered	**No. of Hours**
Emergence and Development of Social Work as a Profession	3
Basic Principles of Professional Social Work	3
Values and Ethics of Professional Social Work	3
functions of Professional Social Work	3
Sociology and Social Work for Social Development and Social Welfare	3
	15hrs

Name of the Teacher: Dr. K. Bhavani Shankar Department of sociology

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DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester IV)

Class: M.A Section: SOCIOLOGY

Course/Paper: **PAPER – IV (B): THEORY AND PRACTICE OF SOCIAL WORK**

Unit: IV **No. of Hours Allotted**: 15

Topics to be covered	**No. of Hours**
Fields of Social Work Practice	1
Family and Child Welfare	2.5
Medical and Psychiatric Social Work	2.5
Correctional Social Work	2.5
Rural Community Development	2.5
Urban Community Development	2
Tribal Community Development	2
	15hrs

Name of the Teacher: Dr. K. Bhavani Shankar Department of sociology

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DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester IV)

Class: M.A Section: SOCIOLOGY

Course/Paper: **PAPER – IV (B): THEORY AND PRACTICE OF SOCIAL WORK**

Unit: V **No. of Hours Allotted**: 15

Topics to be covered	**No. of Hours**
Research Process and Nature of Social Work Research	2
Objectives, Nature, Scope and Process of Social Work Research	3.5
Role of Research in Social Work Practice	3.5
Social Work Research	2
Social Reconstruction	2
Social Work Research and Social Reconstruction	2
	15hrs

Name of the Teacher: Dr. K. Bhavani Shankar Department of sociology

Signature: Signature

NIZAM COLLEGE: DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester V)

Class: B.A. Sociology **Section:** Sociology

Course/Paper: V-PRINCIPLES OF SOCIAL ANTHROPOLOGY

Unit: I **No.of Hours Allotted**: 15

Topics to be covered	No. of Hours
Introduction to Social Anthropology	1
Definition and Meaning of Social Anthropology	2
Scope and Branches of Social Anthropology	4
Meaning and Definition of Tribes	2
Characteristics of Tribes	3
Geographical distribution of Tribes	3
	15hrs

Name of the Teacher: Dr. Vinita Pandey Head, Department of Sociology

Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester V)

Class: B.A. Sociology **Section:** Sociology

Course/Paper: V-PRINCIPLES OF SOCIAL ANTHROPOLOGY

Unit: II **No.of Hours Allotted**: 15

Topics to be covered	No. of Hours
Concept, Meaning and Definition of Culture	2
Characteristics of Culture	3
Material Culture	2
Non-Material Culture	2
Overview of Cultural Processes	3
Cultural Diffusion	1.5
Cultural Evolution	1.5
	15hrs

Name of the Teacher: Dr. Vinita Pandey Head, Department of Sociology

Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester V)

Class: B.A. Sociology **Section:** Sociology

Course/Paper: V-PRINCIPLES OF SOCIAL ANTHROPOLOGY

Unit: III **No.of Hours Allotted**: 15

Topics to be covered	No. of Hours
Concept, Meaning and Definition of Social Institutions	2
Definition, Types and Functions of Marriage	4
Definition, Types and Functions of Family	4
Definition, Types and Functions of Kinship	5
	15hrs

Name of the Teacher: Dr. Vinita Pandey Head, Department of Sociology

Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester V)

Class: B.A. Sociology **Section:** Sociology

Course/Paper: V-PRINCIPLES OF SOCIAL ANTHROPOLOGY

Unit: IV **No.of Hours Allotted**: 15

Topics to be covered	No. of Hours
Tribal Economy- Characteristics and Forms	4
Meaning and Definition of Religion	2
Animism	2
Animatism	2
Totemism and Fetishism	2
Functions of Religion	1
Meaning and Functions of Magic	2
	15hrs

Name of the Teacher: Dr. Vinita Pandey Head, Department of Sociology

Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester V)

Class: B.A. Sociology **Section:** Sociology

Course/Paper: V-PRINCIPLES OF SOCIAL ANTHROPOLOGY

Unit: V **No.of Hours Allotted**: 15

Topics to be covered	No. of Hours
Overview of Tribal problems	2
Exploitation of Tribes	2
Land Alienation and Displacement	4
Problems of Health and Nutrition	3
Constitutional Provisions for tribal development	2
Welfare measures for tribal community in India	2
	15hrs

Name of the Teacher: Dr. Vinita Pandey Head, Department of Sociology

Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester VI)

Class: B.A. Sociology **Section:** Sociology

Course/Paper: VII-PHILOSOPHICAL FOUNDATIONS AND APPLICATIONS OF SOCIOLOGY

Unit: I **No.of Hours Allotted**: 15

Topics to be covered	No. of Hours
Philosophical Context of Emergence of Sociology	1
Positivism	1
Empiricism	1
Ethnomethodology	1
Phenomenology	1
Contributions of August Comte	2
Contributions of Herbert Spencer	2
Contributions of Emile Durkheim	2
Contributions of Karl Marx	2
Contributions of Max Weber	2
	15hrs

Name of the Teacher: Dr. Vinita Pandey Head, Department of Sociology

Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester VI)

Class: B.A. Sociology **Section:** Sociology

Course/Paper: VII-PHILOSOPHICAL FOUNDATIONS AND APPLICATIONS OF SOCIOLOGY

Unit: II **No.of Hours Allotted**: 15

Topics to be covered	No. of Hours
Introduction to Applied Sociology- Meaning and Importance	3
Social Policy – Meaning and Formulation	3
Sociology and Social Policy	3
Importance of Social Research in Social Policy (Evaluative Studies)	3
Sociology and Professions	2
Skills acquired from sociological studies	1
	15hrs

Name of the Teacher: Dr. Vinita Pandey Head, Department of Sociology

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NIZAM COLLEGE: DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester VI)

Class: B.A. Sociology **Section:** Sociology

Course/Paper: VII-PHILOSOPHICAL FOUNDATIONS AND APPLICATIONS OF SOCIOLOGY

Unit: III **No.of Hours Allotted**: 15

Topics to be covered	No. of Hours
Introduction to Participatory Development - Meaning and Importance	1
Origin of Participatory Development and Participatory Methods	2
Need and advantages of Social Participation	2
Community Development and Community Organization	3
Group Formation and Social Action	2
Capacity Building Measures	2
Action Research and Evaluative Research	3
	15hrs

Name of the Teacher: Dr. Vinita Pandey Head, Department of Sociology

Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester VI)

Class: B.A. Sociology **Section:** Sociology

Course/Paper: VII-PHILOSOPHICAL FOUNDATIONS ANDAPPLICATIONS OF SOCIOLOGY

Unit: IV **No.of Hours Allotted**: 15

Topics to be covered	No. of Hours
Emergence of Participatory Rural Appraisal (PRA)	2
Meaning and Definition of PRA	2
Principles of PRA	2
Space Related Methods of PRA	3
Time Related Methods of PRA	3
Relationship Related Methods of PRA	3
	15hrs

Name of the Teacher: Dr. Vinita Pandey Head, Department of Sociology

Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester VI)

Class: B.A. Sociology **Section:** Sociology

Course/Paper: VII-PHILOSOPHICAL FOUNDATIONS ANDAPPLICATIONS OF SOCIOLOGY

Unit:V **No.of Hours Allotted**: 15

Topics to be covered	No. of Hours
Introduction to Counselling	2
Counselling- Meaning, Definition and Importance	2
Directive Counselling	2
Non-Directive Counselling	2
Psychotherapy, Cognitive Therapy	2
Steps in Counselling	3
Attitude and skills of Counsellor	2
	15hrs

Name of the Teacher: Dr. Vinita Pandey Head, Department of Sociology

Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester II)

Class: M.A. Sociology **Section:** Sociology

Course/Paper:III: QUALITATIVE RESEARCH AND PLA TECHNIQUES

Unit: I **No.of Hours Allotted**: 15

Topics to be covered	No. of Hours
Meaning, Importance and Scope of Qualitative Research	3
Qualitative vs Quantitative Research	3
Participant Observation, Ethnography	3
In-depth interviewing	2
Historical Analysis, Oral/life histories	2
Focus Group Methodology, Case Study	2
	15hrs

Name of the Teacher: Dr. Vinita Pandey Head, Department of Sociology

Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester II)

Class: M.A. Sociology **Section:** Sociology

Course/Paper:III: QUALITATIVE RESEARCH AND PLA TECHNIQUES

Unit: II **No.of Hours Allotted**: 15

Topics to be covered	No. of Hours
Participatory Methods (Bottom to Top Approach)	4
Advantages and Obstacles for People's participation	4
Origin and Sources of Participatory Methods	4
Transition from Rapid Rural Appraisal to Participatory Rural Appraisal to Participatory Learning Appraisal	3
	15hrs

Name of the Teacher: Dr. Vinita Pandey Head, Department of Sociology

Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester II)

Class: M.A. Sociology **Section:** Sociology

Course/Paper:III: QUALITATIVE RESEARCH AND PLA TECHNIQUES

Unit: III **No.of Hours Allotted**: 15

Topics to be covered	No. of Hours
Principles of Participatory Learning and Appraisal	3
Space Related Methods	4
Time Related Methods	3
Relationship Related Methods	3
Networking and Tree Diagram	2
	15hrs

Name of the Teacher: Dr. Vinita Pandey Head, Department of Sociology

Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester II)

Class: M.A. Sociology **Section:** Sociology

Course/Paper:III: QUALITATIVE RESEARCH AND PLA TECHNIQUES

Unit: IV **No.of Hours Allotted**: 15

Topics to be covered	No. of Hours
PLA Fieldwork: Tool Kits and Fieldwork Plan	3
Attitudes and Behaviour of Stakeholders	2
Role of Facilitators and Researcher in the field	3
Field Experiences	4
Coping Mechanisms of Research Institutions and NGOs in conducting PLA	3
	15hrs

Name of the Teacher: Dr. Vinita Pandey Head, Department of Sociology

Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester II)

Class: M.A. Sociology **Section:** Sociology

Course/Paper:III: QUALITATIVE RESEARCH AND PLA TECHNIQUES

Unit: V **No.of Hours Allotted**: 15

Topics to be covered	No. of Hours
Development Issues & Challenges	4
Data Processing and Analysis	2
Problem Identification, Findings & Outcomes	2
Designing Strategy	2
Developing Research Plan	3
Presentation of Report	2
	15hrs

Name of the Teacher: Dr. Vinita Pandey Head, Department of Sociology

Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester III)

Class: M.A. Sociology **Section:** Sociology

Course/Paper:I: CONTEMPORARY SOCIOLOGICAL THEORIES

Unit: I **No.of Hours Allotted**: 15

Topics to be covered	No. of Hours
Pre-Modernity	1
Great Chain of Being	1
Age of Renaissance and Enlightenment	2
Rene Descartes	2
Immanuel Kant, Condorcet	3
Hobbes, Locke	3
Rousseau, Voltaire	3
	15hrs

Name of the Teacher: Dr. Vinita Pandey Head, Department of Sociology

Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester III)

Class: M.A. Sociology **Section:** Sociology

Course/Paper:I: CONTEMPORARY SOCIOLOGICAL THEORIES

Unit: II **No.of Hours Allotted**: 15

Topics to be covered	No. of Hours
The Project of Modernity	2
Classical theories – Karl Marx	2
Classical theories – Emile Durkheim	2
Classical theories – Max Weber	2
Classical theories – George Simmel	1
Contemporary Theories – Anthony Giddens, Ulrich Beck	2
Contemporary Theories – George Ritzer, Zygmunt Bauman	2
Contemporary Theories – Jurgen Habermas	2
	15hrs

Name of the Teacher: Dr. Vinita Pandey Head, Department of Sociology

Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester III)

Class: M.A. Sociology **Section:** Sociology

Course/Paper:V: DEVELOPMENT, MANAGEMENT, RESEARCH

Unit: I **No.of Hours Allotted**: 15

Topics to be covered	No. of Hours
Evolution of the concept of Development Management	2
Concept of Growth with Equity	2
Justice and Participation	2
Human Capital Formation	2
Issues of Development – Poverty, Unemployment, Marginalization	3
Gender discrimination, Caste conflicts, democratization	2
Social, Economic and Political Empowerment	2
	15hrs

Name of the Teacher: Dr. Vinita Pandey Head, Department of Sociology

Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester III)

Class: M.A. Sociology **Section:** Sociology

Course/Paper:V: DEVELOPMENT, MANAGEMENT, RESEARCH

Unit: II **No.of Hours Allotted**: 15

Topics to be covered	No. of Hours
Participatory Development	3
Fields of Development: Education, Health	3
Fields of Development: Natural Resource Management	3
Fields of Development: Distribution of Wealth	3
Fields of Development: Training and Skill Development	3
	15hrs

Name of the Teacher: Dr. Vinita Pandey Head, Department of Sociology

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NIZAM COLLEGE: DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester III)

Class: M.A. Sociology **Section:** Sociology

Course/Paper:V: DEVELOPMENT, MANAGEMENT, RESEARCH

Unit: III **No.of Hours Allotted**: 15

Topics to be covered	No. of Hours
Development interventions - Concept	2
Role of State	3
Role of Community based organizations and NGO's in the Development	3
Various actors implementing interventions	2
Development Administration in India	3
Corporate Social Responsibility (CSR)	2
	15hrs

Name of the Teacher: Dr. Vinita Pandey Head, Department of Sociology

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NIZAM COLLEGE: DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester III)

Class: M.A. Sociology **Section:** Sociology

Course/Paper:V: DEVELOPMENT, MANAGEMENT, RESEARCH

Unit: IV **No.of Hours Allotted**: 15

Topics to be covered	No. of Hours
Development Research	3
Participatory Rural Appraisal (PRA)	2
Qualitative research methods like case studies, content analysis and focus group discussions	5
Quantitative research methods – Tools of Data collection: Questionnaire, Interview Schedule	5
	15hrs

Name of the Teacher: Dr. Vinita Pandey Head, Department of Sociology

Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester III)

Class: M.A. Sociology **Section:** Sociology

Course/Paper:V: DEVELOPMENT, MANAGEMENT, RESEARCH

Unit: V **No.of Hours Allotted**: 15

Topics to be covered	No. of Hours
Proposal writing for Development project – Donor/ Funding agencies	3
Social work Methods for implementation of Development Projects	3
Project life cycle and project Documentation	2.5
Evaluation of the Development Project outcomes	2.5
Project Report Writing	2
Case Studies Writing	2
	15hrs

Name of the Teacher: Dr. Vinita Pandey Head, Department of Sociology

Signature: Signature:

NIZAM COLLEGE : DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester I)

Class : M.A(Previous) Section: SOCIOLOGY

Course/Paper: I: PRINCIPLES OF SOCIOLOGY

Unit:I No. of Hours Allotted: 15

Topics to be covered	No. of Hours
What is Sociology, Definition, Nature, Scope, Emergency of Sociology, Methods of Sociology.	1
Why Sociology, Importance and Applications of Sociology	2
Sociology and other social Sciences (Social Anthropology, Political Science, Economics, History, Psychology	4
Major theoretical Prospectives ,What is Theory? What is Perspective?	6
Basic orientation of Sociological Theories	2
	15hrs

Name of the Teacher: Dr.D.Thirupathi Department of sociology

Signature: Signature:

NIZAM COLLEGE : DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester I)

Class : M.A (Previous) Section: SOCIOLOGY

Course/Paper: I: PRINCIPLES OF SOCIOLOGY

Unit:II No. of Hours Allotted: 15

Topics to be covered	No. of Hours
Basic concepts	1
Society – its Nature, Characteristics, Functions and Theories	2
Types of Society – Tribal Agrarian, - Rural-Urban industrial and post industrial.	3
Influence of heredity and environment on Personality Development	2
Community – Association – Culture	1
Social Groups – Classification of social groups	2
Elements of social structure and social system	3
Role, Status, Values, Norms.	1
	15hrs

Name of the Teacher: Dr.D.Thirupathi Department of sociology

Signature: Signature:

NIZAM COLLEGE : DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester I)

Class : M.A(Previous) Section: SOCIOLOGY

Course/Paper: I: PRINCIPLES OF SOCIOLOGY

Unit:III No. of Hours Allotted: 15

Topics to be covered	No. of Hours
Socialization – Significant, Theories and Agencies	5
Social Control – Conformity and Deviance	3
Means and agencies of Social Control	3
Social Interaction – Social Process – Associative and Disassociative	4
	15hrs

Name of the Teacher: Dr.D.Thirupathi Department of sociology

Signature: Signature:

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NIZAM COLLEGE : DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester I)

Class : M.A(Previous) Section: SOCIOLOGY

Course/Paper: I: PRINCIPLES OF SOCIOLOGY

Unit:IV No. of Hours Allotted: 15

Topics to be covered	No. of Hours
Social Institutions: Marriage, Family, Kinship, Education and Religion	4
Economy – Concept of property	2
Economics Systems of simple and complex societies, free market and planned economy	4
Polity – power, Authority and Legitimacy	2
Political Socialization and Modernization; pressure groups	3
	15hrs

Name of the Teacher: Dr.D.Thirupathi Department of sociology

Signature: Signature:

NIZAM COLLEGE : DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester I)

Class : M.A(Previous) Section: SOCIOLOGY

Course/Paper: I: PRINCIPLES OF SOCIOLOGY

Unit:V No. of Hours Allotted: 15

Topics to be covered	No. of Hours
Social Stratification and Mobility – Forms and Functions	4
Caste, Class, and Estate	2
Theories of Social stratification	4
Social Change – Theories and Factors of Social Change.	5
	15hrs

Name of the Teacher: Dr.D.Thirupathi Department of sociology

Signature: Signature:

NIZAM COLLEGE : DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester II)

Class : M.A(Previous) Section: SOCIOLOGY

Course/Paper: II: SOCIAL STRATIFICATION AND SOCIAL MOBILITY

Unit:I No. of Hours Allotted: 15

Topics to be covered	No. of Hours
Social Differentiation and Social Stratification	3
Attributes of Social Stratification-Dimensions of Stratification	2
Perspectives and Concepts in the study of Social Stratification and Social Mobility	3
Social inequality in historical and contemporary contexts	2
Indices of inequality-life chances and life styles.	3
Principal types of stratification systems: Caste, Class, Estate and Gender	2
	15hrs

Name of the Teacher: Dr.D.Thirupathi Department of sociology

Signature: Signature:

NIZAM COLLEGE : DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester II)

Class : M.A(Previous) Section: SOCIOLOGY

Course/Paper: II: SOCIAL STRATIFICATION AND SOCIAL MOBILITY

Unit:II No. of Hours Allotted: 15

Topics to be covered	No. of Hours
Theoretical Perspectives	2
Contributions of Karl Marx	2
Max Weber to the understanding of Social Stratification	3
Functional theory of stratification (Davis-Moor's theories)	2
Parson's theory of stratification	3
Lenski's theory of stratification	3
	15hrs

Name of the Teacher: Dr.D.Thirupathi Department of sociology

Signature: Signature:

NIZAM COLLEGE : DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester II)

Class : M.A(Previous) Section: SOCIOLOGY

Course/Paper: II: SOCIAL STRATIFICATION AND SOCIAL MOBILITY

Unit:III No. of Hours Allotted: 15

Topics to be covered	No. of Hours
Caste system in Indian	6
Present situation of caste in rural and urban areas	4
Class-definition of class-classes in industrial and economically developing societies	5
	15hrs

Name of the Teacher: Dr.D.Thirupathi Department of sociology

Signature: Signature:

NIZAM COLLEGE : DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester II)

Class : M.A(Previous) Section: SOCIOLOGY

Course/Paper: II: SOCIAL STRATIFICATION AND SOCIAL MOBILITY

Unit:IV No. of Hours Allotted: 15

Topics to be covered	No. of Hours
Relationship between social stratification and mobility.	5
Types of social mobility- Social and Occupational Mobility, Gender and Social Mobility	5
Factors of mobility.	5
	15hrs

Name of the Teacher: Dr.D.Thirupathi Department of sociology

Signature: Signature:

NIZAM COLLEGE : DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester II)

Class : M.A(Previous) Section: SOCIOLOGY

Course/Paper: II: SOCIAL STRATIFICATION AND SOCIAL MOBILITY

Unit:V No. of Hours Allotted: 15

Topics to be covered	No. of Hours
Reference Group Theory and Mobility	3
Sanskritization and De-sanskritization	3
Modernization, Westernization and Islamization	5
Elites in India-Social Mobility trends in rural and urban India	2
Constraints to Mobility in India	2
	15hrs

Name of the Teacher: Dr.D.Thirupathi Department of sociology

Signature: Signature:

NIZAM COLLEGE : DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2013-2014 (Semester V)

Class : B.AIII Section: SOCIOLOGY

Course/Paper: VI (b): Social Demography (Optional Paper)

Unit:I No. of Hours Allotted: 15

Topics to be covered	No. of Hours
Nature and Scope of Social Demography	3
Demography and Population Studies.	5
Sources of Demographic Data – Census, Vital Registration	3
Sample Surveys and Population Registers.	4
	15hrs

Name of the Teacher: Dr.D.Thirupathi Department of sociology

Signature: Signature:

NIZAM COLLEGE : DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester V)

Class : B.AIII Section: SOCIOLOGY

Course/Paper: VI (b): Social Demography (Optional Paper)

Unit:I No. of Hours Allotted: 15

Topics to be covered	No. of Hours
Nature and Scope of Social Demography	3
Demography and Population Studies.	5
Sources of Demographic Data – Census, Vital Registration	3
Sample Surveys and Population Registers.	4
	15hrs

Name of the Teacher: Dr.D.Thirupathi Department of sociology

Signature: Signature:

NIZAM COLLEGE : DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester V)

Class : B.A Section: SOCIOLOGY

Course/Paper: VI (b): Social Demography (Optional Paper)

Unit:II No. of Hours Allotted: 15

Topics to be covered	No. of Hours
Population Theories	6
Malthusian Theory	5
Demographic Transition Theory.	4
	15hrs

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Name of the Teacher: Dr.D.Thirupathi Department of sociology

Signature: Signature:

NIZAM COLLEGE : DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2018-2019 (Semester V)

Class : B.AIII Section: SOCIOLOGY

Course/Paper: VI (b): Social Demography (Optional Paper)

Unit:III No. of Hours Allotted: 15

Topics to be covered	No. of Hours
Composition of Population in India – Age, Sex (Sex ratio and child sex ratio)	4
Marital Status, Ethnic and Religious Composition	3
Literacy, Rural and Urban population	2
Trends in population growth in India.	6
	15hrs

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Name of the Teacher: Dr.D.Thirupathi Department of sociology

Signature: Signature:

NIZAM COLLEGE : DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester V)

Class : B.AIII Section: SOCIOLOGY

Course/Paper: VI (b): Social Demography (Optional Paper)

Unit:IV No. of Hours Allotted: 15

Topics to be covered	No. of Hours
Population Processes	1
Fecundity, Fertility, its meaning and Significance, measures of fertility, differential fertility	4
Mortality - its meaning and significance	2
Mother and Child Mortality Rate; measures of mortality	3
differential mortality, socio-economic factors affecting fertility and mortality	3
Migration – Types, Factors and Consequences of Migration	2
	15hrs

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Name of the Teacher: Dr.D.Thirupathi Department of sociology

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NIZAM COLLEGE : DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester V)

Class : B.AIII Section: SOCIOLOGY

Course/Paper: VI (b): Social Demography (Optional Paper)

Unit:V No. of Hours Allotted: 15

Topics to be covered	No. of Hours
Population Policy (UN and India)	6
Family Planning and Family Welfare	5
Population Education.	4
	15hrs

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Name of the Teacher: Dr.D.Thirupathi Department of sociology

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NIZAM COLLEGE : DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester VI)

Class : B.AIII Section: SOCIOLOGY

Course/Paper: VIII (a): Crime and Society (Optional Paper)

Unit:I No. of Hours Allotted: 15

Topics to be covered	No. of Hours
Definition of Criminology	1
Nature and Scope of Criminology	14
	15hrs

Name of the Teacher: Dr.D.Thirupathi Department of sociology

Signature: Signature:

NIZAM COLLEGE : DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester VI)

Class : B.AIII Section: SOCIOLOGY

Course/Paper: VIII (a): Crime and Society (Optional Paper)

Unit:II No. of Hours Allotted: 15

Topics to be covered	No. of Hours
Theories of Crime:introduction	1
Biological theories	4
Psychological Theories	3
Sociological Theories	3
Functionalist, Sub-Cultural Theory and labeling Theory	4
	15hrs

Name of the Teacher: Dr.D.Thirupathi Department of sociology

Signature: Signature:

NIZAM COLLEGE : DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester VI)

Class : B.AIII Section: SOCIOLOGY

Course/Paper: VIII (a): Crime and Society (Optional Paper)

Unit:III No. of Hours Allotted: 15

Topics to be covered	No. of Hours
Types of Crime- Organized Crime,	1
Professional Crime, and White collar Crime,	3
Cyber Crime, Crime against Woman	3
Corruption and Juvenile Delinquency	3
Factors and Preventive Programmes	3
State and Surveillance	2
	15hrs

Name of the Teacher: Dr.D.Thirupathi Department of sociology

Signature: Signature:

NIZAM COLLEGE : DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester VI)

Class : B.AIII Section: SOCIOLOGY

Course/Paper: VIII (a): Crime and Society (Optional Paper)

Unit:IV No. of Hours Allotted: 15

Topics to be covered	No. of Hours
Victimology - Role of Victim in Crime	5
Types of Victims and compensation to Victims	4
Penology: types of Punishment	4
Prison reforms- Concept, Objective of reformation	2
	15hrs

Name of the Teacher: Dr.D.Thirupathi Department of sociology

Signature: Signature:

NIZAM COLLEGE : DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester VI)

Class : B.AIII Section: SOCIOLOGY

Course/Paper: VIII (a): Crime and Society (Optional Paper)

Unit:V No. of Hours Allotted: 15

Topics to be covered	No. of Hours
Criminal Justice System: Introduction	5
Police, Courts and Prisons	6
Correctional Administration and Institutions	4
	15hrs

Name of the Teacher: Dr.D.Thirupathi Department of sociology

Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR **2020-2021 (Semester II)**

Class: Diploma in Criminology and Correctional Administration **Section:** ***Sociology***

Course/Paper: III ***PENOLOGY AND CORRECTIONAL ADMINISTRATION***

Unit: III **No. of Hours Allotted**: 16

Topics to be covered	**No. of Hours**
Prison reforms – Concept – Objective of reformation	1
Balancing punishment and reformation	1
Moral and cultural education	1
Personal contacts – Prison clinics – Classification and segregation of prisoners	2
Prison diet – Mutual welfare leaugues – Rewards and punishments	2
Over crowdedness – Prison labour – Prisoner's sexual life	2
Visits by relatives – Society for helping released prisoners	1
Prison building and environment	1
Entertainment and education in prisons	2
Prison personnel – Treatment, counseling and training	1
Humane containment	1
Minimum use of security – Involvement	1
	16 Hrs

Name of the Teacher: Dr. R. RAVI KUMAR Head, Department of Sociology

Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR **2020-2021 (Semester II)**
Class: Diploma in Criminology and Correctional Administration **Section:** ***Sociology***

Course/Paper: III ***PENOLOGY AND CORRECTIONAL ADMINISTRATION***

Unit: IV **No. of Hours Allotted**: 16

Topics to be covered	**No. of Hours**
Juvenile delinquency and juvenile justice	1
Delinquency in children – Differential treatment of juvenile offenders	2
Legal protection of children – Adolescent offenders	1
Legal basis of delinquency — Borstal schools	1
Constitution of children's courts – Treatment – Publicity	2
Educational system and delinquency	2
Role of police Rehabilitation of juvenile offenders –Probation and parole	2
Concepts – Conditions – Merits and demerits	1
Distinction between probation and parole	2
Probation officers and parole officers	1
Police Duties	1
	16 Hrs

Name of the Teacher: Dr. R. RAVI KUMAR Head, Department of Sociology

Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR **2020-2021 (Semester II)**

Class: Diploma in CRIMINOLOGY AND CORRECTIONAL ADMINISTRATION **Section:** ***Sociology***

Course/Paper: III ***CRIMINAL JUSTICE ADMINISTRATION***

Unit: I **No. of Hours Allotted**: 16

Topics to be covered	No. of Hours
Administration of civil and criminal justice	02
Criminal procedure code	02
Hierarchy of courts	01
Powers of courts	02
Lok Ayukta system	01
Juvenile courts	01
Trial procedure	02
Parliament	01
legislative assemblies and judiciary	02

Public interest litigation	02
	16 Hrs

Name of the Teacher: Dr. R. RAVI KUMAR Head, Department of Sociology

Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR **2020-2021 (Semester II)**

Class: Diploma in CRIMINOLOGY AND CORRECTIONAL ADMINISTRATION

Section: ***Sociology***

Course/Paper: III ***CRIMINAL JUSTICE ADMINISTRATION***

Unit: II **No. of Hours Allotted**: 16

Topics to be covered	No. of Hours
Police system in India	01
History of policing in India	01
Functions and duties of police	02
Maintenance of law and order	01
Investigation of crime and prosecution	03
Powers of police to search, seize and arrest	02
Role of management and leadership in law enforcement	01
Training of police personnel	01
Police public relations	01

Media and the police	02
Other law enforcement agencies	01
	16 Hrs

Name of the Teacher: Dr. R. RAVI KUMAR Head, Department of Sociology

Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR **2017-2018 (Semester II)**

Class: Diploma in CRIMINOLOGY AND CORRECTIONAL ADMINISTRATION

Section: ***Sociology***

Course/Paper: III ***CRIMINAL JUSTICE ADMINISTRATION***

Unit: III **No. of Hours Allotted**: 16

Topics to be covered	No. of Hours
Police system in India	01
History of policing in India	01
Functions and duties of police	02
Maintenance of law and order	01
Investigation of crime and prosecution	03
Powers of police to search, seize and arrest	02
Role of management and leadership in law enforcement	01
	16 Hrs

Name of the Teacher: Dr. R. RAVI KUMAR Head, Department of Sociology

Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR **2017-2018 (Semester II)**

Class: Diploma in CRIMINOLOGY AND CORRECTIONAL ADMINISTRATION

Section: ***Sociology***

Course/Paper: III ***CRIMINAL JUSTICE ADMINISTRATION***

Unit: IV **No. of Hours Allotted**: 16

Topics to be covered	No. of Hours
Scientific methods of investigation	02
Third degree methods and criminal justice	01
Definition and Historical background of Forensic Science	01
Types of cases received in forensic science laboratories	01
various branches of Forensic Science	01
Need of forensic science in criminal justice system	01
Role of forensic scientist at the crime scene	02
Forensic scientist and police interaction	01

Expert evidence	01
Admissibility of expert and expert evidence	01
Forensic Science institutions in India and abroad	01
Duties of forensic scientists	02
Training of forensic scientists	01
	16 Hrs

Name of the Teacher: Dr. R. RAVI KUMAR Head, Department of Sociology

Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR **2017-2018 (Semester I)**
Class: Diploma in Criminology and Correctional Administration **Section:** ***Sociology***

Course/Paper: I ***SOCIOLOGY OF LAW AND ORDER***

Unit: III **No. of Hours Allotted**: 16

Topics to be covered	**No. of Hours**
Social change in India	1
Social deviance	1
Formal organizations	2
Administrative set up in India	2
Social and cultural aspects of administration	2
Social and cultural aspects of management	2
Voluntary organizations	2
Political parties	2
Trade unions	2
	16 Hrs

Name of the Teacher: Dr. R. RAVI KUMAR Head, Department of Sociology

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NIZAM COLLEGE: DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR **2017-2018 (Semester I)**
Class: Diploma in Criminology and Correctional Administration **Section:** ***Sociology***

Course/Paper: I ***SOCIOLOGY OF LAW AND ORDER***

Unit: IV **No. of Hours Allotted**: 16

Topics to be covered	No. of Hours
Modern sociological theories	1
Theories of society	1
Functionalism	2
Marxism	2
Interactionism	1
Ethno methodology	2
Scientific methods of social research	2
Ecological and cultural areas as factors of crime Individual background	1
Social disorganization theory	1
Social/disorganization in India	1
Differential association theory	1
	16 Hrs

Name of the Teacher: Dr. R. RAVI KUMAR Head, Department of Sociology

Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR **2017-2018 (Semester II)**

Class: Diploma in Development Management Studies and Development Research Methodologies

Section:

Sociology

Course/Paper: I ***Poverty, Livelihoods, Gender and Human Rights***

Unit: I **No. of Hours Allotted**: 16

Topics to be covered	No. of Hours
Poverty: Basic definitions	1
Conceptualizations Factors affecting Rural Poverty	3
Conceptualizations Factors affecting Urban Poverty	3
Economic Growth	2
Poverty Reduction Strategies- Aid	2
Poverty Reduction Strategies- Institutions	2
Poverty Reduction Strategies- Development	3
	16 Hrs

Name of the Teacher: Dr. R. RAVI KUMAR Head, Department of Sociology

Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR **2017-2018 (Semester II)**

Class: Diploma in Development Management Studies and Development Research Methodologies

Section:

Sociology

Course/Paper: I ***Poverty, Livelihoods, Gender and Human Rights***

Unit: II **No. of Hours Allotted**: 16

Topics to be covered	No. of Hours
Livelihoods: Concept and Meaning	2
Livelihood and Sustainability	3
Alternative livelihoods; Gender	3
Alternative livelihoods; Livelihood	3
ILO	3
UN Reports & Livelihood	2
	16 Hrs

Name of the Teacher: Dr. R. RAVI KUMAR Head, Department of Sociology

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NIZAM COLLEGE: DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR **2018-2019 (Semester II)**

Class: Diploma in Development Management Studies and Development Research Methodologies

Section:

Sociology

Course/Paper: I ***Poverty, Livelihoods, Gender and Human Rights***

Unit: I **No. of Hours Allotted**: 16

Topics to be covered	**No. of Hours**
Poverty: Basic definitions	1
Conceptualizations Factors affecting Rural Poverty	3
Conceptualizations Factors affecting Urban Poverty	3
Economic Growth	2
Poverty Reduction Strategies- Aid	2
Poverty Reduction Strategies- Institutions	2
Poverty Reduction Strategies- Development	3
	16 Hrs

Name of the Teacher: Dr. R. RAVI KUMAR Head, Department of Sociology

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NIZAM COLLEGE: DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR **2020-2021 (Semester II)**

Class: Diploma in Development Management Studies and Development Research Methodologies

Section:

Sociology

Course/Paper: I ***Poverty, Livelihoods, Gender and Human Rights***

Unit: II **No. of Hours Allotted**: 16

Topics to be covered	No. of Hours
Livelihoods: Concept and Meaning	2
Livelihood and Sustainability	3
Alternative livelihoods; Gender	3
Alternative livelihoods; Livelihood	3
ILO	3
UN Reports & Livelihood	2
	16 Hrs

Name of the Teacher: Dr. R. RAVI KUMAR Head, Department of Sociology

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NIZAM COLLEGE: DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR **2014-2015 (Semester I1)**

Class: MA Ist Year **Section: *Sociology***

Course/Paper: *IV* ***INDUSTRIAL SOCIOLOGY***

Unit: I **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Introduction to Industrial Sociology	2
Concept of Work-The Craft System	2
Scientific Management of F.W.Taylor	3
Human Relations Approach of Elton Mayo	2
Industry and Society	3
Human Relations in Industry	3
	15 Hrs

Name of the Teacher: Mr. Aijaz Ur Rehman Head, Department of Sociology

Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR **2014-2015 (Semester I1)**

Class: MA Ist Year **Section:** ***Sociology***

Course/Paper: ***IV*** ***INDUSTRIAL SOCIOLOGY***

Unit: II **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Industrial organization	1
Structure of Formal organizations	2
Functions of Formal organizations	2
Human Resource Planning	2
Managerial functions	2
Recruitment-Selection	2
Employee Training and Development	1
Promotions and Demotions	1
Wage And Salary	1
Reward System-Incentives	1
	15 Hrs

Name of the Teacher: Mr. Aijaz Ur Rehman Head, Department of Sociology

Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR **2014-2015 (Semester I1)**

Class: MA Ist Year **Section:** ***Sociology***

Course/Paper: ***IV*** ***INDUSTRIAL SOCIOLOGY***

Unit: III **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Industrial Relations-Content	2
Objectives of Industrial Relations	2
Industrial Relations to Human Resource Management	3
New Management Strategies	3
TRM, Quality Circles	2
JIT-Functional requirements of a Successful Industrial Relations	3
	15 Hrs

Name of the Teacher: Mr. Aijaz Ur Rehman Head, Department of Sociology

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NIZAM COLLEGE: DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR **2014-2015 (Semester I1)**

Class: MA Ist Year **Section:** ***Sociology***

Course/Paper: ***IV*** ***INDUSTRIAL SOCIOLOGY***

Unit: IV **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Industrial Disputes-Causes	2
Types of Industrial Disputes-Conflict Resolution	3
Negotiation, Conciliation	2
Arbitration, Adjudication	2
Collective Bargaining	2
Issues and trends in Collective bargaining	2
Worker's participation in Management	2
	15 Hrs

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NIZAM COLLEGE: DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR **2014-2015 (Semester I1)**

Class: MA Ist Year **Section:** ***Sociology***

Course/Paper: ***IV*** ***INDUSTRIAL SOCIOLOGY***

Unit: V **No. of Hours Allotted**: 15

Topics to be covered	**No. of Hours**
Introduction to Trade Union Movement	1
Trade Union Movement-Changing Management	2
Trade Union Relations	1
Emerging trends in Trade Union	2
Management Relations in the context of Globalization	2
Globalization and Labour	2
Industrial policy and Labour Legislations	2
Changing role of the state in Industrial Relations	2
Industrial policies.	1
	15 Hrs

Name of the Teacher: Mr. Aijaz Ur Rehman Head, Department of Sociology

Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR **2017-2018 (Semester V)**

Class: BA IIIrd Year **Section:** ***Sociology***

Course/Paper: ***VI-a. (Optional Paper)*** ***Industrial Sociology***

Unit: I **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Introduction to Industrial Sociology	1
Nature of Industrial Sociology	1
Scope of Industrial Sociology	2
Changing structure of Industrial Sociology	2
Modern Industries systems	2
Modern industrial enterprises	2
Introduction to Organization	2
Principles of Organisation	1
Formal Organisation	1
Informal Organisation	1
	15 Hrs

Name of the Teacher: Dr. R. RAVI KUMAR Head, Department of Sociology

Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR **2017-2018 (Semester V)**

Class: BA IIIrd Year **Section:** ***Sociology***

Course/Paper: ***VI-a. (Optional Paper)*** ***Industrial Sociology***

Unit: II **No. of Hours Allotted**: 15

Topics to be covered	**No. of Hours**
Concept of work	1
The craft system	1
Scientific Management system	1
Scientific Management of F. W. Taylor	2
Human Relations	1
Human Relation approach of Elton Mayo	2
Concepts of Industry	2
Industry and society	2
Relations in industry	1
Human relations in industry	2
	15 Hrs

Name of the Teacher: Dr. R. RAVI KUMAR Head, Department of Sociology

Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR **2017-2018 (Semester V)**

Class: BA IIIrd Year **Section:** ***Sociology***

Course/Paper: ***VI-a. (Optional Paper)*** ***Industrial Sociology***

Unit: III **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Trade Unions in India	2
Trade Union Movement in India	2
Structure of trade unions	1
Functions are trade unions	2
Importance of trade unions	2
Workers and managements	1
Workers Participation.	2
Workers Participation in Management.	1
Workers Participation in Management and Collective Bargaining.	2
	15 Hrs

Name of the Teacher: Dr. R. RAVI KUMAR Head, Department of Sociology

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NIZAM COLLEGE: DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR **2017-2018 (Semester V)**

Class: BA IIIrd Year **Section:** ***Sociology***

Course/Paper: ***VI-a. (Optional Paper)*** ***Industrial Sociology***

Unit: IV **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Industrial Conflicts	1
Strikes in industries	2
Lock outs in industries	1
Settlement in industries	1
Industrial Disputes	2
Negotiation in industries	1
Conciliation in industries	1
Arbitration in industries	2
Adjudication in industries	2
Industrial Disputes Act-1969	2
	15 Hrs

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NIZAM COLLEGE: DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR **2020-2021 (Semester V)**

Class: BA IIIrd Year **Section:** ***Sociology***

Course/Paper: ***VI-a. (Optional Paper)*** ***Industrial Sociology***

Unit: V **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Labor Problems in Industries	1
Absenteeism, Alcoholism and Alienation Industries	1
Labor Welfare Schemes	1
ILO (Indian Labour Organisation)	2
Fundamental Principles of ILO	1
Major Activities	1
Commitment and motivation of workers	2
Incentives, Wages, Bonus	1
Other Benefits like Compensation and Maternity benefits	1
Compensation Legislation/ Act (1923) – Main Provisions	2
Impact of Globalization on Industry and Labour	2
	15 Hrs

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NIZAM COLLEGE: DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR **2020-2021 (Semester 1II)**

Class: MA IInd Year **Section: *Sociology***

Course/Paper: I ***CONTEMPORARY SOCIOLOGICAL THEORIES***

Unit: I **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Pre-Modernity: Great Chain of Being	1
Age of Renaissance and Enlightenment	2
Rene Descartes	2
Immanuel Kant	2
Condorcet	2
Hobbes & Locke	2
Rousseau & Voltaire	2
Francis Bacon and Tocqueville	2
	15 Hrs

Name of the Teacher: Mr. Aijaz Ur Rehman Head, Department of Sociology

Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR **2020-2021 (Semester 1II)**

Class: MA IInd Year **Section:** ***Sociology***

Course/Paper: I ***CONTEMPORARY SOCIOLOGICAL THEORIES***

Unit: II **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
The Project of Modernity	1
Classical theories – Karl Marx	2
Durkheim	2
Max Weber	2
George Simmel	2
Contemporary Theories – Anthony Giddens,	2
Ulrich Beck	1
George Ritzer	1
Zygmunt Bauman	1
Jurgen Habermas	1
	15 Hrs

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NIZAM COLLEGE: DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR **2017-2018 (Semester 1II)**

Class: MA IInd Year **Section:** ***Sociology***

Course/Paper: I ***CONTEMPORARY SOCIOLOGICAL THEORIES***

Unit: III **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Critique of Modernity	2
New Philosophy of Science – Karl Popper	2
Thomas Kuhn	2
Post-structuralism – Deleuze	3
Jacques Derrida	2
Michel Foucault	2
Julia Kristeva	2
	15 Hrs

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NIZAM COLLEGE: DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR **2017-2018 (Semester 1II)**

Class: MA IInd Year **Section:** ***Sociology***

Course/Paper: I ***CONTEMPORARY SOCIOLOGICAL THEORIES***

Unit: IV **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Critical Theory: Herbert Marcuse	2
Theodar Adorno and Horkheimer	2
Jurgen Habermas – Theory of World	2
Communicative Action – the Public Sphere	2
Eric Olin Wright	2
Sociology of Culture	2
Benedict Anderson – Imagined Communities	2
Aloysius - Nations and Nationalism	1
	15 Hrs

Name of the Teacher: Mr. Aijaz Ur Rehman Head, Department of Sociology

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NIZAM COLLEGE: DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR **2020-2021 (Semester 1II)**

Class: MA IInd Year **Section:** ***Sociology***

Course/Paper: I ***CONTEMPORARY SOCIOLOGICAL THEORIES***

Unit: V **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Idea and Condition of Post Modernity: Daniel Bell	2
Post Industrial Societies and The End of Ideology	2
Anthony Giddens	2
Zygmunt Bauman	1
Baudrillard	1
Lyotard	1
Foucault and Darrida on Post-Modernity	2
Frederic Jameson: Cultural logic of the late Capitalism	2
Critique of Post-Modernism: Alex Callinicos	1
Against Post-Modernism	1
	15 Hrs

Name of the Teacher: Mr. Aijaz Ur Rehman Head, Department of Sociology

Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR **2020-2021 (Semester II1)**

Class: MA IInd Year **Section:** ***Sociology***

Course/Paper: ***II-A (Specialization-I)*** ***GLOBALIZATION AND SOCIAL CHANGE***

Unit: I **No. of Hours Allotted**: 15

Topics to be covered	**No. of Hours**
The nature and dynamics of globalization	1
The historical and social context of globalization	2
World capitalism	2
Modernization and globalization	2
Distinctive characteristics of globalization	2
The role of information and communication technology	2
Advantages of globalization	2
Disadvantages of globalization	2
	15 Hrs

Name of the Teacher: Mr. Aijaz Ur Rehman Head, Department of Sociology

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NIZAM COLLEGE: DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR **2020-2021 (Semester II1)**

Class: MA IInd Year **Section:** ***Sociology***

Course/Paper: ***II-A (Specialization-I)*** ***GLOBALIZATION AND SOCIAL CHANGE***

Unit: II **No. of Hours Allotted**: 15

Topics to be covered	**No. of Hours**
Agencies of globalization - Political economy	2
Agencies of globalization - Globalization	2
Agencies of globalization: Multinational Corporations (MNC's)	2
Agencies of globalization: Nation-State	2
Agencies of globalization: Media and Market	2
Agencies of globalization: Non Governmental Organizations (NGO's)	2
International Agencies : International Monetary Fund	2
International Agencies : World Bank etc	1
	15 Hrs

Name of the Teacher: Mr. Aijaz Ur Rehman Head, Department of Sociology

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NIZAM COLLEGE: DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR **2017-2018 (Semester II1)**

Class: MA IInd Year **Section:** ***Sociology***

Course/Paper: ***II-A (Specialization-I)*** ***GLOBALIZATION AND SOCIAL CHANGE***

Unit: III **No. of Hours Allotted**: 15

Topics to be covered	**No. of Hours**
Globalization and Culture	1
The ethos of globalization (unbridled freedom, individualism, consumerism)	2
Diffusion and projection of American value system	1
Cultural patterns through media	1
Cultural homogenization & hegemony	2
Dominance globalization and the resurgence of ethnic consciousness	2
Global tourism, diasporic communities	2
Transnational ethnic religious movements	2
Religious fundamentalism	2
	15 Hrs

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NIZAM COLLEGE: DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR **2017-2018 (Semester II1)**

Class: MA IInd Year **Section:** ***Sociology***

Course/Paper: ***II-A (Specialization-I)*** ***GLOBALIZATION AND SOCIAL CHANGE***

Unit: IV **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Social consequences of globalization for Developing Countries	2
Inequality within and among nation states	2
Differential perception of globalization among nation and their populations	2
Mass media & consumer culture	1
Global culture and local cultures	1
Waller Stein's : ideas on the rise of ethnicities as a response to globalization	2
Globalization and gender	2
The feminization of poverty and the labour force lay offs	2
Cultural invasion from skies	1
	15 Hrs

Name of the Teacher: Mr. Aijaz Ur Rehman Head, Department of Sociology

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NIZAM COLLEGE: DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR **2017-2018 (Semester II1)**

Class: MA IInd Year **Section:** ***Sociology***

Course/Paper: ***II-A (Specialization-I)*** ***GLOBALIZATION AND SOCIAL CHANGE***

Unit: V **No. of Hours Allotted**: 15

Topics to be covered	**No. of Hours**
Introduction to Globalization	1
Knowledge and Globalization	2
Globalization and human rights	2
Cities in the context of globalization	2
Globalization and Societies	2
Globalization and Third world countries	2
Cultural dimensions of globalization,	2
Economic development and social opportunity	2
	15 Hrs

Name of the Teacher: Mr. Aijaz Ur Rehman Head, Department of Sociology

Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR **2017-2018 (Semester 1II)**

Class: MA IInd Year **Section:** ***Sociology***

Course/Paper: II ***SOCIOLOGY OF DEVELOPMENT***

Unit: I **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Conceptual Perspective on Development	2
Concept of Change, Progress and Development	3
Economic Growth	2
Human Development	2
Social Development	2
Sustainable Development	2
Ecological and Social	2
	15 Hrs

Name of the Teacher: Mr. Aijaz Ur Rehman Head, Department of Sociology

Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR **2020-2021 (Semester 1II)**

Class: MA IInd Year **Section: *Sociology***

Course/Paper: II ***SOCIOLOGY OF DEVELOPMENT***

Unit: II **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Theories of Development	1
Liberal Theories: Max Weber	2
Gunnar Myrdal	1
Economic Theory: Karl Marx	2
Dependency Theories: Frank's Centre-Periphery theory	2
Samir Amin's Under-development theory	2
Wallerstein's World System theory	2
Partial Theories: Theory of Big Push	2
Balanced Growth Theory	1
	15 Hrs

Name of the Teacher: Mr. Aijaz Ur Rehman Head, Department of Sociology

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NIZAM COLLEGE: DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR **2017-2018 (Semester 1II)**

Class: MA IInd Year **Section:** ***Sociology***

Course/Paper: II ***SOCIOLOGY OF DEVELOPMENT***

Unit: III **No. of Hours Allotted**: 15

Topics to be covered	**No. of Hours**
Paths of Development	2
Socialist	3
Mixed Model	3
Gandhian	3
Capitalist	3
Secular	1
	15 Hrs

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NIZAM COLLEGE: DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR **2017-2018 (Semester 1II)**

Class: MA IInd Year **Section:** ***Sociology***

Course/Paper: II ***SOCIOLOGY OF DEVELOPMENT***

Unit: IV **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Social Structures	2
Social Development	2
Social Structure as a facilitator / inhibitor	3
Development of social structure	2
Socio-Economic Disparities	2
Gender and Development	2
Culture as an aid / impediment in Development	2
	15 Hrs

Name of the Teacher: Mr. Aijaz Ur Rehman Head, Department of Sociology

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NIZAM COLLEGE: DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR **2017-2018 (Semester 1II)**

Class: MA IInd Year **Section:** ***Sociology***

Course/Paper: II ***SOCIOLOGY OF DEVELOPMENT***

Unit: V **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Development Issues in India	1
Development Induced Displacement	2
SEZ, Dams, Industries	3
Issues in Resettlement	1
Rehabilitation	1
Development Planning	2
Policies: Industrial, Education, Agriculture	2
Policies: Health, Rural and Tribal Development	3
	15 Hrs

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NIZAM COLLEGE: DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR **2017-2018 (Semester II1)**

Class: MA IInd Year **Section:** ***Sociology***

Course/Paper: ***III-A (Specialization-II)*** ***SOCIOLOGY OF DEVELOPMENT***

Unit: I **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
The notions of progress of development	1
Change and development	1
Conceptual Perspective on development	1
Economic development	1
Social development	1
Sustainable development	1
Ecological development	1
Theories of Development: Modernization	2
Karl Marx	2
Theory of Under development	1
World Systems Theory	2
Theory of Sustainable development	1
	15 Hrs

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NIZAM COLLEGE: DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR **2020-2021 (Semester II1)**

Class: MA IInd Year **Section:** ***Sociology***

Course/Paper: ***III-A (Specialization-II)*** ***SOCIOLOGY OF DEVELOPMENT***

Unit: II **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Marx' theory of economic development	3
Max Weber's theory	3
Andre Gunder Frank	3
Samir Amin	3
Wallerstein's theory of under development	3
	15 Hrs

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NIZAM COLLEGE: DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR **2020-2021 (Semester II1)**

Class: MA IInd Year **Section:** ***Sociology***

Course/Paper: ***III-A (Specialization-II)*** ***SOCIOLOGY OF DEVELOPMENT***

Unit: III **No. of Hours Allotted**: 15

Topics to be covered	**No. of Hours**
Partial theories of development	2
The theory of Big Push	3
The theory of Balanced Growth	3
Theories of Social and technological dualism	3
India's Model of Development	2
Consequences of Development	2
	15 Hrs

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NIZAM COLLEGE: DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR **2017-2018 (Semester II1)**

Class: MA IInd Year **Section:** ***Sociology***

Course/Paper: ***III-A (Specialization-II)*** ***SOCIOLOGY OF DEVELOPMENT***

Unit: IV **No. of Hours Allotted**: 15

Topics to be covered	**No. of Hours**
Social structures and development	2
Development and Socio-economic disparities	2
Gender and development	2
Culture and development	2
Socialist path of development	2
Mixed path of development	1
Gandhian path of development	1
Modernization	1
Globalization	2
	15 Hrs

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NIZAM COLLEGE: DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR **2017-2018 (Semester II1)**

Class: MA IInd Year **Section:** ***Sociology***

Course/Paper: ***III-A (Specialization-II)*** ***SOCIOLOGY OF DEVELOPMENT***

Unit: V **No. of Hours Allotted**: 15

Topics to be covered	**No. of Hours**
Concept of Planning	1
Social Planning	1
Economic Planning	2
Rural Development	2
Agricultural Development	2
Industrial Development	2
Tribal Development	2
Five Year Plans	3
	15 Hrs

Name of the Teacher: Mr. Aijaz Ur Rehman Head, Department of Sociology

Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR **2017-2018 (Semester 1V)**

Class: MA IInd Year **Section:** ***Sociology***

Course/Paper: I ***SOCIOLOGY OF ENVIRONMENT AND SUSTAINABLE DEVELOPMENT***

Unit: I **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
The concept of Environment and Society	2
Environmental Sociology: Issues	2
Theoretical approaches: Risley	2
E. Dunlop Approaches	2
Frederick M. Buttel Approaches	2
Human Ecology to Eco-Sociology	2
Global Environmentalism	2
Apopular concern	1
	15 Hrs

Name of the Teacher: Mr. Aijaz Ur Rehman Head, Department of Sociology

Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR **2020-2021 (Semester 1V)**

Class: MA IInd Year **Section:** ***Sociology***

Course/Paper: I ***SOCIOLOGY OF ENVIRONMENT AND SUSTAINABLE DEVELOPMENT***

Unit: II **No. of Hours Allotted**: 15

Topics to be covered	**No. of Hours**
The interface between Technology, nature and society	2
Environmental Policy	2
Environmental law	2
Environmental legislation	2
Environmental Degradation	2
Pollution Monitoring	2
Globalisation and Environmental changes	2
Control	1
	15 Hrs

Name of the Teacher: Mr. Aijaz Ur Rehman Head, Department of Sociology

Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR **2020-2021 (Semester 1V)**

Class: MA IInd Year **Section:** ***Sociology***

Course/Paper: I ***SOCIOLOGY OF ENVIRONMENT AND SUSTAINABLE DEVELOPMENT***

Unit: III **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Environmental Movements in India	1
Chipko Movement	2
Appiko Movement	2
Narmada Bachao Andolan	2
The Bhopal Gas Tragedy	2
Women and Environment	2
Eco feminism	2
The role of NGO's in Environmental Movements	2
	15 Hrs

Name of the Teacher: Mr. Aijaz Ur Rehman Head, Department of Sociology

Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR **2017-2018 (Semester 1V)**

Class: MA IInd Year **Section:** ***Sociology***

Course/Paper: I ***SOCIOLOGY OF ENVIRONMENT AND SUSTAINABLE DEVELOPMENT***

Unit: IV **No. of Hours Allotted**: 15

Topics to be covered	**No. of Hours**
Introduction to Sustainable Development	1
A Sociologist's view of the Definition, origin and implications of the concept	2
Environmental Management	2
Conserving for the future operationalising the sustainable development process	2
Natural Resource Management	2
Self – reliance, appropriate	2
Technology, Institution building	2
Water management, participatory development	2
	15 Hrs

Name of the Teacher: Mr. Aijaz Ur Rehman Head, Department of Sociology

Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR **2017-2018 (Semester 1V)**

Class: MA IInd Year **Section:** ***Sociology***

Course/Paper: I ***SOCIOLOGY OF ENVIRONMENT AND SUSTAINABLE DEVELOPMENT***

Unit: V

No. of Hours Allotted: 15

Topics to be covered	**No. of Hours**
The Environmental Problems in India	1
Environmental awareness	1
Environmental Education	2
Environmental information	2
Environmental Stratification	1
Environmental issues	2
Air Pollution & water pollution	2
Noise pollution & Ozone Depletion	2
Deforestation & Population pressures	2
	15 Hrs

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Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR **2020-2021 (Semester 1V)**

Class: MA IInd Year **Section: *Sociology***

Course/Paper: I ***SOCIOLOGY OF ENVIRONMENT AND SUSTAINABLE DEVELOPMENT***

Unit: I **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
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Theoretical approaches: Risley	2
E. Dunlop Approaches	2
Frederick M. Buttel Approaches	2
Human Ecology to Eco-Sociology	2
Global Environmentalism	2
Apopular concern	1
	15 Hrs

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NIZAM COLLEGE: DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR **2017-2018 (Semester 1V)**

Class: MA IInd Year **Section:** ***Sociology***

Course/Paper: I ***SOCIOLOGY OF ENVIRONMENT AND SUSTAINABLE DEVELOPMENT***

Unit: II **No. of Hours Allotted**: 15

Topics to be covered	**No. of Hours**
The interface between Technology, nature and society	2
Environmental Policy	2
Environmental law	2
Environmental legislation	2
Environmental Degradation	2
Pollution Monitoring	2
Globalisation and Environmental changes	2
Control	1
	15 Hrs

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NIZAM COLLEGE: DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR **2017-2018 (Semester 1V)**

Class: MA IInd Year **Section:** ***Sociology***

Course/Paper: I ***SOCIOLOGY OF ENVIRONMENT AND SUSTAINABLE DEVELOPMENT***

Unit: III **No. of Hours Allotted**: 15

Topics to be covered	**No. of Hours**
Environmental Movements in India	1
Chipko Movement	2
Appiko Movement	2
Narmada Bachao Andolan	2
The Bhopal Gas Tragedy	2
Women and Environment	2
Eco feminism	2
The role of NGO's in Environmental Movements	2
	15 Hrs

Name of the Teacher: Mr. Aijaz Ur Rehman Head, Department of Sociology

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NIZAM COLLEGE: DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR **2017-2018 (Semester 1V)**

Class: MA IInd Year **Section:** ***Sociology***

Course/Paper: I ***SOCIOLOGY OF ENVIRONMENT AND SUSTAINABLE DEVELOPMENT***

Unit: IV **No. of Hours Allotted**: 15

Topics to be covered	**No. of Hours**
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A Sociologist's view of the Definition, origin and implications of the concept	2
Environmental Management	2
Conserving for the future operationalising the sustainable development process	2
Natural Resource Management	2
Self – reliance, appropriate	2
Technology, Institution building	2
Water management, participatory development	2
	15 Hrs

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NIZAM COLLEGE: DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR **2017-2018 (Semester 1V)**

Class: MA IInd Year **Section:** ***Sociology***

Course/Paper: I ***SOCIOLOGY OF ENVIRONMENT AND SUSTAINABLE DEVELOPMENT***

Unit: V

No. of Hours Allotted: 15

Topics to be covered	**No. of Hours**
The Environmental Problems in India	1
Environmental awareness	1
Environmental Education	2
Environmental information	2
Environmental Stratification	1
Environmental issues	2
Air Pollution & water pollution	2
Noise pollution & Ozone Depletion	2
Deforestation & Population pressures	2
	15 Hrs

Name of the Teacher: Mr. Aijaz Ur Rehman Head, Department of Sociology

Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR **2017-2018 (Semester III) (Elective-1)**

Class: MA IInd Year **Section:** ***Sociology***

Course/Paper: ***IV (a)*** ***GENDER AND SOCIETY***

Unit: I **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Gender in Sociological Analysis	2
Gender as Social Construction	2
Approaches to the Study of Gender	2
Psychoanalytic theory	1
Feminist psychoanalytic theory	1
Literary theory	1
Post-modern influence	1
Development of theory	1
Models of Gendered Socialization	2
Cultural Symbolism	1
Gender Roles	1
	15 Hrs

Name of the Teacher: Dr. R. RAVI KUMAR Head, Department of Sociology

Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR **2021-2022 (Semester III) (Elective-1)**

Class: MA IInd Year **Section:** ***Sociology***

Course/Paper: ***IV (a)*** ***GENDER AND SOCIETY***

Unit: II **No. of Hours Allotted**: 15

Topics to be covered	**No. of Hours**
Social Structure	1
Gender Inequality	1
Patriarchy	2
Matriarchy	2
Division of Labour	1
Production	2
Reproduction	2
Family	2
Work and Property	2
	15 Hrs

Name of the Teacher: Dr. R. RAVI KUMAR Head, Department of Sociology

Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR **2021-2022 (Semester III) (Elective-1)**

Class: MA IInd Year **Section:** ***Sociology***

Course/Paper: ***IV (a)*** ***GENDER AND SOCIETY***

Unit: III **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Theories and Perspectives of Feminism	1
National Women's Political Caucus (NWPC)	1
The Women's Equity Action League	1
Radical Feminism	2
Marxist Feminism	2
Accomplishments and activism	1
Radical egalitarianism	1
Socialist Feminism	2
Post-Modern Feminism	2
post-structuralist theory	2
	15 Hrs

Name of the Teacher: Dr. R. RAVI KUMAR Head, Department of Sociology

Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR **2021-2022 (Semester III) (Elective-1)**

Class: MA IInd Year **Section:** ***Sociology***

Course/Paper: ***IV (a)*** ***GENDER AND SOCIETY***

Unit: IV **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Gender and Development	1
Indicators of Women Status	1
Demographic Studies	2
Social Studies	2
Economic Studies	2
Educational Studies	1
Workforce	1
Women Empowerment in India	1
Schemes and Polices	1
Strategies and Programmes	1
Voluntary Sector	1
Women Development	1
	15 Hrs

Name of the Teacher: Dr. R. RAVI KUMAR Head, Department of Sociology

Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR **2020-2021 (Semester III) (Elective-1)**

Class: MA IInd Year **Section:** ***Sociology***

Course/Paper: ***IV (a)*** ***GENDER AND SOCIETY***

Unit: V **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
The Politics of Gender	1
Women's Movements in Pre-Independence	2
Post-Independence India	2
Current Women's Movements	2
Displacement	2
Eco-Feminism	2
Women Reservation	2
Socio Issue	1
Political Issue	1
	15 Hrs

Name of the Teacher: Dr. R. RAVI KUMAR Head, Department of Sociology

Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR **2020-2021 (Semester IV)**

Class: MA IInd Year **Section: *Sociology***

Course/Paper: *I* ***SOCIAL MOVEMENTS***

Unit: I **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Meaning and definition of Social Movements	1
Reform	2
Radical Movements	3
Sectarian	1
Regional Revival	2
Environmental Movements	3
Women's Movements	3
	15 Hrs

Name of the Teacher: Dr. R. RAVI KUMAR Head, Department of Sociology

Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR **2020-2021 (Semester IV)**

Class: MA IInd Year **Section:** ***Sociology***

Course/Paper: ***I*** ***SOCIAL MOVEMENTS***

Unit: II **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Brahma Samaj	1
Arya Samaj	1
Prartnana Samaj	1
Anti Sati	1
Widow remarriage	2
Abolition of Child Marriage	1
Social justice Movements	2
Karite Ambed Movement	2
Dalit and Self Respect Movements	2
SNDP Movement	2
	15 Hrs

Name of the Teacher: Dr. R. RAVI KUMAR Head, Department of Sociology

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NIZAM COLLEGE: DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR **2020-2021 (SemesterV)**

Class: MA IInd Year **Section:** ***Sociology***

Course/Paper: ***I*** ***SOCIAL MOVEMENTS***

Unit: III **No. of Hours Allotted**: 15

Topics to be covered	**No. of Hours**
Telangana Armed Struggle Movements	3
Naxalite Movement	2
Peasant Movements	3
New Farmer's Movements (Shetkari Tikhait)	3
Bharatiya Kissan	2
Sammelan	2
	15 Hrs

Name of the Teacher: Dr. R. RAVI KUMAR Head, Department of Sociology

Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR **2020-2021 (Semester IV)**

Class: MA IInd Year **Section: *Sociology***

Course/Paper: *I* ***SOCIAL MOVEMENTS***

Unit: IV **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
DMK Movement	1
Justice Party	1
Self respect movement	1
Shiva Sena Movement	2
Alliance with the Bharatiya Janata Party	1
Formation of Maharashtra Navnirman Sena	1
Jharkand Movement	1
Jharkhand Mukti Morcha (1973) had Marxist ideology	1
Regional bourgeoisie	1
Telangana Movement	1
Merging of Hyderabad State and Andhra	2
States Reorganisation Commission	1
Srikrishna Committee	1
	15 Hrs

Name of the Teacher: Dr. R. RAVI KUMAR Head, Department of Sociology

Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR **2020-2021 (Semester IV)**

Class: MA IInd Year **Section:** ***Sociology***

Course/Paper: ***I*** ***SOCIAL MOVEMENTS***

Unit: V **No. of Hours Allotted**: 15

Topics to be covered	**No. of Hours**
Environmental Movements	2
Women's Movements	2
Chipko Movements	2
Narmada Bachao Movement	2
Anti Arrack Movement	2
Impact of Social Movements	2
Social Policy on movements	2
Social justice	1
	15 Hrs

Name of the Teacher: Dr. R. RAVI KUMAR Head, Department of Sociology

Signature: Signature:

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NIZAM COLLEGE: DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR **2020-2021 (Semester 1)**

Class: MA Ist Year **Section:** ***Sociology***

Course/Paper: ***II*** ***CLASSSICAL SOCIOLOGICAL THINKERS***

Unit: III **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Karl Marx	2
Nature of Social Reality	1
Materialist Conception of history and society	1
Society, Social Relations	1
Economic Structure	1
Modes of Production	1
Types of productions	1
Marx's Concept of Alienation	2
Capitalism, Ideology	1
Social Classes	1
Class domination	1
Class consciousness	1
Class conflict	1
	15 Hrs

Name of the Teacher: Dr. R. RAVI KUMAR Head, Department of Sociology

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NIZAM COLLEGE: DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR **2020-2021 (Semester 1)**

Class: MA Ist Year **Section:** ***Sociology***

Course/Paper: ***II*** ***CLASSSICAL SOCIOLOGICAL THINKERS***

Unit: IV **No. of Hours Allotted**: 15

Topics to be covered	**No. of Hours**
Emile Durkheim	1
Rules of Sociological Method	1
Social Facts	1
Division of Labour	1
Anomie and Social solidarity	1
Mechanical and Organic solidarity	1
Collective consciousness	1
Forms of Division of labour	1
Elementary forms of Religious life	1
Nature of Religion	1
Sacred and Profane	1
Totemism; Believes, Rites	1
Suicide; Types and Causes	1
Suicide and Social Structure	2
	15 Hrs

Name of the Teacher: Dr. R. RAVI KUMAR Head, Department of Sociology

NIZAM COLLEGE: DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR **2020-2021 (Semester 1)**

Class: MA Ist Year **Section: *Sociology***

Course/Paper: *II* ***CLASSSICAL SOCIOLOGICAL THINKERS***

Unit: V **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Max Weber	1
Social Action, Types of meaningful action	1
Verstehen causality Ideal type	1
Values-Value relevance, Value reference, Value judgment	1
Social Action – Typology of Social Action	2
Power, Domination, Authority, Legitimacy	2
Types of Domination, Class Status	2
Party and Market life styles, Life chances Capitalism	2
Weber's Protestant Ethic thesis	2
World religious History Rationalization Disenhancement	1
	15 Hrs

Name of the Teacher: Dr. R. RAVI KUMAR Head, Department of Sociology

Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR **2020-2021 (Semester I1)**

Class: MA Ist Year **Section: *Sociology***

Course/Paper: *IV* ***INDUSTRIAL SOCIOLOGY***

Unit: I **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Introduction to Industrial Sociology	2
Concept of Work-The Craft System	2
Scientific Management of F.W.Taylor	3
Human Relations Approach of Elton Mayo	2
Industry and Society	3
Human Relations in Industry	3
	15 Hrs

Name of the Teacher: Mr. Aijaz Ur Rehman Head, Department of Sociology

Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR **2020-2021 (Semester I1)**

Class: MA Ist Year **Section:** ***Sociology***

Course/Paper: ***IV*** ***INDUSTRIAL SOCIOLOGY***

Unit: II **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Industrial organization	1
Structure of Formal organizations	2
Functions of Formal organizations	2
Human Resource Planning	2
Managerial functions	2
Recruitment-Selection	2
Employee Training and Development	1
Promotions and Demotions	1
Wage And Salary	1
Reward System-Incentives	1
	15 Hrs

Name of the Teacher: Mr. Aijaz Ur Rehman Head, Department of Sociology

NIZAM COLLEGE: DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR **2020-2021 (Semester I1)**

Class: MA Ist Year **Section: *Sociology***

Course/Paper: *IV* ***INDUSTRIAL SOCIOLOGY***

Unit: III **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Industrial Relations-Content	2
Objectives of Industrial Relations	2
Industrial Relations to Human Resource Management	3
New Management Strategies	3
TRM, Quality Circles	2
JIT-Functional requirements of a Successful Industrial Relations	3
	15 Hrs

Name of the Teacher: Mr. Aijaz Ur Rehman Head, Department of Sociology

Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR **2017-2018 (Semester I1)**

Class: MA Ist Year **Section:** ***Sociology***

Course/Paper: ***IV*** ***INDUSTRIAL SOCIOLOGY***

Unit: IV **No. of Hours Allotted**: 15

Topics to be covered	**No. of Hours**
Industrial Disputes-Causes	2
Types of Industrial Disputes-Conflict Resolution	3
Negotiation, Conciliation	2
Arbitration, Adjudication	2
Collective Bargaining	2
Issues and trends in Collective bargaining	2
Worker's participation in Management	2
	15 Hrs

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NIZAM COLLEGE: DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR **2017-2018 (Semester I1)**

Class: MA Ist Year **Section:** ***Sociology***

Course/Paper: ***IV*** ***INDUSTRIAL SOCIOLOGY***

Unit: V **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Introduction to Trade Union Movement	1
Trade Union Movement-Changing Management	2
Trade Union Relations	1
Emerging trends in Trade Union	2
Management Relations in the context of Globalization	2
Globalization and Labour	2
Industrial policy and Labour Legislations	2
Changing role of the state in Industrial Relations	2
Industrial policies.	1
	15 Hrs

Name of the Teacher: Mr. Aijaz Ur Rehman Head, Department of Sociology

Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR **2017-2018 (Semester 1I)**

Class: MA Ist Year **Section:** ***Sociology***

Course/Paper: ***V (A)*** **(Elective – II)** ***SCIENCE, TECHNOLOGY AND SOCIETY***

Unit: I **No. of Hours Allotted**: 15

Topics to be covered	**No. of Hours**
Sociology of Science – Historical	2
Social context of scientific knowledge & Technology	3
Society and Historical Change	2
Social Consequences of Technology	3
Social context and the scientific Technology	3
Dynamics of Technological Change	2
	15 Hrs

Name of the Teacher: Mr. Aijaz Ur Rehman Head, Department of Sociology

Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR **2017-2018 (Semester 1I)**

Class: MA Ist Year **Section:** ***Sociology***

Course/Paper: ***V (A)*** **(Elective – II)** ***SCIENCE, TECHNOLOGY AND SOCIETY***

Unit: II **No. of Hours Allotted**: 15

Topics to be covered	**No. of Hours**
Methods in Science	1
Inductivism	2
Falsification	2
Sociological Perspectives on Scientic practice	2
Marx	2
Durkheim	2
Mannheim	2
Merton	2
	15 Hrs

Name of the Teacher: Mr. Aijaz Ur Rehman Head, Department of Sociology

Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR **2017-2018 (Semester 1I)**

Class: MA Ist Year **Section:** ***Sociology***

Course/Paper: ***V (A)*** **(Elective – II)** ***SCIENCE, TECHNOLOGY AND SOCIETY***

Unit: III **No. of Hours Allotted**: 15

Topics to be covered	**No. of Hours**
Thomas Kuhn's, Paradigm of Science	2
Scientific Community and growth of Scientific Knowledge	3
Ben Divid institutional perspective	2
Post Kohnian Sociology of Science	3
Diane Krane's Communication and international Model	3
Notion of Techno-Science	2
	15 Hrs

Name of the Teacher: Mr. Aijaz Ur Rehman Head, Department of Sociology

Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR **2017-2018 (Semester 1I)**

Class: MA Ist Year **Section:** ***Sociology***

Course/Paper: ***V (A)*** **(Elective – II)** ***SCIENCE, TECHNOLOGY AND SOCIETY***

Unit: IV **No. of Hours Allotted**: 15

Topics to be covered	**No. of Hours**
The information Technology paradigm	2
Network Societies	1
Online Communities	1
Impact of Information Technology on Society	2
Information and Communication Technology (ICT)	2
Development – Bio Technology	2
Society and Sustainable Development	2
Nano Technology	2
Development and Social Change.	1
	15 Hrs

Name of the Teacher: Mr. Aijaz Ur Rehman Head, Department of Sociology

Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF SOCIOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR **2017-2018 (Semester 1I)**

Class: MA Ist Year **Section:** ***Sociology***

Course/Paper: ***V (A)*** **(Elective – II)** ***SCIENCE, TECHNOLOGY AND SOCIETY***

Unit: V **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Approaches to the environment	1
Sustainable development	2
Human Ecological approach	2
Environmental degradation	2
POET model	2
Political economy approach	2
A consideration of Dominant development perspectives	2
Critiques of development	1
Science policy in India	1
	15 Hrs

Name of the Teacher: Mr. Aijaz Ur Rehman Head, Department of Sociology
Signature: Signature:

STATISTICS

NIZAM COLLEGE : DEPARTMENT OF STATITICS

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester I)

Class : B. Sc (M.S.CS) I Year **Section:**

STATISTICS

Course/Paper: I- (Basic Statistics And Theory of Probability)

Unit I: : Descriptive Statistics **No. of Hours Allotted**: 16

Topics to be covered	No. of Hours
Concept of primary and secondary data. Methods of collection and editing of Primary data.	1
Designing a questionnaire and schedule. Sources and editing of Secondary Data	1
Measures of Central tendency (Mean, Median and Mode and their simple applications)	2
Geometric Mean and Harmonic Mean and their simple applications	2
Absolute and relative measures of dispersion (range, Quartile deviation, mean deviation and standard deviation) with simple applications	3
Importance of moments, central and non central moments and their interrelationships, Sheppard's corrections for moments for grouped data,	4
Measures of skewness based on Quartiles and moments and kurtosis based on moments with real examples	2
	16

Unit II: : Probability **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Basic Concepts in Probability- deterministic and random experiments	2
Trail, outcome, sample space, event and operations of events, mutually exclusive events and exhaustive events, equally likely and favorable outcomes with examples,	3
Mathematical, Statistical and axiomatic definitions of probability with merits and demerits, Properties of probability based on axiomatic definition	3
Conditional Probability and independence of events	3
Addition and Multiplication Theorems for n events, Boole's inequality and Baye's theorem with examples	4
	15

Unit III: : Random Variables **No. of Hours Allotted**: 13

Topics to be covered	No. of Hours
Definition of random variable, discrete and continuous variables, functions of random variables	2
Probability mass function and Probability Density functions with illustrations	3
Distribution function and its properties	1
Transformation of one dimensional random variable (Simple 1-1 functions only)	3
Notion of bivariate random variable , bivariate distribution and statement of its properties, Joint, marginal and conditional distributions, Independence of random variables	4
	13

Unit IV: : Mathematical Expectation **No. of Hours Allotted**: 12

Topics to be covered	No. of Hours
Mathematical expectation of a function of a random variable	1
Raw and central moments and covariance using mathematical expectation with examples	3
Addition and Multiplication Theorems of Expectations	2
Definition of Moment Generating Function(m.g.f), cumulant Generating Function (c.g.f)	3
Probability Generating Function (p.g.f) and Characteristic Function (c.f) and statement of their properties with applications	3
	12

Name of the Teacher: Dr. Ch. Lakshmi Sujatha Head, Department of Statistics

NIZAM COLLEGE : DEPARTMENT OF STATITICS

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester II)

Class : B. Sc (M.S.CS) I Year **Section:**

STATISTICS

Course/Paper: II- (Distribution Theory)

Unit I: :Discrete Distribution I **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Chebychev's and Cauchy-Schwartz's inequalities and their applications	2
Uniform, Bernoulli distributions	1
Binomial distribution	3
Poisson distribution	3
Negative Binomial distribution	4
Geometric distribution	1
Hyper geometric distribution (Mean and Variance only)	1
	15

Unit II: Discrete Distribution II **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Properties of the above distributions such as m.g.f, c.g.f, p.g.f, c.f and moments up to fourth order and their real life applications	8
Reproductive property where ever exits	3
Poisson approximation to Binomial distribution	1
Binomial approximations to Hyper Geometric distribution	1
Poisson approximation to Negative Binomial distribution	2
	15

Unit III: : Continuous Distributions I **No. of Hours Allotted**: 13

Topics to be covered	No. of Hours
Rectangular and Normal Distributions	6
Normal distribution as a limiting case of Binomial and Poisson distributions	3
Exponential Distribution	1
Gamma Distribution	1
Beta of two kinds Distributions (mean and variance only)	1
Cauchy Distribution (definition and c.f only)	1

Unit IV: : Continuous Distributions II **No. of Hours Allotted**: 12

Topics to be covered	No. of Hours
Properties of these distributions of unit III such as m.g.f, c.g.f, c.f and moments up to fourth order, and their real life applications	8
Reproductive property wherever exists	2
Statement and applications of Weak law of large numbers	1
central limit theorem for identically independently distributed (iid) random variables with finite variance	1
	12

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LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester III)

Class : B.Sc (M.S.CS) **Section:** Statistics

Course/Paper III: Statistical Methods and Theory of Estimation

Unit: I **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Population correlation coefficient and its properties	1
Bivariate data scattered Diagram	2
sample correlation coefficient, computation of correlation coefficient for grouped data	2
correlation ratio	1
spearman's rank correlation coefficient and its properties	2
Principle of least squares, simple linear regression	2
correlation verses regression, properties of regression coefficients	2
Fitting of quadratic and power curves	3
	15

Unit: II **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Concepts of partial correlation coefficients(only for three variables)	2
Concepts of multiple correlation coefficients(only for three variables)	3
Analysis of categorical data	2
independence and association, partial association of attributes	2
various measures of association(Yule's) for two way data	2
coefficient of contingency(Pearson and Tcherprow)	2
coefficient of colligation	2
	15

Unit: III **No. of Hours Allotted**: 14

Topics to be covered	No. of Hours
Concepts of population, parameter, random sample, statistic, sampling distribution	1
standard error of sample mean(s) and sample proportion(s)	1
exact sampling distributions-statement and properties of Chi-square	3
t and F Distributions and their inter relationships	2
Independence of sample mean and variance in random sampling from normal distributions	2
Point estimation of a parameter, concept of bias and mean square error of an estimate	1
Criteria of a good estimator .consistency, unbiasedness	1
Efficiency with examples	1
Sufficiency with examples	**2**

Unit: IV **No. of Hours Allotted**: 12

Topics to be covered	No. of Hours
Statement of Neyman's factorization theorem, derivations of sufficient statistics in case of Binomial, poisson, normal and exponential (one parameter only) distributions	5
Estimation by method of moments	2
Maximum likelihood (ML), statements of asymptotic properties of MLE	3
concept of Interval estimation, confidence intervals of the parameters of the normal population by pivot method	2
	12

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LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester III)

Class : B.Sc(M.S.CS) **Section:**

Course/Paper: IV Statistical Inference

Unit: I **No. of Hours Allotted**: 14

Topics to be covered	No. of Hours
Concepts of statistical hypotheses, null and alternative hypothesis	1
critical region, two types of errors, level of significance and power of a test	3
One tailed and two tailed tests, test function (non randomized and randomized)	4
Neyman-Pearson's fundamental lemma for randomized tests	3
Examples in case of Binomial, Poisson, Exponential and Normal distributions and their powers	3
	14

Unit: II **No. of Hours Allotted**: 14

Topics to be covered	No. of Hours
Large sample tests: use of central limit theorem in testing	2
Large sample tests for mean(s)	2
Large sample tests for proportion(s)	2
Large sample tests for standard deviation(s)	2
Large sample tests for correlation coefficient(s)	2
confidence intervals for mean(s), proportion(s), standard deviation(s), and correlation coefficient(s)	4
	14

Unit:III **No. of Hours Allotted**: 14

Topics to be covered	No. of Hours
Tests of significance based on chi square	2
Tests of significance based on t statistic	2
Tests of significance based on F statistic	2
Chi square test for goodness of fit	3
Chi square test for independence of attributes	3
Definition of order statistics and statement of their distribution with simple examples	2
	14

Unit:IV **No. of Hours Allotted**: 14

Topics to be covered	No. of Hours
Nonparametric tests-their advantages and disadvantages, comparison with parametric tests	1
Measurement Scale-nominal, ordinal, interval and ratio	2
One sample runs tests, sign test	2
Wilcoxon-signed rank tests (single and paired samples)	2
Wilcoxon-signed rank test for two independent samples	2
Median test	1
Wilcoxon-Mann-Whitney U test	2
Wald Wolfowitz run test	2
	14

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LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester IV)

Class : B.Sc (M.S.CS) **Section:** Statistics

Course/Paper:V (Design of Sample Surveys and Time Series analysis)

Unit: I **No. of Hours Allotted**: 11

Topics to be covered	No. of Hours
Concepts of population, sample, sampling unit, parameter, statistic, sample frame and standard error	1
Principal steps in sample surveys - need for sampling, census versus sample surveys	1
sampling and non- sampling errors	1
sources and treatment of non-sampling errors	1
advantages and limitations of sampling	1
Types of sampling: Subjective, probability and mixed sampling methods	1
Methods of drawing random samples with and without replacement	1
Estimates of population mean, total, and proportion, their variance of the estimators by SRSWR	2
Estimates of population mean, total, and proportion, their variance of the estimators by SRSWOR	2
	11

Unit: II **No. of Hours Allotted**: 10

Topics to be covered	No. of Hours
Estimates of population mean, total, and proportion by Stratified random sampling	2
variance of the estimators by Stratified random sampling	3
Stratified random sampling with proportional allocation	3
Stratified random sampling with Optimum allocation	2
	10

Unit: III **No. of Hours Allotted**: 11

Topics to be covered	No. of Hours
Estimates of population mean, total, and proportion and variance of the estimators by Systematic sampling with N=nk	4
Comparison of their relative efficiencies.	3
Advantages and disadvantages of the above methods of sampling	4
	11

Unit: IV **No. of Hours Allotted**: 10

Topics to be covered	No. of Hours
Time series and its components with illustrations	1
Additive, multiplicative and mixed time series models	1
Determination of trend by least squares	1
Determination of trend by moving average method.	1
Growth curves and their fitting with reference to Modified exponential curves	2
Growth curves and their fitting with reference to Gompertz curves	2
Growth curves and their fitting with reference to Logistic curves.	2
	10

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LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester V)

Class : B.Sc(M.S.CS) **Section:** Statistics

Course/Paper: VI (a) (Operations Research, Vital and Indian official statistics)

Unit: I **No. of Hours Allotted**: 11

Topics to be covered	No. of Hours
Meaning and scope of OR. Convex sets and their properties. Definition of general LPP	2
Formulation of LPP. Solution of LPP by graphical method	1
Fundamental theorem of LPP. Simplex algorithm	2
Concept of artificial variables. Big –M /Penalty method	2
Two-phase simplex method of solving LPP	2
Concept of degeneracy and resolving it	1
Concept of duality, duality as LPP. Dual Primal relationship	1
	11

Unit: II **No. of Hours Allotted**: 10

Topics to be covered	No. of Hours
Definition of transportation problem, TP as a special case of LPP	1
Initial basic feasible solutions by North-West Corner Rule, Matrix minimum methods	1
VAM of obtaining initial basic feasible solution to TP	1
Optimal solution through MODI tableau	2
stepping stone method for balanced and unbalanced transportation problem.	2
Degeneracy in TP and resolving it.	2
Concept of Transshipment problem.	1
	10

Unit: III **No. of Hours Allotted**: 11

Topics to be covered	No. of Hours
Formulation and description of Assignment problem and its variations	1
Assignment problem as special case of TP and LPP.	1
Unbalanced assignment problem	2
Traveling salesman problem.	1
Optimal solution using Hungarian method	2
Problem of Sequencing: Optimal sequence of N jobs on two machines without Passing.	2
Problem of Sequencing: Optimal sequence of N jobs on three machines without Passing.	2
	11

Unit: IV **No. of Hours Allotted**: 11

Topics to be covered	No. of Hours
Rates and ratios in vital statistics	2
standardized rates	2
construction and uses of complete life tables	2
construction and uses of Abridged life tables	2
Functions and organization of CSO and NSSO	1
Agricultural Statistics, area and yield statistics	1
National Income and its computation, utility and difficulties in estimation of national income.	1
	11

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LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester V)

Class : B.Sc(M.S.CS) **Section:** Statistics

Course/Paper: VII (Designs of Experiments and Index Numbers)

Unit: I **No. of Hours Allotted**: 11

Topics to be covered	No. of Hours
Concept of Gauss-Mark off linear model with examples, statement of Cochran's theorem Statistical analysis	2
ANOVA – one-way classifications Expectation of various sums of squares,	1
ANOVA – two-way classifications Expectation of various sums of squares,	2
Importance and applications of design of experiments.	2
Principles of experimentation	2
	11

Unit: II **No. of Hours Allotted**: 11

Topics to be covered	No. of Hours
Analysis of Completely randomized Design (C.R.D).	2
Analysis of Randomized Block Design (R.B.D)	2
Completely randomized Design (C.R.D)including one and two missing observation	2
Randomized Block Design (R.B.D) including one and two missing observation	2
Expectation of various sum of squares in C.R.D	1
Expectation of various sum of squares in R.B.D	1
Comparison of the efficiencies of above designs.	1
	11

Unit-III **No. of Hours Allotted**: 10

Topics to be covered	No. of Hours
Analysis of Latin Square Design (L.R.D).	2
Analysis of Latin Square Design (L.R.D) with one missing observation estimated	1
Analysis of Latin Square Design (L.R.D) with two missing observations estimated	1
Expectation of various sum of squares.	2
Comparison of the efficiencies	2
Analysis of 2^2 factorial design. Estimates of main effects and interaction effects	1
Yate's table for computation of F.	1
	10

Unit-IV **No. of Hours Allotted**: 10

Topics to be covered	No. of Hours
Concept, construction, uses and limitations of simple and weighted index numbers	2
Laspeyer's, Paasche's and Fisher's index numbers	1
criterion of a good index numbers, Fisher's index as ideal index number	2
problems involved in the construction of index numbers	1
Fixed and chain base index numbers	1
Cost of living index numbers and wholesale price index numbers	1
Base shifting, splicing and deflation of index numbers	2
	10

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LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester IV)

Class : B.Sc (M.S.SC) **Section:** Statistics

Course/Paper: VIII (a) Demand Analysis, SQC and Reliability

Unit: I **No. of Hours Allotted**: 10

Topics to be covered	No. of Hours
Introduction. Demand and supply	2
price elasticity of supply .	2
price elasticity of demand.	3
Methods of determining demand and supply curves	3
	10

Unit: II **No. of Hours Allotted**: 11

Topics to be covered	No. of Hours
Time series data. Leontief's methods of determining demand curve from time series data, limitations of the method.	3
,Pigous's methods of determining demand curve from time series data	2
Pareto law of income distribution curves of concentration	3
Lorenz curve, Gini's coefficient	3
	11

Unit: III **No. of Hours Allotted**: 10

Topics to be covered	No. of Hours
Importance of SQC in industry. Statistical basis of Shewart control charts. Interpretation of control charts.. Interpretation of control charts.	2
Construction of control charts for variables (mean, range and standard deviation).	2
Construction of control charts for attributes (p, np, and c- charts with fixed sample sizes)	3
Construction of control charts for attributes (p, np, and c- charts with varying sample sizes)	2
Natural tolerance limits and specification limits, process capability index. Concept of Six sigma and its importance	1
	10

Unit: IV **No. of Hours Allotted**: 12

Topics to be covered	No. of Hours
Concept of AQL and LTPD. Producers risk and consumer's risk..	1
Single sampling plan for attributes and their OC and ASN functions	1
Double sampling plans for attributes and their OC and ASN functions	2
Design of single sampling plan for attributes using Binomial and Poisson distributions	2
Design of double sampling plan for attributes using Binomial and Poisson distributions	2
Introduction. Hazard function, Exponential distribution as life model, its memory less property.	1
Introduction. Hazard function, Exponential distribution as life model, its memory less property.	1
Reliability function and its estimation. System reliability - series, parallel systems and their reliabilities.	1
Reliability function and its estimation. System reliability - series k out of N systems and their reliabilities.	1
	12

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NIZAM COLLEGE : DEPARTMENT OF STATISTICS

LESSON PLAN FOR THE ACADEMIC YEAR 2018-2019 (Semester I)

Class : B.Sc (M.S.SC) (**Practicals**) **Section:** Statistics

Course/Paper: P-I **No. of Hours Allotted**: 24

Topics to be covered	No. of Hours
Basics of Excel- Data entry, editing nad saving, establishing and copying formulae, built in functions in Excel, copy and paste and exporting of MS word document.	2
Graphical representation of data(Histogram, Frequency polygon, Ogive curves)	3
Graphical representation of data(Histogram, Frequency polygon, Ogive curves) using MS-Excel	3
Diagrammatic representation of data(Bar and Pie)	2
Diagrammatic representation of data(Bar and Pie) using MS Excel	3
Computation of Central and Non central moments- Sheppard's correction for grouped data	3
Computation of Karl Pearson's and Bowley's Coefficient of Skewness and Kurtosis-β_1 and β_2	4
Computation of Measures of central tendency and dispersion, Coefficients of Skewness and Kurtosis using MS Excel	4
	24

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LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester II)

Class : B.Sc(M.S.SC) (**Practicals**) **Section:** Statistics

Course/Paper: P-II **No. of Hours Allotted**: 24

Topics to be covered	No. of Hours
Fitting of Binomial distribution- Direct method and Recurrence method	3
Fitting of Binomial distribution(Direct method) using MS Excel	2
Fitting of Poisson distribution- Direct method and Recurrence method	3
Fitting of Poisson distribution(Direct method) using MS Excel	1
Fitting of Negative Binomial distribution	2
Fitting of Geometric distribution	1
Fitting of Hyper Geometric distribution	1
Fitting of Normal distribution using Areas method and ordinates method	6
Fitting of Exponential distribution	1
Fitting of Exponential distribution using MS-Excel	1
Fitting of Cauchy distribution	1
Fitting of Cauchy distribution using MS-Excel	1
	24

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NIZAM COLLEGE : DEPARTMENT OF STATISTICS

LESSON PLAN FOR THE ACADEMIC YEAR 2018-2019 (Semester III)

Class : B.Sc (M.S.SC) (**Practicals**) **Section:** Statistics

Course/Paper: P-III **No. of Hours Allotted**: 24

Topics to be covered	No. of Hours
Generation of random sample from uniform(0,1), uniform (a,b), exponential, Normal and Poisson distributions	3
Simulation of random samples from Uniform(0,1), Uniform(a,b), Exponential Normal and Poisson distributions using MS- Excel.	2
Fitting of a straight line and parabola, power curves of the type $y=ax^b$ and exponential curves $y=a_b^x$ and $y=a_e^{bx}$ by method of least squares.	5
Fitting of a straight line and parabola, power curves of the type $y=ax^b$ and exponential curves $y=ab^x$ and $y=ae^{bx}$ by method of least squares using MS-Excel.	3
Computation of Yule's coefficient of association, Pearson's Tcherprows coefficient of contingency	2
Computation of correlation coefficient, forming regression lines for grouped and ungrouped data	2
Computation of correlation coefficient, forming regression lines using MS-Excel	2
Computation of Multiple and partial correlation coefficient	2
Computation of Multiple and partial correlation coefficient using MS-Excel	1
Computation of correlation ratio.	2
	24

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LESSON PLAN FOR THE ACADEMIC YEAR 2018-2019 (Semester IV)

Class : B.Sc (M.S.SC) (**Practicals**) **Section:** Statistics

Course/Paper: P-IV **No. of Hours Allotted**: 24

Topics to be covered	No. of Hours
Large sample test for mean(s), proportion(s), standard deviation(s) and correlation coefficient.	3
Small sample test for single mean and difference of means and correlation coefficient. Paired t-test	2
Small sample test for single mean and difference of means and correlation coefficient using MS-Excel.	3
Small sample test for single variance and difference of variances	1
Small sample test for single variance and difference of variances using MS-Excel	2
Chi-square test for goodness of fit and independence of attributes	3
Chi-square test for goodness of fit and independence of attributes using MS-Excel	3
Non parametric tests for single and related samples (Sign test and Wilcoxon-signed rank test) and one sample run test.	3
Non parametric tests for two independent samples (Median test, Wilcoxon-Mann-Whitney U test, Wald Wolfowitz run test)	4
	24

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LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester V)

Class : B.Sc (M.S.SC) (**Practicals**) **Section:** Statistics

Course/Paper: P-V **No. of Hours Allotted**: 24

Topics to be covered	No. of Hours
Formulation and graphical Solution of L.P. problem (using different inequality type constraints)	1
Solution of L.P. problem by simplex method, Big-M and two-phase simplex method.	4
IBFS for a transportation problem by North-West corner rule, Matrix minimum method and Vogle's approximation method.	3
Optimum solution to balanced and unbalanced transportation problem by MODI method.	2
Solution of balanced and unbalanced Assignment problem using Hungarian method (Both maximization and minimization type),Solution of Traveling salesman problem.	2
Solution of sequencing problem- Processing of n jobs through two machines and three machines.	1
Computation of various mortality rates, fertility rates and Reproductive rates.	1
Construction of Life tables and Abridged life tables	1
Estimation of Population mean, population total and variance of these estimates by using Simple random sampling with and without replacement. Comparison between SRSWR and SRSWOR.	1
Estimation of Population mean, population total and variance of these estimates by using Stratified random sampling with proportional and optimum allocations. Comparison between proportional and optimum allocations with SRSWOR.	2
Estimation of Population mean, population total and variance of these estimates by using Systematic sampling with N = nk. Comparison of Systematic sampling with Stratified and SRSWOR	2
Measurement of trend by method of least squares and moving averages.	2
Determination of seasonal indices by the method of Ratio to moving averages, Ratio to trend and link Relatives.	2
	24

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LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester V)

Class : B.Sc (M.S.SC) (**Practicals**) **Section:** Statistics

Computer Lab

Course/Paper: P-VI **No. of Hours Allotted**: 24

Topics to be covered	No. of Hours
Solution of L.P. problem by simplex method using TORA.	3
Solution of L.P. problem by Big-M and two-phase simplex method using TORA.	2
Optimum solution transportation problem using North-West corner rule, Matrix minimum method and Vogle's approximation method for IBFS using TORA.	3
Solution of Assignment problem for both maximization and minimization using TORA.	1
Construction of various rates, life tables and abridged life tables using MS-Excel.	2
Measurement of trend by method of least squares and moving averages using MS-Excel.	1
Determination of seasonal indices by the method of Ratio to moving averages, Ratio to trend and link Relatives using MS-Excel.	1
	24

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LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester VI)

Class : B.Sc (M.S.SC) (**Practicals**) **Section:** Statistics

Course/Paper: P-VII **No. of Hours Allotted**: 24

Topics to be covered	No. of Hours
Analysis of Variance one-way with equal number of observations	1
Analysis of Variance two-way with equal number of observations	1
Analysis of CRD, analysis of RBD with and without missing observations	4
Analysis of LSD with and without missing observations	3
Comparison of relative efficiency of CRD with RBD and Comparison of relative efficiency of LSD with RBD and CRD	2
Computation of simple and all weighted indices. Computation of time reversal test	1
Computation of Cost of living index number and whole sale index numbers	1
Computation of fixed base and chain base index numbers, Base shifting, splicing and Deflation	3
Construction of Lorenz curve, Fitting of Pereto's law of an income data.	2
Construction of Mean, range and Standard deviation - charts.	2
Construction of p, np and C charts with fixed and varying n	2
Designing a single and double sampling plans for attributes and construction of its OC and ASN curves	2
	24

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LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester VI)

Class : B.Sc (M.S.SC) (**Practicals**) **Section:** Statistics

Computer Lab

Course/Paper: P-VIII **No. of Hours Allotted**: 24

Topics to be covered	No. of Hours
Analysis of Variance one-way with equal number of observations using MS-Excel.	1
Analysis of Variance two-way with equal number of observations using MS-Excel	1
Analysis of CRD, analysis of RBD with and without missing observations using MS-Excel	4
Analysis of LSD with and without missing observations using MS-Excel	3
Computation of all weighted indices, Cost of living index number, Base shifting, splicing and Deflation using MS-Excel.	4
Construction of Lorenz curve using MS-Excel	2
Construction of Mean, range and standard deviation - charts using MS-Excel	3
Construction of p, np and C charts with fixed and varying n using MS-Excel	4
Construction of OC and ASN curves for single and double Sampling plan using MS-Excel.	2
	24

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NIZAM COLLEGE : DEPARTMENT OF STATISTICS

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester V)

Class : B.Sc (M.S.SC) **Section:** Statistics

Course/Paper: P-VI(b) (Econometric Methods) **No. of Hours Allotted**: 56

UNIT-I

Topics to be covered	No. of Hours
Nature of Econometrics – Model building – Role of econometrics	16
Multiple regression	16
Polynomial regression, Estimation of the parameter, Structural and reduced forms	24
	56

UNIT-II

Topics to be covered	No. of Hours
The two variable linear model – Least squares estimators	16
Properties of the least squares estimators	16
Inference in the least squares model, the k – variable linear model – Assumptions of the linear model	24
	56

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UNIT-III

Topics to be covered	No. of Hours
Ordinary least squares (OLS) estimators – Properties of OLS estimators	16
Guass – Markov theorem – Inference problems	16
Problems in linear model – Multicollinearity – specification error	24
	56

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UNIT-IV

Topics to be covered	No. of Hours
Autocorrelation – Heteroscedasticity	16
Special models – Dummy variables, Lagged variables	16
Sources of lagged variables – Koyck scheme and Almon lags.	24
	56

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LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester VI)

Class : B.Sc (M.S.SC) **Section:** Statistics

Course/Paper: P-VIII(b) (Operations Research) **No. of Hours Allotted**: 56

UNIT-I

Topics to be covered	No. of Hours
Game theory – Introduction, Basic terms- Competitive game, zero sum and non zero sum games, strategy, two person zero sum games, pay off matrix	16
The minimax and maximin principle, Games without saddle point- mixed strategies.	24
Graphic solution of 2xn, mx2 games.	16
	56

UNIT-II

Topics to be covered	No. of Hours
Dominance property- principle of dominance to reduce the size of the game	16
generalized Dominance property, Arithmetic method for nxn games	24
General solution of rectangular games, game against passivity	16
	56

UNIT-III

Topics to be covered	No. of Hours
Network scheduling by PERT/CPM–	16
Network and basic components, logical sequencing,	16
Rules of network construction, distinction between PERT and CPM.	24
	56

UNIT-IV

Topics to be covered	No. of Hours
Float concept- Total float, Free float, Independent float, Interfering float, Event slacks	16
Time scale representation of floats and slacks.	16
Critical path analysis, Probability considerations in PERT.	24
	56

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LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester V)

Class : B.Sc (M.S.SC) (**Practicals**) **Section:** Statistics

Course/Paper: P-VI(b) **No. of Hours Allotted**: 24

Topics to be covered	No. of Hours
Fitting of multiple regression model(3 variables).	3
Computation of R^2	2
Computation of auto correlation function	3
Computation of Multicollinearity	1
Computation of Dummy variable regression	2
Computation of OLS estimators	1
Testing of Heteroscedasticities	1
Computation of Koyck scheme.	**24**

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LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester V)

Class : B.Sc (M.S.SC) (**Practicals**) **Section:** Statistics

Course/Paper: P-VIII(b) **No. of Hours Allotted**: 24

Topics to be covered	No. of Hours
Determining the saddle point by minimax and maximin rules	2
Determining the optimum strategy for the games without saddle point	3
Graphic solution of 2xn and mx2 games	2
Solving games using dominance principles	2
Solving games by LPP	4
Solving games using algebraic method	2
Construction of Network diagrams	3
Construction of floats	2
Finding critical path by CPM	**2**
Finding critical path by PERT	**2**
	24

Name of the Teacher: Head, Department of
Signature: Signature:

ZOOLOGY

NIZAM COLLEGE : DEPARTMENT OF ZOOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester II)

Class :B.Sc **Section:** Zoology

Course/Paper: I Animal Diversity–Invertebrates

Unit: IAnimal Diversity–Invertebrates

No. of Hours Allotted: 15

Topics to be covered	No. of Hours
Brief historyof Invertebrates	1
Kingdom Animalia	2
Brief history of Invertebrates	1
Protozoa General characters	1
Classification uptoclasseswith examples	1
Type study -Elphidium	1
Life cycleof Plasmodium.	1
Locomotion, Reproductionand Diseases	2
PoriferaGeneral characters	1
PoriferaClassification of Poriferauptoclasseswith examples	1
Type study -Sycon	1
Sycon internal structure	1
Canal system in spongesand Spicules	1
	15hrs

Name of the Teacher: Dr. Apka. Nageswara Rao Head, Department of

ZoologySignature: Signature:

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LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester II)

Class : M.Sc **Section:** Previous

Course/PaperII: Animal Physiology

Unit I: Digestion-Respiration-Circulation **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Digestion in ruminants-cellulose digestion	1
Digestion in non-ruminants	1
Absorption in mammals-small and large intestine	1
Events of post absorptive states and their regulation-endocrine and neural	2
Respiration-cascade of oxygen transport to tissues at high altitude	1
Adaptation to diving-respiratory and circulatory modifications	1
Responses to oxygen rich environment –oxygen toxicity	1
Responses to co2 rich environment -hypercapnea	1
Control of respiration	1
Buffering mechanisms by body fluids	1
Cardiac cycle	1
Principles of Hemodynamics	1
Blood coagulation mechanism-extrinsic and intrinsic pathways-	1
Hematoma formation –anticoagulants-types	**1**

Name of the Teacher: Dr.B.Jyothi Head, Department of Zoology
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LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester II)

Class : M Sc **Section:** Previous

Course/Paper II: Animal Physiology

Unit IV: Endocrinology, Bioluminescence & Stress Physiology No. of Hours Allotted: 15

Topics to be covered	No. of Hours
Structure and Functions of Endocrine Glands of Invertebrates	2
Structure and Functions of Endocrine Glands of Vertebrates	7
Mechanism of action of Peptide Hormones	1
Mechanism of action of Steroid Hormones	1
Bioluminescent Organisms – Neural Control	1
Biochemistry and Significance of Bioluminescence	1
Stress – Resistance to Stress	1
Functions of Hormones and sympathetic nervous system in stress	1

Name of the Teacher: Dr B Jyothi Head, Department of Zoology

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LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester III)

Class : M Sc **Section:** Final

Course/Paper III: Comparative Animal Physiology

Unit IV: Deranged Metabolism and Disorders **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Metabolic Disorders - Introduction	1
Beneficial and Harmful Effects of Colonic Bacteria	2
Lactose Intolerance	1
GERD	1
Liver Cirrhosis and its causative agents	2
Fatty Liver	1
COPD – Asthma and Sleep Apnea	2
Electrolyte Imbalances – Acidosis and Alkalosis	2
Dialysis	1
Heat Stroke	1
Thirst and its physiological mechanisms	1

Name of the Teacher: Dr B Jyothi Head, Department of Zoology

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LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester IV)

Class : M Sc **Section:** Final

Course/Paper III: Comparative Animal Physiology

Unit III: **No. of Hours Allotted**: !5

Topics to be covered	No. of Hours
Major Types of Body Fluids and Fluid Compartments – ECF, ICF and Other Fluids	2
Classification of Circulatory Mechanisms – Open and Closed	1
Lymphatic System	1
Types of Vertebrate Hearts – Chambered, Tubular, Pulsating Vessels and Accessory ampullar Hearts	2
Heart Rate – Chemical and Nervous Control – Tachycardia and Bradycardia	2
Cardiac Output – factors affecting output	1
Invertebrate Hearts – Annelids and Scorpion	2
Insect and Crustacean Heart	2
Mollusca and Tunicate Heart	1
Regulation of Vertebrate Circulatory System	1

Name of the Teacher: Dr B Jyothi Head, Department of Zoology

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LESSON PLAN FOR THE ACADEMIC YEAR 2018-2019 (Semester V)

Class : B Sc **Section:** Final

Course/Paper V: Animal Physiology

Unit II: Physiology of Circulation and Excretion **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Circulatory System - Introduction	1
Open and Closed type of Circulatory System	1
Structure of Mammalian Heart and its Working Mechanism	1
Heartbeat - Pacemakers	1
Cardiac Cycle	1
Myogenic and Neurogenic Heart	1
Regulation of Heart Rate – Tachycardia and Bradycardia	1
Excretion – Definition and Significance	1
Different Forms of Nitrogenous Waste Materials	1
Classification of Animals on the basis of Excreted Products	1
Formation of Ammonia and Uric Acid	1
Formation of Urea – Urea Cycle	1
Mammalian Excretory System – Structure and Function of Kidney and Nephron	2
Countercurrent Mechanism of Urine Formation	**1**

Name of the Teacher: Dr B Jyothi Head, Department of Zoology

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LESSON PLAN FOR THE ACADEMIC YEAR 2018-2019 (Semester III)

Class : M Sc **Section:** Final

Course/Paper IV: Applied Toxicology

Unit III: Systemic Toxicology **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Toxicology - Introduction	1
Basics of Organ Toxicity – Target Organs	1
Organ Selectivity and Specificity	2
Hepatotoxicity – Susceptibility of the Liver - Hepatotoxicants	2
Types of Liver injury and Biochemical Mechanisms	1
Pulmonary Toxicity – Lung Injury – systemic lung toxins	2
Lung Pathology	1
Renal Toxicity – Susceptibility of kidney to toxicants	1
Chemical induced renal injury	1
Neuro toxicity – Effect of toxic agents on neurons	1
Ion channel neurotoxins	1
Lesions of neural Tissue	1

Name of the Teacher: Dr B Jyothi Head, Department of Zoology

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LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester V)

Class : B.Sc.(III) **Section:** Zoology

Course/Paper: Clinical science and pathology

Unit: III Immunology **No.of Hours Allotted**: 15

Topics to be covered	No. of Hours
Introduction - Immunology	1
Innate immunity	1
Acquired immunity	1
Antigens and antibodies	2
Immunoglobulins- Classification	1
Immunoglobulins - Significance	1
Complement system	1
Lymphatic system and lymphoid organs - Thymus and lymphnodes	1
T-Cells, B-Cells & macrophages	1
Humoral immune response	1
Cell mediated immune response	1
Types of hypersensitivity	1
Vaccines	1
Vaccines - vaccination and schedule	1

Name of the Teacher: Dr. D.PriyaKumari
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Head, Department of Zoology
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LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester VI)

Class : B.Sc.(III)

Section: Zoology

Course/Paper: Vermiculture and Vermicompostiong

Unit: 1 **No.of Hours Allotted**: 15

Topics to be covered	No. of Hours
Introduction to Vermiculture	2
Introduction to Vermicomposting	2
Difference between Vermiculture and Vermicomposting	1
Scope of vermin technology	1
Earthworm Diversity	2
Ecological groups of earthworms	1
Biology of composting earthworms	1
Biology of Eoisenafoetida	1
Biology of Eudriluseugeniae	1
Nutritive value of vermin compost	1
Storing of vermin compost	1
Packing of vermin compost	1

Name of the Teacher: Dr. D.PriyaKumari
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LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester V)

Class : M.Sc.FYIC III **Section:** Zoology

Course/Paper: Applied Zoology

Unit: II & III - Aquaculture and Clinical Science **No.of Hours Allotted**: 21

Topics to be covered	No. of Hours
Aquaculture systems	3
Induced breeding	2
Shrimp and prawn culture	2
Preservation and processing - Freezing, solar drying and Canning	1
Preservation and processing - salting, smoking	1
Fish by-product - Cod liver oil	1
Immunity introduction	1
Innate immunity	2
Acquired immunity	2
Antigens - Haptens and epitopes their properties	2
Structure of immunoglobulins	2
Biological properties of IgG	2

Name of the Teacher: Dr. D PriyaKumari Head,
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LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester VI)

Class : M.Sc. FYIC III **Section:** Zoology

Course/Paper: VIII - Immunology, Human parasitology and Animal biotechnology

Unit: I - Immunolgy and human parasitology **No.of Hours Allotted**: 15

Topics to be covered	No. of Hours
Introduction to Hypersensitivity	1
Immediate Hypersensitivity	2
Delayed Hypersensitivity	2
Blood parasite - Plasmodium structure	1
Plasmodium clinical significance	1
Structure and clinical significance of Entamoeba	1
Structure and clinical significance of Giardia	1
Structure and clinical significance ofTaenia	1
Structure and clinical significance of Ancylostoma	1
Structure and clinical significance of Enterobius	1
Animal cell lines	1
Stem cell culture techniques	2

Name of the Teacher: Dr. D.PriyaKumari
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LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester III)

Class : M.Sc.(F) **Section:** Zoology

Course/Paper: Research Methodology

Unit:III: Use of inferential statistical tools in research **No.of Hours Allotted**: 15

Topics to be covered	No. of Hours
Use of different statistical estimations depending on the type of data,	2
Hypothesis testing, and test of significance.	2
Student's 't' test – applications and importance in research data	2
Application of Chi-square test for the experimental data	2
Use of ANOVA – One-way ANOVA for the research data analysis	1
Use of ANOVA – Two-way ANOVA for the research data analysis	2
Application of correlation analysis for the data.	2
Application of regression analysis for the data.	2

Name of the Teacher: Dr. D.PriyaKumari
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LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester I)

Class : M.Sc.(P) **Section:** Zoology

Course/Paper: Immunology

Unit:III Hypersensitivity reactions and autoimmune diseases **No.of Hours Allotted**: 15

Topics to be covered	No. of Hours
Hypersensitivity - Introduction	1
Hypersensitivity - classification, Type I reaction	3
Hypersensitivity - Type II reaction	2
Hypersensitivity - Type III reaction	1
Hypersensitivity - Type IV reaction	1
Organ specific autoimmune diseases - Grave's disease	2
Organ specific autoimmune diseases - Type -I Diabetes	1
Systemic autoimmune diseases - SLE	1
Systemic autoimmune diseases - RA	1
Genetic factors, pathogenesis and treatment of autoimmune diseases	2

Name of the Teacher: Dr. D.PriyaKumari
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LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester I)

Class : M.Sc.(P) **Section:** Zoology

Course/Paper: Immunology

Unit:IVTransplantation and Tumour Immunology**No.of Hours Allotted**: 15

Topics to be covered	No. of Hours
Transplantation – Introduction	2
Transplantation – Barriers to transplantation.	1
Genetic predisposition for graft rejection, prevention of rejection.	2
Immunity to infection – viruses, nature of interaction; immunopathological considerations	1
Immunity to infection– bacteria, fungi, parasites, nature of interaction; immunopathological considerations	1
Immunity to infection– fungi parasites, nature of interaction; immunopathological considerations	2
Immunity to infection– Parasites, nature of interaction; immunopathological considerations	1
Tumor immunology – Immunity to tumors, tumor specific antigens..	3
Immunosurveillance	1

Name of the Teacher: Dr. D.PriyaKumari
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NIZAM COLLEGE : DEPARTMENT OF ZOOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester IV)

Class : M.Sc.(F) **Section:** Zoology

Course/Paper: Fish Biology

Unit: II - Fishes habits and habitats **No.of Hours Allotted**: 15

Topics to be covered	No. of Hours
Buoyancy in Fishes	1
Dynamic lift and static lift	1
Swim bladder structure and function	2
Locomotion - Myotomal muscles	1
Caudal fin oscillation mechanism	1
Feeding Mechanisms - Food habits and feeding	1
Fish as predator and prey	1
Food chains and food webs	2
Osmoregulation and ion balance - Fresh water, brakish water and marine telosts	1
Kidney and salt balance	1
Fish migration	1
Migratory mechanisms	1
Mating and parental care	1

Name of the Teacher: Dr. D.PriyaKumari
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LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester IV)

Class : M.Sc.(F) **Section:** Zoology

Course/Paper: P-I - Animal Biotechnology

Unit:I - Introduction and Animal improvement **No.of Hours Allotted**:15

Topics to be covered	No. of Hours
Introduction to biotechnology - Scope	1
Introduction to biotechnology - Importance and its applications	2
Mammalian reproductive systems	3
Gametogenesis	1
In vitro fertilization and ET	2
ICSI and sperm sexing	1
Cryopreservation and cryoprotection	1
Gamate banking	1
Biotechnology - Improvement of live stock herds	1
Biotechnology - Breeding of selected traits	2

Name of the Teacher: Dr. D.PriyaKumari
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LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester II)

Class : M.Sc.(P) **Section:** Zoology

Course/Paper:IV: Evolution and Functional Anatomy of Vertebrates [EFAV]

Unit:III – Functional Anatomy of Vertebrates – from fishes to mammals

No. of Hours Allotted: 15

Topics to be covered	No. of Hours
Integumentary system - Introduction	1
Integumentary system - Integument and its derivatives	1
Skeletal system ¬– Cranial and Post-Cranial - axial skeletal system	2
Skeletal system ¬– Cranial and Post-Cranial - appendicular skeletal system	2
Nervous system – Brain, spinal cord	1
Nervous system – Peripheral nerves; sense organs	2
Respiratory system	1
Circulatory system	1
Digestive system	1
Excretory system	1
Reproductive system – comparison of male reproductive systems from fishes to mammals	1
Reproductive system – comparison of female reproductive systems from fishes to mammals	1

Name of the Teacher: Dr. D.PriyaKumari
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LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester II)

Class : B.Sc. I year **Section:** Zoology

Course/Paper: II (Ecology, Zoogeography and Animal behavior)

Unit: I **No.of Hours Allotted**: 15

Topics to be covered	No. of Hours
Introduction of Ecology	1
Types of ecosystem Aquatic and Terrestrial	2
Biogeochemical cycles Introduction	1
Nitrogen cycle	1
Carbon cycle	1
Phosphorous and water cycles	1
Energy flow in Ecosystem	1
Food chain	1
Ecological pyramids	1
Animal association Introduction	1
Mutualism, Parasitism	1
Competition and predation	1

Name of the Teacher: Dr. G. Shailaja
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Head, Department of Zoology
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LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester IV)

Class: B.Sc. II year **Section:** Zoology

Course/Paper: IV

Unit: III. **No.of Hours Allotted**: 18

Topics to be covered	No. of Hours
Introduction of Biogeochemical cycles	2
Gaseous cycles - Nitrogen and Carbon cycle	2
Sedimentary cycle - Phosphorus cycle	2
Definition of community and introduction	1
Habitat and ecological niche	1
Community interactions - Competition and predation	2
Community interactions - Mutualism	2
Community interactions - Commensalism	1
Community interactions - Parasitism	2
Ecological succession - Primary & secondary seral changes	2
Climax community with examples	1

Name of the Teacher: Dr. G. Shailaja
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LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester III)

Class : B.Sc (II) **Section:** Zoology

Course/Paper: III - Biology of Chordates

Unit: III **No.of Hours Allotted**: 15

Topics to be covered	No. of Hours
General Characters of class Reptilia	1
Classification of Reptiles upto order level	2
Type study - Calotes Morphology of Calotes	1
Digestive system to Calotes	1
Respiratory system of Calotes	1
Circulatory system of Calotes	3
Nervous system of Calotes	1
Urinogenital system of Calotes	2
General characters of Aves	1
Classification of Aves upto order level	2

Name of the Teacher: Dr. G. Shailaja
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LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester I)

Class : M.Sc.(P) **Section:** Zoology

Course/Paper: Structural Biology

Unit:I **No.of Hours Allotted**: 15

Topics to be covered	No. of Hours
Biomolecules and their significance - Introduction, Carbhohydrates	2
Biomolecules and their significance - Proteins and Amino acids	1
Biomolecules and their significance - Lipids and Nucleic acids	1
Chemistry and structure of Carbhohydrates - Mono, oligo and polysaccharides	1
Chemistry and structure of Carbhohydrates - Deoxy sugars, amino sugars and glycosides	1
Classification and structure of proteins -Primary & Secondary	2
Classification and structure of proteins - Tertiary and quartarnary	1
Classification and structure of proteins -Fatty acids, triglycerides	1
Classification and structure of proteins - Phspholipds, cerebrosides and steroids	1
Structure of DNA and DNA polymorphism	2
Structure of RNA, types of RNA	2

Name of the Teacher: Dr. G. Shailaja
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NIZAM COLLEGE : DEPARTMENT OF ZOOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester I)

Class : M.Sc.(P) **Section:** Zoology

Course/Paper: Structural Biology

Unit:II - Enzymes and metabolism **No.of Hours Allotted**: 15

Topics to be covered	No. of Hours
Classification nomenclature and properties of enzymes - Catalysis and energy of activation	1
Classification nomenclature and properties of enzymes - Enzyme kinetics	2
Classification nomenclature and properties of enzymes - Michaelif Menten constant	1
Classification nomenclature and properties of enzymes - Km value and LB plot	1
Classification nomenclature and properties of enzymes - mechanism of enzyme action and regulation of enzyme activity	1
Metabolism of carbhohydrates-glycolysis	1
Metabolism of carbhohydrates - TCA Cycle, Gluconeogenesis	1
Metabolism of carbhohydrates- Biological Oxidation, role of respiratory chain in energy capture.	2
Metabolism of carbhohydrates- ATP synthesis	1
Catabolism of amino acids - Transamination, deamination and Dcarboxilation	1
Oxidation and biosynthesis of fatty acids	1
Metabolic disorders of different biomolecules- Carbohydrates	1
Metabolic disorders of different biomolecules- Proteins, Lipids	1

Name of the Teacher: Dr. G. Shailaja
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NIZAM COLLEGE : DEPARTMENT OF ZOOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester-I)

Class :M.Sc.(P) **Section:** Zoology

Course/Paper: III (Immunology)

Unit: II (Antigen-Antibody Nature and Complement System)
No.of Hours Allotted: 15

Topics to be covered	No. of Hours
Antigens nature, epitope, haptens, antigen presenting cells, adjuvants and antigenicity	2
Immunoglobulins - Structure	1
Function and classification of antibodies	2
Monoclonal antibodies and its applications	1
Antigen and antibody reaction	1
Immunological techniques	2
Complement system - Components of complement system	1
Complement system -Pathways	1
Biological consequences of complement activation and significance	1
Major histocompatibility complex - Structure and function, restriction	2
Genetic control of immune responses	1

Name of the Teacher: Dr. G. Shailaja
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NIZAM COLLEGE : DEPARTMENT OF ZOOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester-II)

Class : M.Sc. **Section:** Zoology

Course/Paper: II (Animal Physiology)

Unit:II **No.of Hours Allotted**: 15

Topics to be covered	No. of Hours
Osmoregulation -Introduction	1
Osmoregulatory problems in aquatic and terrestrial animals	3
Hormonal control of Osmoregulation	1
Excretion- Urine formation	1
Counter current effect mechanism	2
Hormonal control	1
Detoxification of nitrogen products	2
Temperature regulation in poikilotherms, Homeotherms and Heterotherms	2
Mechanism of survival (hibernation and aestivation)	1
Cold death and Heat death	1

Name of the Teacher: Dr. G. Shailaja
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LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester-II)

Class : M.Sc.(P) **Section:** Zoology

Course/Paper: III - Molecular Genetics and Developmental biology

Unit:I Introduction to Genetics **No.of Hours Allotted**: 15

Topics to be covered	No. of Hours
Mendalism and mendilian inheritance	1
Modifications of medilian inheritance	2
Linkage studies	1
Crossing over	1
Extra chromosomal inheritance	1
Multiple alleles and blood group antigens	1
Chromosome structure and identification	1
Chromosome structure - Karyotype	1
Genetic disorders - Chromosomal disorders	1
Genetic disorders - Inborn errors of metabolism	2
Genetic disorders - Polygenic and environmental disorders	1
Bacterial genetics -Transformation, transduction and conjugation	2
Bacterial genetics - Viral lytic and lysogenic cycle	1

Name of the Teacher: Dr. G. Shailaja
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NIZAM COLLEGE : DEPARTMENT OF ZOOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester I)

Class : M. Sc Previous **Section:** Zoology

Course/Paper: IV - (Taxonomy, Systematics and Functional Anatomy of Invertebrates)

Unit: III - Annelidato Echinodermata **No. of Hours Allotted** : 15

Topics to be covered	No. of Hours
General characteristics, broad classification of phylum Annelida	1
filter feeding in polychaetes; respiration and excretion in annelids	2
General characteristics, broad classification of phylum Mollusca	1
Types of shell in different molluscan classes, respiration and excretion in molluscs	2
General characteristics, broad classification of phylum Arthropoda	1
social life in insects, respiration and excretion in arthropods	2
General characteristics, broad classification of phylum Echinodermata	1
Endoskeleton and water vascular system; autotomy and regeneration	2
Overview of reproduction	1
Development and phylogenetic significance of the larval forms of Annelida, Mollusca, Arthropoda and Echinodermata	2
TOTAL	**15hrs**

Name of the Teacher: Dr. V. Srinivasa Rao Head, Department of Zoology

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NIZAM COLLEGE : DEPARTMENT OF ZOOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester III)

Class : M. Sc Final **Section:** Zoology

Course/Paper: III - (Medical Entomology - I)

Unit: III - Annelidato Echinodermata **No. of Hours Allotted** : 15

Topics to be covered	No. of Hours
Bacterial diseases - Plague	1
Rickettsiasis, Bartonellosis	2
Viral disease – Dengue,	1
Japanese Encephalitis, Chikungunya, Zika.	2
Protozoan diseases – Leishmaniasis	1
Malaria, Trypanosomiasis	2
Helminthic diseases – Filariasis	1
Wuchereria, Brugia, Loa	2
Direct injury, Annoyance,	1
Allergies, toxins, myasis and venomous arthropods	2
TOTAL	**15hrs**

Name of the Teacher: Dr. V. Srinivasa Rao Head, Department of Zoology

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NIZAM COLLEGE : DEPARTMENT OF ZOOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester I)

Class : B.Sc, I Semister **Section:** Zoology

Course/Paper: I - (**Animal Diversity – Invertebrates**)

Unit: III – Mollusca**, Echinodermata,** Hemichordata **No. of Hours Allotted** : 15

Topics to be covered	No. of Hours
General characters, Classification of Mollusca up to classes with examples	1
Type study - *Pila*	5
Pearl formation, Torsion and detorsion in gastropods	2
General characters Classification of Echinodermata up to classes with examples	2
Water vascular system in star fish	1
Echinoderm larvae and their significance	1
General characters Classification of Hemichordata up to classes with examples	1
Balanoglossus - Structure and affinities	2
TOTAL	**15hrs**

Name of the Teacher: Dr. V. Srinivasa Rao Head, Department of Zoology

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NIZAM COLLEGE : DEPARTMENT OF ZOOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester III)

Class : B.Sc, III Semester **Section:** Zoology

Course/Paper: **III - (BIOLOGY OF CHORDATES)**

Unit: III Avesand Mammals **No. of Hours Allotted** : 15

Topics to be covered	No. of Hours
Type study – Pigeon(*Columbia livia*): Exoskeleton, respiratory system, circulatory system and excretory system.	6
Significance of migration of birds	2
Flight adaptation in birds	2
General characters and classification of Mammalia up to order level with examples	3
Dentition in Mammals	2
TOTAL	**15hrs**

Name of the Teacher: Dr. V. Srinivasa Rao Head, Department of Zoology

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NIZAM COLLEGE : DEPARTMENT OF ZOOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester II)

Class : M. Sc Previous **Section:** Zoology

Course/Paper: IV - (Evolution and Functional Anatomy of Vertebrates)

Unit: **II -** – Evolutionof Vertebrates **No. of Hours Allotted** : 15

Topics to be covered	No. of Hours
Origin and salient features of Ostracoderm, Placoderm,	1
Acanthodii, ,Sarcopterygii and Actinopterygii	2
Origin, salient features and adaptive radiation in amphibians	1
Lepospondyli and Lissamphibia	2
Origin, salient features and adaptive radiation in early reptiles	1
Mesozoic reptiles	2
Origin, salient features and adaptive radiation in birds	1
Palaeognathae and Neognathae	2
Origin, salient features and adaptive radiation in mammals	1
Prototheria and Theriiformes	2
TOTAL	**15hrs**

Name of the Teacher: Dr. V. Srinivasa Rao Head, Department of Zoology

Signature: Signature:

NIZAM COLLEGE : DEPARTMENT OF ZOOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester IV)

Class : M. Sc Final **Section:** Zoology

Course/Paper: III (Medical Entomology - II)

Unit: IV - Chemical Control **No. of Hours Allotted** : 15

Topics to be covered	No. of Hours
Classification of Insecticides	1
mode of action; Antiquity of insecticides	2
Synthetic insecticides: Organochlorides, Organophosphates.	2
Carbamates, Pyrithroids	2
Toxicity of pesticides, Insecticide appliances.	2
safety precautions	1
Repellents & attractants	2
DEET, Semiochemicals	1
Methods of insecticide applications, and	1
development of a Module for Integrated Vector Management	1
TOTAL	**15hrs**

Name of the Teacher: Dr. V. Srinivasa Rao Head, Department of Zoology

Signature: Signature:

NIZAM COLLEGE : DEPARTMENT OF ZOOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester II)

Class : B.Sc, II Semister **Section:** Zoology

Course/Paper: II - (**Ecology, Zoogeography and Animal Behavior**)

Unit: III– Zoogeography **No. of Hours Allotted** : 15

Topics to be covered	No. of Hours
Zoogeographical regions – Palaearctic, Nearctic, Neotropical, Oriental, Australian and Ethiopian regions - their Climatic and faunal peculiarities	8
Wallace line, Discontinuous distribution	4
Continental Drift	3
TOTAL	**15hrs**

Name of the Teacher: Dr. V. Srinivasa Rao Head, Department of Zoology

Signature: Signature:

NIZAM COLLEGE : DEPARTMENT OF ZOOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester IV)

Class : B.Sc, IV Semester **Section:** Zoology

Course/Paper: **III - (EMBRYOLOGY, ECOLOGY AND ZOOGEOGRAPHY)**

Unit: IV : Zoogeography & Wildlife **No. of Hours Allotted** : 15

Topics to be covered	No. of Hours
Zoogeographical realms and their characteristic fauna	4
Wild life importance, National parks.	3
wild life sanctuaries, endangered species	3
Conservation strategies, project tiger,	3
biodiversity	2
TOTAL	**15hrs**

Name of the Teacher: Dr. V. Srinivasa Rao Head, Department of Zoology

Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF ZOOLOGY

Lesson Plan for the academic year 2017- 2018 **(Semester III)**

Class: M.Sc. Final **Section:** Zoology

Course/Paper: IV-ZOO_ 304 (Sericulture)

UNIT: III – **Silkworm rearing** **No. of Hours Allotted:** 15 Hrs

Topics to be covered	No. of. Hours
Rearing House and rearing appliances	2
Environmental conditions for silkworm rearing	1
Rearing of early stages (Chawki rearing) and late stages of silk worms	3
Mounting and harvesting of silkworm cocoons	3
Silkworm diseases	3
Silkworm pests	3
Total	**15 Hours**

Name of the Teacher: Dr. VasudhaLingampally
Assistant Professor ©

Signature:

Head, Department of Zoology:

Signature:

NIZAM COLLEGE: DEPARTMENT OF ZOOLOGY

Lesson Plan for the academic year 2017- 2018 **(Semester III)**

Class: M.Sc. Final **Section:** Zoology

Course/Paper: IV-ZOO_ 304 (Sericulture)

UNIT: IV – **Harvesting technology** **No. of Hours Allotted:** 15 Hrs

Topics to be covered	**No. of. Hours**
Transport of cocoons to the cocoon markets.	1
Commercial characters of cocoons, defective cocoons and price fixation	3
Reeling technology – mulberry and vanya silk rearing	4
Seed technology – Grainage, DFLs	4
By-products- types and uses	3
Total	**15 Hours**

Name of the Teacher: Dr. VasudhaLingampally

Assistant Professor ©

Signature:

Head, Department of Zoology:

Signature:

NIZAM COLLEGE: DEPARTMENT OF ZOOLOGY

Lesson Plan for the academic year 2017- 2018 **(Semester I)**

Class: M.Sc.Previous **Section:** Zoology

Course/Paper: II – ZOO_102: **Environmental and Conservation Biology [ECB]**

UNIT: II – Community Organization and Structure **No. of Hours Allotted:** 15 Hrs

Topics to be covered	No. of. Hours
Community analysis, species diversity, ecotone concept and edge effect; interaction between environment and biota Habitat and ecological niche and niche overlap; concept of biome	4
Concepts of productivity; eutrophication of lakes; biological indicator and water quality	3
Ecosystem dynamics and management; stability and complexity of ecosystem	3
Biogeochemical cycles; inorganic pollutants and their impact SO_2, NO_2, CO, Phosphates,heavy metals (Arsenic, Lead and Mercury); radioactive nucleotides and their impact on biological system	3
Acid rain sources and its impact on biological system; greenhouse effect and ozone depletion	2
Total	**15 Hours**

Name of the Teacher: Dr. VasudhaLingampally

Assistant Professor ©

Signature:

Head, Department of Zoology:

Signature:

NIZAM COLLEGE: DEPARTMENT OF ZOOLOGY

Lesson Plan for the academic year 2017- 2018 **(Semester V)**

Class: B.Sc.III Year **Section:** Zoology

Course/Paper: VI – Elective -I **CLINICAL SCIENCE AND PATHOLOGY**

UNIT - I: **HEAMOTOLOGY** **No. of Hours Allotted:** 15 Hrs

Topics to be covered	No. of. Hours
introduction to Heamotology	1
structure, composition and functions of blood	2
origin of blood cells(RBC,WBC,PLATELETS)	3
blood coagulation and theories of blood coagulation and anticoagulants	2
blood groups and Rh factor	2
blood transfusion and blood banking	2
Blood associated disorders- Anemia, leucopenia, leucocytosis, Leukemia and Haemophilia.	3
Total	**15 Hours**

Name of the Teacher: Dr. VasudhaLingampally
Assistant Professor ©

Signature:

Head, DEpartment of Zoology:

Signature:

NIZAM COLLEGE: DEPARTMENT OF ZOOLOGY

Lesson Plan for the academic year 2017- 2018 **(Semester II)**

Class: M.Sc.Previous **Section:** Zoology

Course/Paper: IV –Zoo_204 Evolution and Functional Anatomy of Vertebrates

UNIT –I Evolution **No. of Hours Allotted:** 15 Hrs

Topics to be covered	No. of. Hours
Concept of evolution and theories of evolution	2
Variation, gene mutation and chromosomal aberrations in evolution; genetic drift	3
Speciation – species concepts, categories; Modes of speciation – Allopatric, parapatricand sympatric speciation	4
Natural selection; patterns of evolution – sequential, divergent, convergent, gradual,punctuated, monophyletic, polyphyletic and paraphyletic	4
Origin and evolution of primates and human	2
Total	**15 Hours**

Name of the Teacher: Dr. VasudhaLingampally
Assistant Professor ©

SignaturE

Head, Department of Zoology:

Signature:

NIZAM COLLEGE: DEPARTMENT OF ZOOLOGY

Lesson Plan for the academic year 2017- 2018 **(Semester II)**

Class: M.Sc. Previous **Section:** Zoology

Course/Paper: IV –Zoo_204 Evolution and Functional Anatomy of Vertebrates

UNIT – IV Functional Anatomy of Vertebrates – Evolutionary significance

No. of Hours Allotted: 15 Hrs

Topics to be covered	No. of. Hours
Evolutionary significance of internal fertilization, neoteny and paedogenesis	3
Amniotic egg ¬– structure and its evolutionary significance	1
Basic plan of skull; Temporal fossae and their evolutionary significance; Vertebrate Jaw suspension	3
Types and evolutionary significance of axial and appendicular joints	4
Types and evolutionary significance of placenta; evolutionary significance of opposable thumb and bipedalism in primates (both non-human and human	4
Total	**15 Hours**

Name of the Teacher: Dr. VasudhaLingampally

Assistant Professor ©

Signature:

Head, Department of Zoology:

Signature:

NIZAM COLLEGE: DEPARTMENT OF ZOOLOGY

Lesson Plan for the academic year 2017- 2018 **(Semester VI)**

Class: B.Sc. III Year **Section:** Zoology
Course/Paper: VII – **ANIMAL PHYSIOLOGY, GENETICS AND EVOLUTION**

UNIT - II: **Genetics** **No. of Hours Allotted:** 15 Hrs

Topics to be covered	No. of. Hours
Mendel's laws – Laws of segregation and Independent assortment Genetic interactions – Incomplete dominance codominance epistasis.	4
Identification of DNA as the genetic material – Griffith's experiment Hershey – Chase experiment.	2
Central dogma of molecular biology – Brief account of DNA replication (Semi-conservative method) Replication fork (Continuous and discontinuous synthesis); Transcription – Brief account of initiation,elongation and termination in eukaryotes Translation Genetic code Gene regulation as exemplified by Lac Operon.	9
Total	**15 Hours**

Name of the Teacher: Dr. VasudhaLingampally
Assistant Professor ©
Signature:
Head, Department of Zoology:
Signature:

NIZAM COLLEGE: DEPARTMENT OF ZOOLOGY

Lesson Plan for the academic year 2017- 2018 **(Semester III)**

Class: M.Sc. Final **Section:** Zoology

Course/Paper: IV-ZOO_ 301 (Systems Biology)

UNIT: I – – Introduction to Systems Biology **No. of Hours Allotted:** 15 Hrs

Topics to be covered	No. of. Hours
History, concept, prospects and applications of systems biology. .	3
Molecules to Organisms – Biomolecules, cell, tissue, organ and organisms.	3
Basic concepts of systems approach to biology.	3
Basic concepts of models and modeling, model behavior, classification.	3
Basic concepts of networks; types of networks	3
Total	**15 Hours**

Name of the Teacher: Dr. C.Sanat Kumar

Assistant Professor ©

Signature:

Head, Department of Zoology:

Signature:

NIZAM COLLEGE: DEPARTMENT OF ZOOLOGY

Lesson Plan for the academic year 2017- 2018 **(Semester I)**

Class: M.Sc. Previous **Section:** Zoology

Course/Paper: I – ZOO_ 101: **structural Biology [SB]**

UNIT: I V- Functional Biology of Nucleic Acids **No. of Hours Allotted:** 15 Hrs

Topics to be covered	No. of. Hours
DNA replication – semi conservative, enzymology of DNA replication, replication of circular DNA, initiation, elongation and termination of replication process. Proof reading function of DNA polymerases.	4
Enzymatic synthesis of RNA.	2
Protein synthesis – Events of protein synthesis; transcription in prokaryotes and eukaryotes; post transcriptional processing.	4
Regulation of genetic code – Wobble's concept, translation in prokaryotes and eukaryotes.	3
DNA repair mechanism – High fidelity of DNA sequence – Repair of damage caused by UV light, Eukaryotes repair systems	2
Total	**15 Hours**

Name of the Teacher: Dr. Dr. C.Sanat Kumar
Assistant Professor ©

Signature:

Head, Department of Zoology:

Signature:

NIZAM COLLEGE: DEPARTMENT OF ZOOLOGY

Lesson Plan for the academic year 2017- 2018 **(Semester I)**

Class: M.Sc. Previuos **Section:** Zoology

Course/Paper: III – ZOO_ 103: **Immunology** **[IM]**

UNIT - I: **Introduction to Immune System** **No. of Hours Allotted:** 15 Hrs

Topics to be covered	No. of. Hours
Phylogeny of Immune system –invertebrates and vertebrates	2
Immune system – Innate and adaptive immunity , humoral mediated immunity and cellmediated immunity	3
Cells involved in immune system; role of macrophages in immunity	2
The Lymphoid tissues – primary and secondary lymphoid organs, lymphatic traffic	4
Activation of B– and T– Cells; production of effectors – antibodies and cytokines	4
Total	**15 Hours**

Name of the Teacher: Dr. C.Sanat Kumar

Assistant Professor ©

Signature:

Head, Department of Zoology:

Signature:

NIZAM COLLEGE: DEPARTMENT OF ZOOLOGY

Lesson Plan for the academic year 2017- 2018 **(Semester V)**

Class: B.Sc. III Year **Section:** Zoology

Course/Paper: VI Clinical science and pathology

UNIT: II – **Techniques** **No. of Hours Allotted:** 15 Hrs

Topics to be covered	No. of. Hours
2.1. Microscopy- light, phase contrast and Electron microscopy	3
2.2. Microtomy- Fixation, section cutting and staining procedures	3
2.3. Biopsy and Autopsy of normal and affected tissues.	3
2.4. Histopathological manifestation in tissues.	1
2.5. Principles of sterilization, autoclave, microbial plating and antibiotic sensitivity tests.	2
2.6. Immunological techniques- Agglutination, precipitation, complement fixation test and ELISA	3
Total	**15 Hours**

Name of the Teacher: Dr. C.Sanat Kumar
Assistant Professor ©

Signature:

Head, Department of Zoology:

Signature:

NIZAM COLLEGE: DEPARTMENT OF ZOOLOGY

Lesson Plan for the academic year 2017- 2018 **(Semester VI)**

Class: B.Sc. III Year **Section:** Zoology

Course/Paper: VIII Vermiculture and Vermicomposting

UNIT: II – **No. of Hours Allotted:** 15 Hrs

Topics to be covered	No. of. Hours
Soil- physical, chemical and biological features	5
Organic waste sources- problems in traditional xcomposting, vermicomposting	5
Types of small and large scale pit method, heap method.	5
Total	15 Hours

Name of the Teacher: Dr. C.Sanat Kumar
Assistant Professor ©

Signature:

Head, Department of Zoology:

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NIZAM COLLEGE: DEPARTMENT OF ZOOLOGY

Lesson Plan for the academic year 2017- 2018 **(Semester II)**

Class: M.Sc. Previous **Section:** Zoology

Course/Paper: I –Zoo_201Tools, Techniques and Biostatistics [TTB]

UNIT II - Separation and Diagnostic Techniques **No. of Hours Allotted:** 15 Hrs

Topics to be covered	**No. of. Hours**
Spectroscopic techniques – principles and applications of visible, UV, fluorescence, IR,ESR, NMR and mass spectroscopy	3
Radioisotope techniques – principles and application of Geiger-Muller counter,scintillation counter, tracer studies, autoradiography	3
Electrophysiological techniques – principles and applications of single neuron recording,patch clamp recording.	3
Imaging techniques - ECG, PET, MRI, fMRI and CAT	3
Microarray techniques – principles and applications of DNA, RNA and Protein microarray Techniques	3
Total	**15 Hours**

Name of the Teacher: Dr. C.Sanat Kumar
Assistant Professor ©

Signature:
Head, Department of Zoology:

Signature:

NIZAM COLLEGE: DEPARTMENT OF ZOOLOGY

Lesson Plan for the academic year 2017- 2018 **(Semester II)**

Class: M.Sc. Previous **Section:** Zoology

Course/Paper: III –Zoo_203 Molecular Genetics and Developmental Biology[MGDB]

UNIT II – Molecular Genetics **No. of Hours Allotted:** 15 Hrs

Topics to be covered	No. of. Hours
Introduction of DNA technology – Restriction endonucleases, methods of ligation – DNA ligases, ligation of fragment with cohesive and blunt ends.	3
Features of vectors – cosmids, plasmids and shuttle vector with one example representing each class construction and characterization of new cloning vectors	3
Applied molecular biology – DNA sequences – Maxam and Gilbert methods, Sanger's method. Application of recombinant DNA technology with reference to the example of insulin, somatostatin, and interferon. DNA fingerprinting and its application	3
Cloning strategies – Shotgun cloning, construction of gene libraries, genomic library and DNA library	3
Hybridization techniques – Southern blot, Northern blot, R-loop mapping methods, Insitu hybridization	3
Total	**15 Hours**

Name of the Teacher: Dr. C.Sanat Kumar
Assistant Professor ©

Signature:

Head, Department of Zoology:

Signature:

NIZAM COLLEGE: DEPARTMENT OF ZOOLOGY

Lesson Plan for the academic year 2017- 2018 **(Semester IV)**

Class: M.Sc. Final **Section:** Zoology

Course/Paper: Paper - I: Animal Biotechnology

UNIT II - In vitro culture of cells and tissues **No. of Hours Allotted:** 15 Hrs

Topics to be covered	No. of. Hours
Cell culture - Equipment and materials for cell culture technology, principle of sterile techniques and cell propagation, primary and established cell line cultures.	3
Mammalian cell lines & their characteristics.	3
Basic techniques of mammalian cell culture in vitro, disaggregating of tissue and primary culture, maintenance of cell culture, cell separation.	3
Tissue culture system – cell tissue fragment, organ and embryo cultures, merits and demerits.	3
Scaling-up of animal cell culture, cell synchronization, cell cloning, micromanipulation, cell transformation	3
Total	**15 Hours**

Name of the Teacher: Dr. C.Sanat Kumar

Assistant Professor ©

Signature:

Head, Department of Zoology:

Signature:

NIZAM COLLEGE: DEPARTMENT OF ZOOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021(Semester I)

Class :B.Sc I year **Section:** Zoology

Course/Paper: I Animal Diversity–Invertebrates

Unit: III, Phylum –Annelida and Arthropoda No. of Hours Allotted: 15

Topics to be covered	**No. of Hours**
3.1. Annelida	
3.1.1.General characters	1
3.1.2. Classification of Annelida up to orders with examples	1
3.1.3.Type study-*Hirudinaria granulosa*	4
3.1.4. Evolutionary significance of coelom and coelomoducts and metamerism	1
3.2. Arthropoda	
3.2.1. General characters	1
3.2.2. Classification of Arthropoda up to orders with examples	1
3.2.3. Type study-Prawn	4
3.2.4. *Peripatus* structure and affinities, mouth parts of insects and crustacean larve	2
	15hrs

Name of the Teacher : A.Murali

Head of the Department Signature:

Teacher Signature:

NIZAM COLLEGE: DEPARTMENT OF ZOOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester II)

Class: B.Sc I year **Section:** Zoology

Course/Paper: II- Ecology Zoogeography and Animal Behavior

Unit –IV Animal Behavior **No. of Hours Allotted**: 15

Topics to be covered	**No. of Hours**
Types of Behaviors	1
Taxes, Reflexes	2
Tropism	1
Physiology and Phylogeny of learning	1
Instinct Behavior	1
Motivated Behavior	1
Classification of Taxes	1
Reflex Actions in Animals	2
Trial and Error Learning	1
Imprinting	1
Habituation	1
Classical conditioning (Ivan Pavlov)	1
Social Behavior, Communication, Pheromones	1
	15hrs

Name of the Teacher : A.Murali

Head of the Department Signature:

Teacher Signature:

NIZAM COLLEGE: DEPARTMENT OF ZOOLOGY

Lesson Plan for the academic year 2017- 2018 **(Semester III)**

Class: M.Sc. Final **Section:** Zoology
Course/Paper: IV-ZOO_ 304 (Sericulture)

UNIT: I – **Introduction** **No. of Hours Allotted:** 15 Hrs

Topics to be covered	No. of. Hours
Introduction - Sericulture as an agro industry	1
Mulberry cultivation - Varieties of Mulberry, Agroclimatic conditions for Moriculture, Agricultural practices - Tilling & systems of Planting, intercultivation. Mulching, Pruning, Manuring, Harvesting and Preservation of leaves	5
Diseases of Mulberry and their management – Bacterial diseases Viral diseases Fungal diseases	4
Mineral deficiency diseases and their management	2
Insect Pests of Mulberry and their management	3
Total	**15 Hours**

Name of the Teacher: Dr. VenkataRamanaiahSolanki
Assistant Professor ©

Signature:

Head, Department of Zoology:

Signature:

NIZAM COLLEGE: DEPARTMENT OF ZOOLOGY

Lesson Plan for the academic year 2017- 2018 **(Semester I)**

Class: M.Sc. Previous **Section:** Zoology
Course/Paper: II – ZOO_ 102: **Environmental and Conservation Biology [ECB]**

UNIT: I - UNIT I - Basic concepts of Ecology **No. of Hours Allotted:** 15 Hrs

Topics to be covered	No. of. Hours
Laws of limiting factor, Laws of minimum, Laws of Tolerance and Tragedy of commons	2
Micronutrients and macronutrients	2
Types of ecosystem – freshwater, marine and terrestrial	4
Population characteristics and dynamics – conceptual approach	4
Growth curves and pyramids; sigmoid curve, J curve and hyperbola; logistic equation and concepts relating to growth	3
Total	**15 Hours**

Name of the Teacher: Dr. VenkataRamanaiahSolanki
Assistant Professor ©

Signature:

Head, Department of Zoology:

Signature:

NIZAM COLLEGE: DEPARTMENT OF ZOOLOGY

Lesson Plan for the academic year 2017- 2018 **(Semester I)**

Class: M.Sc. Previuos **Section:** Zoology

Course/Paper: II – ZOO_ 102: **Environmental and Conservation Biology [ECB]**

UNIT - III: **Biogeography of India, Habitats and Resources** **No. of Hours Allotted:** 15 Hrs

Topics to be covered	No. of. Hours
Classical concepts of biogeography – continental drift, endemism, refugia	3
Biogeographical regions of India and their salient features	2
Classification, function and values of habitats – Freshwater wetlands, deserts, grasslandsand forests	4
Concepts of natural resources – renewable and non-renewable resources	3
Overexploitation of resources – deforestation, water table depletion and landdegradation	3
Total	**15 Hours**

Name of the Teacher: Dr. VenkataRamanaiahSolanki
Assistant Professor ©

Signature:

Head, Department of Zoology:

Signature:

NIZAM COLLEGE: DEPARTMENT OF ZOOLOGY

Lesson Plan for the academic year 2017- 2018 **(Semester I)**

Class: M.Sc. Previous **Section:** Zoology

Course/Paper: Zoo_104 Taxonomy, Systematics and Functional Anatomy of Invertebrates [TSFAI)

UNIT: IV – **Minor and Other Phyla** **No. of Hours Allotted:** 15 Hrs

Topics to be covered	No. of. Hours
UNIT IV - Systematic position, general organization and affinities of Ctenophora and Nemertea(Rhynchoceola)	3
Systematic position, general organization and affinities of Rotifera	3
Systematic position, general organization and affinities of Bryozoa (Ectoprocta)	3
Systematic position, general organization and affinities of Onychophora and Chaetognatha	3
Systematic position, general organization and affinities of Hemichordata	3
Total	**15 Hours**

Name of the Teacher: Dr. VenkataRamanaiahSolanki
Assistant Professor ©

Signature:

Head, Department of Zoology:

Signature:

NIZAM COLLEGE: DEPARTMENT OF ZOOLOGY

Lesson Plan for the academic year 2017- 2018 **(Semester II)**

Class: M.Sc. Final **Section:** Zoology

Course/Paper: IV –Zoo_402Fish biology

UNIT - I **Introduction and Diversity of Fishes** **No. of Hours Allotted:** 15 Hrs

Topics to be covered	No. of. Hours
Introduction, general characteristics evolutionary succession fossil history of fishes.	3
The early evolution of fishes Chondrichthian fishes - Sharks, Skates and Rays.	3
Characterization and classification of: Ostracoderms, placoderms, acanthodians, holocephali, elasmobranchs.	3
Characterization and classification of cyclostomes, sarcopterygii dipnoi, actinopterygii.	3
Integumentary system - basic structure of skin, dermal and epidermal pigments, fins, andscales.	3
Total	**15 Hours**

Name of the Teacher: Dr. VenkataRamanaiahSolanki

Assistant Professor ©

Signature:

Head, Department of Zoology:

Signature:

NIZAM COLLEGE: DEPARTMENT OF ZOOLOGY

Lesson Plan for the academic year 2017- 2018 **(Semester II)**

Class: M.Sc. Final **Section:** Zoology

Course/Paper: II –Zoo_402Fish Biology

UNIT - IV **Fish biology and Embryogenesis** **No. of Hours Allotted:** 15 Hrs

Topics to be covered	No. of. Hours
Nervous system- Central nervous system, brain and peripheral nervous system.	3
Sense organs – Olfactory, taste buds, touch receptors, photoreceptors, lateral line and internalear.	3
Endocrine system – Pituitary gland, urohypophysis, adrenal gland, gonads, and thyroid gland	3
Reproductive system- Male and female reproductive organs; role of hormones.	3
Embryogenesis - Early development and post embryonic development	3
Total	**15 Hours**

Name of the Teacher: Dr. VenkataRamanaiahSolanki
Assistant Professor

Signature:

Head, Department of Zoology:

Signature:

NIZAM COLLEGE: DEPARTMENT OF ZOOLOGY

Lesson Plan for the academic year 2017- 2018 **(Semester VI)**

Class: B.Sc. III Year **Section:** Zoology

Course/Paper: VII – **ANIMAL PHYSIOLOGY, GENETICS AND EVOLUTION**

UNIT - III: Genetics and Organic Evolution **No. of Hours Allotted:** 15 Hrs

Topics to be covered	No. of. Hours
Human karyotyping barr bodies , Lyon hypothesis and amniocentesis, chromosomal disorders-autosomal and sex chromosomes	5
Genetic basis of Evolution, Gene pool and gene frequencies, Hardy-Weinberg's Law, Force of destabilization, natural selection, genetic drift, Mutation, Isolation Migration.	8
Speciation - Allopatry sympatry	2
Total	**15 Hours**

ZOOLOGY

NIZAM COLLEGE : DEPARTMENT OF ZOOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester II)

Class :B.Sc **Section:** Zoology

Course/Paper: I Animal Diversity–Invertebrates

Unit: IAnimal Diversity–Invertebrates **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Brief historyof Invertebrates	1
Kingdom Animalia	2
Brief history of Invertebrates	1
Protozoa General characters	1
Classification uptoclasseswith examples	1
Type study -Elphidium	1
Life cycleof Plasmodium.	1
Locomotion, Reproductionand Diseases	2
PoriferaGeneral characters	1
PoriferaClassification of Poriferauptoclasseswith examples	1
Type study -Sycon	1
Sycon internal structure	1
Canal system in spongesand Spicules	1
	15hrs

Name of the Teacher: Dr. Apka. Nageswara Rao Head, Department of

ZoologySignature: Signature

NIZAM COLLEGE : DEPARTMENT OF ZOOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester II)

Class : M.Sc **Section:** Previous

Course/PaperII: Animal Physiology

Unit I: Digestion-Respiration-Circulation **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Digestion in ruminants-cellulose digestion	1
Digestion in non-ruminants	1
Absorption in mammals-small and large intestine	1
Events of post absorptive states and their regulation-endocrine and neural	2
Respiration-cascade of oxygen transport to tissues at high altitude	1
Adaptation to diving-respiratory and circulatory modifications	1
Responses to oxygen rich environment –oxygen toxicity	1
Responses to co2 rich environment -hypercapnea	1
Control of respiration	1
Buffering mechanisms by body fluids	1
Cardiac cycle	1
Principles of Hemodynamics	1
Blood coagulation mechanism-extrinsic and intrinsic pathways-	1
Hematoma formation –anticoagulants-types	**1**

Name of the Teacher: Dr.B.Jyothi Head, Department of Zoology

Signature: Signature:

NIZAM COLLEGE : DEPARTMENT OF ZOOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester II)

Class : M Sc **Section:** Previous

Course/Paper II: Animal Physiology

Unit IV: Endocrinology, Bioluminescence & Stress Physiology No. of Hours Allotted: 15

Topics to be covered	No. of Hours
Structure and Functions of Endocrine Glands of Invertebrates	2
Structure and Functions of Endocrine Glands of Vertebrates	7
Mechanism of action of Peptide Hormones	1
Mechanism of action of Steroid Hormones	1
Bioluminescent Organisms – Neural Control	1
Biochemistry and Significance of Bioluminescence	1
Stress – Resistance to Stress	1
Functions of Hormones and sympathetic nervous system in stress	1

Name of the Teacher: Dr B Jyothi Head, Department of Zoology

Signature: Signature:

NIZAM COLLEGE : DEPARTMENT OF ZOOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester III)

Class : M Sc **Section:** Final

Course/Paper III: Comparative Animal Physiology

Unit IV: Deranged Metabolism and Disorders **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Metabolic Disorders - Introduction	1
Beneficial and Harmful Effects of Colonic Bacteria	2
Lactose Intolerance	1
GERD	1
Liver Cirrhosis and its causative agents	2
Fatty Liver	1
COPD – Asthma and Sleep Apnea	2
Electrolyte Imbalances – Acidosis and Alkalosis	2
Dialysis	1
Heat Stroke	1
Thirst and its physiological mechanisms	1

Name of the Teacher: Dr B Jyothi Head, Department of Zoology

Signature: Signature:

NIZAM COLLEGE : DEPARTMENT OF ZOOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester IV)

Class : M Sc **Section:** Final

Course/Paper III: Comparative Animal Physiology

Unit III: **No. of Hours Allotted**: !5

Topics to be covered	No. of Hours
Major Types of Body Fluids and Fluid Compartments – ECF, ICF and Other Fluids	2
Classification of Circulatory Mechanisms – Open and Closed	1
Lymphatic System	1
Types of Vertebrate Hearts – Chambered, Tubular, Pulsating Vessels and Accessory ampullar Hearts	2
Heart Rate – Chemical and Nervous Control – Tachycardia and Bradycardia	2
Cardiac Output – factors affecting output	1
Invertebrate Hearts – Annelids and Scorpion	2
Insect and Crustacean Heart	2
Mollusca and Tunicate Heart	1
Regulation of Vertebrate Circulatory System	1

Name of the Teacher: Dr B Jyothi Head, Department of Zoology

Signature: Signature:

NIZAM COLLEGE : DEPARTMENT OF ZOOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester V)

Class : B Sc **Section:** Final

Course/Paper V: Animal Physiology

Unit II: Physiology of Circulation and Excretion **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Circulatory System - Introduction	1
Open and Closed type of Circulatory System	1
Structure of Mammalian Heart and its Working Mechanism	1
Heartbeat - Pacemakers	1
Cardiac Cycle	1
Myogenic and Neurogenic Heart	1
Regulation of Heart Rate – Tachycardia and Bradycardia	1
Excretion – Definition and Significance	1
Different Forms of Nitrogenous Waste Materials	1
Classification of Animals on the basis of Excreted Products	1
Formation of Ammonia and Uric Acid	1
Formation of Urea – Urea Cycle	1
Mammalian Excretory System – Structure and Function of Kidney and Nephron	2
Countercurrent Mechanism of Urine Formation	**1**

Name of the Teacher: Dr B Jyothi Head, Department of Zoology

Signature: Signature:

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LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester III)

Class : M Sc **Section:** Final

Course/Paper IV: Applied Toxicology

Unit III: Systemic Toxicology **No. of Hours Allotted**: 15

Topics to be covered	No. of Hours
Toxicology - Introduction	1
Basics of Organ Toxicity – Target Organs	1
Organ Selectivity and Specificity	2
Hepatotoxicity – Susceptibility of the Liver - Hepatotoxicants	2
Types of Liver injury and Biochemical Mechanisms	1
Pulmonary Toxicity – Lung Injury – systemic lung toxins	2
Lung Pathology	1
Renal Toxicity – Susceptibility of kidney to toxicants	1
Chemical induced renal injury	1
Neuro toxicity – Effect of toxic agents on neurons	1
Ion channel neurotoxins	1
Lesions of neural Tissue	1

Name of the Teacher: Dr B Jyothi Head, Department of Zoology

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LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester V)

Class : B.Sc.(III) **Section:**
Zoology

Course/Paper: Clinical science and pathology

Unit: III Immunology **No.of Hours Allotted**: 15

Topics to be covered	No. of Hours
Introduction - Immunology	1
Innate immunity	1
Acquired immunity	1
Antigens and antibodies	2
Immunoglobulins- Classification	1
Immunoglobulins - Significance	1
Complement system	1
Lymphatic system and lymphoid organs - Thymus and lymphnodes	1
T-Cells, B-Cells & macrophages	1
Humoral immune response	1
Cell mediated immune response	1
Types of hypersensitivity	1
Vaccines	1
Vaccines - vaccination and schedule	1

Name of the Teacher: Dr. D.PriyaKumari Head, Department of Zoology
Signature: Signature:

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LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester VI)

Class : B.Sc.(III)

Section: Zoology

Course/Paper: Vermiculture and Vermicompostiong

Unit: 1 **No.of Hours Allotted**: 15

Topics to be covered	No. of Hours
Introduction to Vermiculture	2
Introduction to Vermicomposting	2
Difference between Vermiculture and Vermicomposting	1
Scope of vermin technology	1
Earthworm Diversity	2
Ecological groups of earthworms	1
Biology of composting earthworms	1
Biology of Eoisenafoetida	1
Biology of Eudriluseugeniae	1
Nutritive value of vermin compost	1
Storing of vermin compost	1
Packing of vermin compost	1

Name of the Teacher: Dr. D.PriyaKumari

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Head, Department of Zoology

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LESSON PLAN FOR THE ACADEMIC YEAR 2018-2019 (Semester V)

Class : M.Sc.FYIC III **Section:** Zoology

Course/Paper: Applied Zoology

Unit: II & III - Aquaculture and Clinical Science **No.of Hours Allotted**: 21

Topics to be covered	No. of Hours
Aquaculture systems	3
Induced breeding	2
Shrimp and prawn culture	2
Preservation and processing - Freezing, solar drying and Canning	1
Preservation and processing - salting, smoking	1
Fish by-product - Cod liver oil	1
Immunity introduction	1
Innate immunity	2
Acquired immunity	2
Antigens - Haptens and epitopes their properties	2
Structure of immunoglobulins	2
Biological properties of IgG	2

Name of the Teacher: Dr. D PriyaKumari Head,
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LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester VI)

Class : M.Sc. FYIC III **Section:** Zoology

Course/Paper: VIII - Immunology, Human parasitology and Animal biotechnology

Unit: I - Immunolgy and human parasitology **No.of Hours Allotted**: 15

Topics to be covered	No. of Hours
Introduction to Hypersensitivity	1
Immediate Hypersensitivity	2
Delayed Hypersensitivity	2
Blood parasite - Plasmodium structure	1
Plasmodium clinical significance	1
Structure and clinical significance of Entamoeba	1
Structure and clinical significance of Giardia	1
Structure and clinical significance ofTaenia	1
Structure and clinical significance of Ancylostoma	1
Structure and clinical significance of Enterobius	1
Animal cell lines	1
Stem cell culture techniques	2

Name of the Teacher: Dr. D.PriyaKumari
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LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester III)

Class : M.Sc.(F) **Section:** Zoology

Course/Paper: Research Methodology

Unit:III: Use of inferential statistical tools in research **No.of Hours Allotted**: 15

Topics to be covered	No. of Hours
Use of different statistical estimations depending on the type of data,	2
Hypothesis testing, and test of significance.	2
Student's 't' test – applications and importance in research data	2
Application of Chi-square test for the experimental data	2
Use of ANOVA – One-way ANOVA for the research data analysis	1
Use of ANOVA – Two-way ANOVA for the research data analysis	2
Application of correlation analysis for the data.	2
Application of regression analysis for the data.	2

Name of the Teacher: Dr. D.PriyaKumari Head, Department of Zoology

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LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester I)

Class : M.Sc.(P) **Section:** Zoology

Course/Paper: Immunology

Unit:III Hypersensitivity reactions and autoimmune diseases No.of Hours Allotted: 15

Topics to be covered	No. of Hours
Hypersensitivity - Introduction	1
Hypersensitivity - classification, Type I reaction	3
Hypersensitivity - Type II reaction	2
Hypersensitivity - Type III reaction	1
Hypersensitivity - Type IV reaction	1
Organ specific autoimmune diseases - Grave's disease	2
Organ specific autoimmune diseases - Type -I Diabetes	1
Systemic autoimmune diseases - SLE	1
Systemic autoimmune diseases - RA	1
Genetic factors, pathogenesis and treatment of autoimmune diseases	2

Name of the Teacher: Dr. D.PriyaKumari
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LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester I)

Class : M.Sc.(P) **Section:** Zoology

Course/Paper: Immunology

Unit:IVTransplantation and Tumour Immunology**No.of Hours Allotted**: 15

Topics to be covered	No. of Hours
Transplantation – Introduction	2
Transplantation – Barriers to transplantation.	1
Genetic predisposition for graft rejection, prevention of rejection.	2
Immunity to infection – viruses, nature of interaction; immunopathological considerations	1
Immunity to infection– bacteria, fungi, parasites, nature of interaction; immunopathological considerations	1
Immunity to infection– fungi parasites, nature of interaction; immunopathological considerations	2
Immunity to infection– Parasites, nature of interaction; immunopathological considerations	1
Tumor immunology – Immunity to tumors, tumor specific antigens..	3
Immunosurveillance	1

Name of the Teacher: Dr. D.PriyaKumari
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Head, Department of Zoology
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LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester IV)

Class : M.Sc.(F) **Section:** Zoology

Course/Paper: Fish Biology

Unit: II - Fishes habits and habitats **No.of Hours Allotted**: 15

Topics to be covered	No. of Hours
Buoyancy in Fishes	1
Dynamic lift and static lift	1
Swim bladder structure and function	2
Locomotion - Myotomal muscles	1
Caudal fin oscillation mechanism	1
Feeding Mechanisms - Food habits and feeding	1
Fish as predator and prey	1
Food chains and food webs	2
Osmoregulation and ion balance - Fresh water, brakish water and marine telosts	1
Kidney and salt balance	1
Fish migration	1
Migratory mechanisms	1
Mating and parental care	1

Name of the Teacher: Dr. D.PriyaKumari
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LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester IV)

Class : M.Sc.(F) **Section:** Zoology

Course/Paper: P-I - Animal Biotechnology

Unit:I - Introduction and Animal improvement **No.of Hours Allotted**:15

Topics to be covered	No. of Hours
Introduction to biotechnology - Scope	1
Introduction to biotechnology - Importance and its applications	2
Mammalian reproductive systems	3
Gametogenesis	1
In vitro fertilization and ET	2
ICSI and sperm sexing	1
Cryopreservation and cryoprotection	1
Gamate banking	1
Biotechnology - Improvement of live stock herds	1
Biotechnology - Breeding of selected traits	2

Name of the Teacher: Dr. D.PriyaKumari Head, Department of Zoology

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LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester II)

Class : M.Sc.(P) **Section:** Zoology

Course/Paper:IV: Evolution and Functional Anatomy of Vertebrates [EFAV]

Unit:III – Functional Anatomy of Vertebrates – from fishes to mammals

No. of Hours Allotted: 15

Topics to be covered	No. of Hours
Integumentary system - Introduction	1
Integumentary system - Integument and its derivatives	1
Skeletal system ¬– Cranial and Post-Cranial - axial skeletal system	2
Skeletal system ¬– Cranial and Post-Cranial - appendicular skeletal system	2
Nervous system – Brain, spinal cord	1
Nervous system – Peripheral nerves; sense organs	2
Respiratory system	1
Circulatory system	1
Digestive system	1
Excretory system	1
Reproductive system – comparison of male reproductive systems from fishes to mammals	1
Reproductive system – comparison of female reproductive systems from fishes to mammals	1

Name of the Teacher: Dr. D.PriyaKumari Head, Department of Zoology

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LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester II)

Class : B.Sc. I year **Section:** Zoology

Course/Paper: II (Ecology, Zoogeography and Animal behavior)

Unit: I **No.of Hours Allotted**: 15

Topics to be covered	No. of Hours
Introduction of Ecology	1
Types of ecosystem Aquatic and Terrestrial	2
Biogeochemical cycles Introduction	1
Nitrogen cycle	1
Carbon cycle	1
Phosphorous and water cycles	1
Energy flow in Ecosystem	1
Food chain	1
Ecological pyramids	1
Animal association Introduction	1
Mutualism, Parasitism	1
Competition and predation	1

Name of the Teacher: Dr. G. Shailaja
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Head, Department of Zoology
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LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester IV)

Class: B.Sc. II year **Section:** Zoology

Course/Paper: IV

Unit: III. **No.of Hours Allotted**: 18

Topics to be covered	No. of Hours
Introduction of Biogeochemical cycles	2
Gaseous cycles - Nitrogen and Carbon cycle	2
Sedimentary cycle - Phosphorus cycle	2
Definition of community and introduction	1
Habitat and ecological niche	1
Community interactions - Competition and predation	2
Community interactions - Mutualism	2
Community interactions - Commensalism	1
Community interactions - Parasitism	2
Ecological succession - Primary & secondary seral changes	2
Climax community with examples	1

Name of the Teacher: Dr. G. Shailaja
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LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester III)

Class : B.Sc (II) **Section:** Zoology

Course/Paper: III - Biology of Chordates

Unit: III **No.of Hours Allotted**: 15

Topics to be covered	No. of Hours
General Characters of class Reptilia	1
Classification of Reptiles upto order level	2
Type study - Calotes Morphology of Calotes	1
Digestive system to Calotes	1
Respiratory system of Calotes	1
Circulatory system of Calotes	3
Nervous system of Calotes	1
Urinogenital system of Calotes	2
General characters of Aves	1
Classification of Aves upto order level	2

Name of the Teacher: Dr. G. Shailaja
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LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester I)

Class : M.Sc.(P) **Section:** Zoology

Course/Paper: Structural Biology

Unit:I **No.of Hours Allotted**: 15

Topics to be covered	No. of Hours
Biomolecules and their significance - Introduction, Carbhohydrates	2
Biomolecules and their significance - Proteins and Amino acids	1
Biomolecules and their significance - Lipids and Nucleic acids	1
Chemistry and structure of Carbhohydrates - Mono, oligo and polysaccharides	1
Chemistry and structure of Carbhohydrates - Deoxy sugars, amino sugars and glycosides	1
Classification and structure of proteins -Primary & Secondary	2
Classification and structure of proteins - Tertiary and quartarnary	1
Classification and structure of proteins -Fatty acids, triglycerides	1
Classification and structure of proteins - Phspholipds, cerebrosides and steroids	1
Structure of DNA and DNA polymorphism	2
Structure of RNA, types of RNA	2

Name of the Teacher: Dr. G. Shailaja
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Head, Department of Zoology
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NIZAM COLLEGE : DEPARTMENT OF ZOOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester I)

Class : M.Sc.(P) **Section:** Zoology

Course/Paper: Structural Biology

Unit:II - Enzymes and metabolism **No.of Hours Allotted**: 15

Topics to be covered	No. of Hours
Classification nomenclature and properties of enzymes - Catalysis and energy of activation	1
Classification nomenclature and properties of enzymes - Enzyme kinetics	2
Classification nomenclature and properties of enzymes - Michaelif Menten constant	1
Classification nomenclature and properties of enzymes - Km value and LB plot	1
Classification nomenclature and properties of enzymes - mechanism of enzyme action and regulation of enzyme activity	1
Metabolism of carbhohydrates-glycolysis	1
Metabolism of carbhohydrates - TCA Cycle, Gluconeogenesis	1
Metabolism of carbhohydrates- Biological Oxidation, role of respiratory chain in energy capture.	2
Metabolism of carbhohydrates- ATP synthesis	1
Catabolism of amino acids - Transamination, deamination and Dcarboxilation	1
Oxidation and biosynthesis of fatty acids	1
Metabolic disorders of different biomolecules- Carbohydrates	1
Metabolic disorders of different biomolecules- Proteins, Lipids	1

Name of the Teacher: Dr. G. Shailaja
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LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester-I)

Class :M.Sc.(P) **Section:** Zoology

Course/Paper: III (Immunology)

Unit: II (Antigen-Antibody Nature and Complement System)
No.of Hours Allotted: 15

Topics to be covered	No. of Hours
Antigens nature, epitope, haptens, antigen presenting cells, adjuvants and antigenicity	2
Immunoglobulins - Structure	1
Function and classification of antibodies	2
Monoclonal antibodies and its applications	1
Antigen and antibody reaction	1
Immunological techniques	2
Complement system - Components of complement system	1
Complement system -Pathways	1
Biological consequences of complement activation and significance	1
Major histocompatibility complex - Structure and function, restriction	2
Genetic control of immune responses	1

Name of the Teacher: Dr. G. Shailaja
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LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester-II)

Class : M.Sc. **Section:** Zoology

Course/Paper: II (Animal Physiology)

Unit:II **No.of Hours Allotted**: 15

Topics to be covered	No. of Hours
Osmoregulation -Introduction	1
Osmoregulatory problems in aquatic and terrestrial animals	3
Hormonal control of Osmoregulation	1
Excretion- Urine formation	1
Counter current effect mechanism	2
Hormonal control	1
Detoxification of nitrogen products	2
Temperature regulation in poikilotherms, Homeotherms and Heterotherms	2
Mechanism of survival (hibernation and aestivation)	1
Cold death and Heat death	1

Name of the Teacher: Dr. G. Shailaja
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LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester-II)

Class : M.Sc.(P) **Section:** Zoology

Course/Paper: III - Molecular Genetics and Developmental biology

Unit:I Introduction to Genetics **No.of Hours Allotted**: 15

Topics to be covered	No. of Hours
Mendalism and mendilian inheritance	1
Modifications of medilian inheritance	2
Linkage studies	1
Crossing over	1
Extra chromosomal inheritance	1
Multiple alleles and blood group antigens	1
Chromosome structure and identification	1
Chromosome structure - Karyotype	1
Genetic disorders - Chromosomal disorders	1
Genetic disorders - Inborn errors of metabolism	2
Genetic disorders - Polygenic and environmental disorders	1
Bacterial genetics -Transformation, transduction and conjugation	2
Bacterial genetics - Viral lytic and lysogenic cycle	1

Name of the Teacher: Dr. G. Shailaja
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Head, Department of Zoology
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LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester I)

Class : M. Sc Previous **Section:** Zoology

Course/Paper: IV - (Taxonomy, Systematics and Functional Anatomy of Invertebrates)

Unit: III - Annelidato Echinodermata **No. of Hours Allotted** : 15

Topics to be covered	No. of Hours
General characteristics, broad classification of phylum Annelida	1
filter feeding in polychaetes; respiration and excretion in annelids	2
General characteristics, broad classification of phylum Mollusca	1
Types of shell in different molluscan classes, respiration and excretion in molluscs	2
General characteristics, broad classification of phylum Arthropoda	1
social life in insects, respiration and excretion in arthropods	2
General characteristics, broad classification of phylum Echinodermata	1
Endoskeleton and water vascular system; autotomy and regeneration	2
Overview of reproduction	1
Development and phylogenetic significance of the larval forms of Annelida, Mollusca, Arthropoda and Echinodermata	2
TOTAL	**15hrs**

Name of the Teacher: Dr. V. Srinivasa Rao Head, Department of Zoology

Signature: Signature:

NIZAM COLLEGE : DEPARTMENT OF ZOOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester III)

Class : M. Sc Final **Section:** Zoology

Course/Paper: III - (Medical Entomology - I)

Unit: III - Annelidato Echinodermata **No. of Hours Allotted** : 15

Topics to be covered	No. of Hours
Bacterial diseases - Plague	1
Rickettsiasis, Bartonellosis	2
Viral disease – Dengue,	1
Japanese Encephalitis, Chikungunya, Zika.	2
Protozoan diseases – Leishmaniasis	1
Malaria, Trypanosomiasis	2
Helminthic diseases – Filariasis	1
Wuchereria, Brugia, Loa	2
Direct injury, Annoyance,	1
Allergies, toxins, myasis and venomous arthropods	2
TOTAL	**15hrs**

Name of the Teacher: Dr. V. Srinivasa Rao Head, Department of Zoology

Signature: Signature:

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LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester I)

Class : B.Sc, I Semister **Section:** Zoology

Course/Paper: I - (**Animal Diversity – Invertebrates**)

Unit: III – Mollusca**, Echinodermata,** Hemichordata **No. of Hours Allotted** : 15

Topics to be covered	No. of Hours
General characters, Classification of Mollusca up to classes with examples	1
Type study - *Pila*	5
Pearl formation, Torsion and detorsion in gastropods	2
General characters Classification of Echinodermata up to classes with examples	2
Water vascular system in star fish	1
Echinoderm larvae and their significance	1
General characters Classification of Hemichordata up to classes with examples	1
Balanoglossus - Structure and affinities	2
TOTAL	**15hrs**

Name of the Teacher: Dr. V. Srinivasa Rao Head, Department of Zoology

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LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester III)

Class : B.Sc, III Semester **Section:** Zoology

Course/Paper: **III - (BIOLOGY OF CHORDATES)**

Unit: III Avesand Mammals **No. of Hours Allotted** : 15

Topics to be covered	No. of Hours
Type study – Pigeon(*Columbia livia*): Exoskeleton, respiratory system, circulatory system and excretory system.	6
Significance of migration of birds	2
Flight adaptation in birds	2
General characters and classification of Mammalia up to order level with examples	3
Dentition in Mammals	2
TOTAL	**15hrs**

Name of the Teacher: Dr. V. Srinivasa Rao Head, Department of Zoology

Signature: Signature:

NIZAM COLLEGE : DEPARTMENT OF ZOOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester II)

Class : M. Sc Previous **Section:** Zoology

Course/Paper: IV - (Evolution and Functional Anatomy of Vertebrates)

Unit: II - – Evolutionof Vertebrates **No. of Hours Allotted** : 15

Topics to be covered	No. of Hours
Origin and salient features of Ostracoderm, Placoderm,	1
Acanthodii, ,Sarcopterygii and Actinopterygii	2
Origin, salient features and adaptive radiation in amphibians	1
Lepospondyli and Lissamphibia	2
Origin, salient features and adaptive radiation in early reptiles	1
Mesozoic reptiles	2
Origin, salient features and adaptive radiation in birds	1
Palaeognathae and Neognathae	2
Origin, salient features and adaptive radiation in mammals	1
Prototheria and Theriiformes	2
TOTAL	**15hrs**

Name of the Teacher: Dr. V. Srinivasa Rao Head, Department of Zoology

Signature: Signature:

NIZAM COLLEGE : DEPARTMENT OF ZOOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester IV)

Class : M. Sc Final **Section:** Zoology

Course/Paper: III (Medical Entomology - II)

Unit: IV - Chemical Control **No. of Hours Allotted** : 15

Topics to be covered	No. of Hours
Classification of Insecticides	1
mode of action; Antiquity of insecticides	2
Synthetic insecticides: Organochlorides, Organophosphates.	2
Carbamates, Pyrithroids	2
Toxicity of pesticides, Insecticide appliances.	2
safety precautions	1
Repellents & attractants	2
DEET, Semiochemicals	1
Methods of insecticide applications, and	1
development of a Module for Integrated Vector Management	1
TOTAL	**15hrs**

Name of the Teacher: Dr. V. Srinivasa Rao Head, Department of Zoology

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LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester II)

Class : B.Sc, II Semister **Section:** Zoology

Course/Paper: II - (**Ecology, Zoogeography and Animal Behavior**)

Unit: III– Zoogeography **No. of Hours Allotted** : 15

Topics to be covered	No. of Hours
Zoogeographical regions – Palaearctic, Nearctic, Neotropical, Oriental, Australian and Ethiopian regions - their Climatic and faunal peculiarities	8
Wallace line, Discontinuous distribution	4
Continental Drift	3
TOTAL	**15hrs**

Name of the Teacher: Dr. V. Srinivasa Rao Head, Department of Zoology

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LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester IV)

Class : B.Sc, IV Semester **Section:** Zoology

Course/Paper: **III - (EMBRYOLOGY, ECOLOGY AND ZOOGEOGRAPHY)**

Unit: IV : Zoogeography & Wildlife **No. of Hours Allotted** : 15

Topics to be covered	No. of Hours
Zoogeographical realms and their characteristic fauna	4
Wild life importance, National parks.	3
wild life sanctuaries, endangered species	3
Conservation strategies, project tiger,	3
biodiversity	2
TOTAL	**15hrs**

Name of the Teacher: Dr. V. Srinivasa Rao Head, Department of Zoology

Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF ZOOLOGY

Lesson Plan for the academic year 2017- 2018 **(Semester III)**

Class: M.Sc. Final **Section:** Zoology

Course/Paper: IV-ZOO_ 304 (Sericulture)

UNIT: III – **Silkworm rearing** **No. of Hours Allotted:** 15 Hrs

Topics to be covered	No. of. Hours
Rearing House and rearing appliances	2
Environmental conditions for silkworm rearing	1
Rearing of early stages (Chawki rearing) and late stages of silk worms	3
Mounting and harvesting of silkworm cocoons	3
Silkworm diseases	3
Silkworm pests	3
Total	**15 Hours**

Name of the Teacher: Dr. VasudhaLingampally
Assistant Professor ©

Signature:

Head, Department of Zoology:

Signature:

NIZAM COLLEGE: DEPARTMENT OF ZOOLOGY

Lesson Plan for the academic year 2017- 2018 **(Semester III)**

Class: M.Sc. Final **Section:** Zoology

Course/Paper: IV-ZOO_ 304 (Sericulture)

UNIT: IV – **Harvesting technology** **No. of Hours Allotted:** 15 Hrs

Topics to be covered	**No. of. Hours**
Transport of cocoons to the cocoon markets.	1
Commercial characters of cocoons, defective cocoons and price fixation	3
Reeling technology – mulberry and vanya silk rearing	4
Seed technology – Grainage, DFLs	4
By-products- types and uses	3
Total	**15 Hours**

Name of the Teacher: Dr. VasudhaLingampally

Assistant Professor ©

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Head, Department of Zoology:

Signature:

NIZAM COLLEGE: DEPARTMENT OF ZOOLOGY

Lesson Plan for the academic year 2017- 2018 **(Semester I)**

Class: M.Sc.Previous **Section:** Zoology

Course/Paper: II – ZOO_102: **Environmental and Conservation Biology [ECB]**

UNIT: II – Community Organization and Structure **No. of Hours Allotted:** 15 Hrs

Topics to be covered	No. of. Hours
Community analysis, species diversity, ecotone concept and edge effect; interaction between environment and biota Habitat and ecological niche and niche overlap; concept of biome	4
Concepts of productivity; eutrophication of lakes; biological indicator and water quality	3
Ecosystem dynamics and management; stability and complexity of ecosystem	3
Biogeochemical cycles; inorganic pollutants and their impact SO_2, NO_2, CO, Phosphates,heavy metals (Arsenic, Lead and Mercury); radioactive nucleotides and their impact on biological system	3
Acid rain sources and its impact on biological system; greenhouse effect and ozone depletion	2
Total	**15 Hours**

Name of the Teacher: Dr. VasudhaLingampally

Assistant Professor ©

Signature:

Head, Department of Zoology:

Signature:

NIZAM COLLEGE: DEPARTMENT OF ZOOLOGY

Lesson Plan for the academic year 2017- 2018 **(Semester V)**

Class: B.Sc.III Year **Section:** Zoology

Course/Paper: VI – Elective -I **CLINICAL SCIENCE AND PATHOLOGY**

UNIT - I: **HEAMOTOLOGY** **No. of Hours Allotted:** 15 Hrs

Topics to be covered	No. of. Hours
introduction to Heamotology	1
structure, composition and functions of blood	2
origin of blood cells(RBC,WBC,PLATELETS)	3
blood coagulation and theories of blood coagulation and anticoagulants	2
blood groups and Rh factor	2
blood transfusion and blood banking	2
Blood associated disorders- Anemia, leucopenia, leucocytosis, Leukemia and Haemophilia.	3
Total	**15 Hours**

Name of the Teacher: Dr. VasudhaLingampally
Assistant Professor ©

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Head, Department of Zoology:
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NIZAM COLLEGE: DEPARTMENT OF ZOOLOGY

Lesson Plan for the academic year 2017- 2018 **(Semester II)**

Class: M.Sc.Previous **Section:** Zoology

Course/Paper: IV –Zoo_204 Evolution and Functional Anatomy of Vertebrates

UNIT –I Evolution **No. of Hours Allotted:** 15 Hrs

Topics to be covered	No. of. Hours
Concept of evolution and theories of evolution	2
Variation, gene mutation and chromosomal aberrations in evolution; genetic drift	3
Speciation – species concepts, categories; Modes of speciation – Allopatric, parapatricand sympatric speciation	4
Natural selection; patterns of evolution – sequential, divergent, convergent, gradual,punctuated, monophyletic, polyphyletic and paraphyletic	4
Origin and evolution of primates and human	2
Total	**15 Hours**

Name of the Teacher: Dr. VasudhaLingampally
Assistant Professor ©

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Head, Department of Zoology:

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NIZAM COLLEGE: DEPARTMENT OF ZOOLOGY

Lesson Plan for the academic year 2017- 2018 **(Semester II)**

Class: M.Sc. Previous **Section:** Zoology

Course/Paper: IV –Zoo_204 Evolution and Functional Anatomy of Vertebrates

UNIT – IV Functional Anatomy of Vertebrates – Evolutionary significance

No. of Hours Allotted: 15 Hrs

Topics to be covered	No. of. Hours
Evolutionary significance of internal fertilization, neoteny and paedogenesis	3
Amniotic egg ¬– structure and its evolutionary significance	1
Basic plan of skull; Temporal fossae and their evolutionary significance; Vertebrate Jaw suspension	3
Types and evolutionary significance of axial and appendicular joints	4
Types and evolutionary significance of placenta; evolutionary significance of opposable thumb and bipedalism in primates (both non-human and human	4
Total	**15 Hours**

Name of the Teacher: Dr. VasudhaLingampally
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Head, Department of Zoology:

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NIZAM COLLEGE: DEPARTMENT OF ZOOLOGY

Lesson Plan for the academic year 2017- 2018 **(Semester VI)**

Class: B.Sc. III Year **Section:** Zoology
Course/Paper: VII – **ANIMAL PHYSIOLOGY, GENETICS AND EVOLUTION**

UNIT - II: **Genetics** **No. of Hours Allotted:** 15 Hrs

Topics to be covered	No. of. Hours
Mendel's laws – Laws of segregation and Independent assortment Genetic interactions – Incomplete dominance codominance epistasis.	4
Identification of DNA as the genetic material – Griffith's experiment Hershey – Chase experiment.	2
Central dogma of molecular biology – Brief account of DNA replication (Semi-conservative method) Replication fork (Continuous and discontinuous synthesis); Transcription – Brief account of initiation,elongation and termination in eukaryotes Translation Genetic code Gene regulation as exemplified by Lac Operon.	9
Total	**15 Hours**

Name of the Teacher: Dr. VasudhaLingampally
Assistant Professor ©

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NIZAM COLLEGE: DEPARTMENT OF ZOOLOGY

Lesson Plan for the academic year 2017- 2018 **(Semester III)**

Class: M.Sc. Final **Section:** Zoology

Course/Paper: IV-ZOO_ 301 (Systems Biology)

UNIT: I – – Introduction to Systems Biology **No. of Hours Allotted:** 15 Hrs

Topics to be covered	No. of. Hours
History, concept, prospects and applications of systems biology. .	3
Molecules to Organisms – Biomolecules, cell, tissue, organ and organisms.	3
Basic concepts of systems approach to biology.	3
Basic concepts of models and modeling, model behavior, classification.	3
Basic concepts of networks; types of networks	3
Total	**15 Hours**

Name of the Teacher: Dr. C.Sanat Kumar

Assistant Professor ©

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Head, Department of Zoology:

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NIZAM COLLEGE: DEPARTMENT OF ZOOLOGY

Lesson Plan for the academic year 2017- 2018 **(Semester I)**

Class: M.Sc. Previous **Section:** Zoology

Course/Paper: I – ZOO_ 101: **structural Biology [SB]**

UNIT: I V- Functional Biology of Nucleic Acids **No. of Hours Allotted:** 15 Hrs

Topics to be covered	No. of. Hours
DNA replication – semi conservative, enzymology of DNA replication, replication of circular DNA, initiation, elongation and termination of replication process. Proof reading function of DNA polymerases.	4
Enzymatic synthesis of RNA.	2
Protein synthesis – Events of protein synthesis; transcription in prokaryotes and eukaryotes; post transcriptional processing.	4
Regulation of genetic code – Wobble's concept, translation in prokaryotes and eukaryotes.	3
DNA repair mechanism – High fidelity of DNA sequence – Repair of damage caused by UV light, Eukaryotes repair systems	2
Total	**15 Hours**

Name of the Teacher: Dr. Dr. C.Sanat Kumar
Assistant Professor ©

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NIZAM COLLEGE: DEPARTMENT OF ZOOLOGY

Lesson Plan for the academic year 2017- 2018 **(Semester I)**

Class: M.Sc. Previuos **Section:** Zoology

Course/Paper: III – ZOO_ 103: **Immunology** **[IM]**

UNIT - I: **Introduction to Immune System** **No. of Hours Allotted:** 15 Hrs

Topics to be covered	No. of. Hours
Phylogeny of Immune system –invertebrates and vertebrates	2
Immune system – Innate and adaptive immunity , humoral mediated immunity and cellmediated immunity	3
Cells involved in immune system; role of macrophages in immunity	2
The Lymphoid tissues – primary and secondary lymphoid organs, lymphatic traffic	4
Activation of B– and T– Cells; production of effectors – antibodies and cytokines	4
Total	**15 Hours**

Name of the Teacher: Dr. C.Sanat Kumar

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NIZAM COLLEGE: DEPARTMENT OF ZOOLOGY

Lesson Plan for the academic year 2017- 2018 **(Semester V)**

Class: B.Sc. III Year **Section:** Zoology

Course/Paper: VI Clinical science and pathology

UNIT: II – **Techniques** **No. of Hours Allotted:** 15 Hrs

Topics to be covered	No. of. Hours
2.1. Microscopy- light, phase contrast and Electron microscopy	3
2.2. Microtomy- Fixation, section cutting and staining procedures	3
2.3. Biopsy and Autopsy of normal and affected tissues.	3
2.4. Histopathological manifestation in tissues.	1
2.5. Principles of sterilization, autoclave, microbial plating and antibiotic sensitivity tests.	2
2.6. Immunological techniques- Agglutination, precipitation, complement fixation test and ELISA	3
Total	**15 Hours**

Name of the Teacher: Dr. C.Sanat Kumar

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NIZAM COLLEGE: DEPARTMENT OF ZOOLOGY

Lesson Plan for the academic year 2017- 2018 **(Semester VI)**

Class: B.Sc. III Year **Section:** Zoology

Course/Paper: VIII Vermiculture and Vermicomposting

UNIT: II – **No. of Hours Allotted:** 15 Hrs

Topics to be covered	No. of. Hours
Soil- physical, chemical and biological features	5
Organic waste sources- problems in traditional xcomposting, vermicomposting	5
Types of small and large scale pit method, heap method.	5
Total	15 Hours

Name of the Teacher: Dr. C.Sanat Kumar

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NIZAM COLLEGE: DEPARTMENT OF ZOOLOGY

Lesson Plan for the academic year 2017- 2018 **(Semester II)**

Class: M.Sc. Previous **Section:** Zoology

Course/Paper: I –Zoo_201Tools, Techniques and Biostatistics [TTB]

UNIT II - Separation and Diagnostic Techniques **No. of Hours Allotted:** 15 Hrs

Topics to be covered	No. of. Hours
Spectroscopic techniques – principles and applications of visible, UV, fluorescence, IR,ESR, NMR and mass spectroscopy	3
Radioisotope techniques – principles and application of Geiger-Muller counter,scintillation counter, tracer studies, autoradiography	3
Electrophysiological techniques – principles and applications of single neuron recording,patch clamp recording.	3
Imaging techniques - ECG, PET, MRI, fMRI and CAT	3
Microarray techniques – principles and applications of DNA, RNA and Protein microarray Techniques	3
Total	**15 Hours**

Name of the Teacher: Dr. C.Sanat Kumar

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NIZAM COLLEGE: DEPARTMENT OF ZOOLOGY

Lesson Plan for the academic year 2017- 2018 **(Semester II)**

Class: M.Sc. Previous **Section:** Zoology

Course/Paper: III –Zoo_203 Molecular Genetics and Developmental Biology[MGDB]

UNIT II – Molecular Genetics **No. of Hours Allotted:** 15 Hrs

Topics to be covered	No. of. Hours
Introduction of DNA technology – Restriction endonucleases, methods of ligation – DNA ligases, ligation of fragment with cohesive and blunt ends.	3
Features of vectors – cosmids, plasmids and shuttle vector with one example representing each class construction and characterization of new cloning vectors	3
Applied molecular biology – DNA sequences – Maxam and Gilbert methods, Sanger's method. Application of recombinant DNA technology with reference to the example of insulin, somatostatin, and interferon. DNA fingerprinting and its application	3
Cloning strategies – Shotgun cloning, construction of gene libraries, genomic library and DNA library	3
Hybridization techniques – Southern blot, Northern blot, R-loop mapping methods, Insitu hybridization	3
Total	**15 Hours**

Name of the Teacher: Dr. C.Sanat Kumar
Assistant Professor ©

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Head, Department of Zoology:

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NIZAM COLLEGE: DEPARTMENT OF ZOOLOGY

Lesson Plan for the academic year 2017- 2018 **(Semester IV)**

Class: M.Sc. Final **Section:** Zoology

Course/Paper: Paper - I: Animal Biotechnology

UNIT II - In vitro culture of cells and tissues **No. of Hours Allotted:** 15 Hrs

Topics to be covered	No. of. Hours
Cell culture - Equipment and materials for cell culture technology, principle of sterile techniques and cell propagation, primary and established cell line cultures.	3
Mammalian cell lines & their characteristics.	3
Basic techniques of mammalian cell culture in vitro, disaggregating of tissue and primary culture, maintenance of cell culture, cell separation.	3
Tissue culture system – cell tissue fragment, organ and embryo cultures, merits and demerits.	3
Scaling-up of animal cell culture, cell synchronization, cell cloning, micromanipulation, cell transformation	3
Total	**15 Hours**

Name of the Teacher: Dr. C.Sanat Kumar
Assistant Professor ©

Signature:
Head, Department of Zoology:

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NIZAM COLLEGE: DEPARTMENT OF ZOOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021(Semester I)

Class :B.Sc I year **Section:** Zoology

Course/Paper: I Animal Diversity–Invertebrates

Unit: III, Phylum –Annelida and Arthropoda No. of Hours Allotted: 15

Topics to be covered	**No. of Hours**
3.1. Annelida	
3.1.1.General characters	1
3.1.2. Classification of Annelida up to orders with examples	1
3.1.3.Type study-*Hirudinaria granulosa*	4
3.1.4. Evolutionary significance of coelom and coelomoducts and metamerism	1
3.2. Arthropoda	
3.2.1. General characters	1
3.2.2. Classification of Arthropoda up to orders with examples	1
3.2.3. Type study-Prawn	4
3.2.4. *Peripatus* structure and affinities, mouth parts of insects and crustacean larve	2
	15hrs

Name of the Teacher : A.Murali

Head of the Department Signature:

Teacher Signature:

NIZAM COLLEGE: DEPARTMENT OF ZOOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester II)

Class: B.Sc I year **Section:** Zoology

Course/Paper: II- Ecology Zoogeography and Animal Behavior

Unit –IV Animal Behavior **No. of Hours Allotted**: 15

Topics to be covered	**No. of Hours**
Types of Behaviors	1
Taxes, Reflexes	2
Tropism	1
Physiology and Phylogeny of learning	1
Instinct Behavior	1
Motivated Behavior	1
Classification of Taxes	1
Reflex Actions in Animals	2
Trial and Error Learning	1
Imprinting	1
Habituation	1
Classical conditioning (Ivan Pavlov)	1
Social Behavior, Communication, Pheromones	1
	15hrs

Name of the Teacher : A.Murali

Head of the Department Signature:

Teacher Signature:

NIZAM COLLEGE: DEPARTMENT OF ZOOLOGY

Lesson Plan for the academic year 2017- 2018 **(Semester III)**

Class: M.Sc. Final **Section:** Zoology

Course/Paper: IV-ZOO_ 304 (Sericulture)

UNIT: I – **Introduction** **No. of Hours Allotted:** 15 Hrs

Topics to be covered	No. of. Hours
Introduction - Sericulture as an agro industry	1
Mulberry cultivation - Varieties of Mulberry, Agroclimatic conditions for Moriculture, Agricultural practices - Tilling & systems of Planting, intercultivation. Mulching, Pruning, Manuring, Harvesting and Preservation of leaves	5
Diseases of Mulberry and their management – Bacterial diseases Viral diseases Fungal diseases	4
Mineral deficiency diseases and their management	2
Insect Pests of Mulberry and their management	3
Total	**15 Hours**

Name of the Teacher: Dr. VenkataRamanaiahSolanki
Assistant Professor ©

Signature:

Head, Department of Zoology:

Signature:

NIZAM COLLEGE: DEPARTMENT OF ZOOLOGY

Lesson Plan for the academic year 2017- 2018 **(Semester I)**

Class: M.Sc. Previous **Section:** Zoology

Course/Paper: II – ZOO_ 102: **Environmental and Conservation Biology [ECB]**

UNIT: I - UNIT I - Basic concepts of Ecology **No. of Hours Allotted:** 15 Hrs

Topics to be covered	No. of. Hours
Laws of limiting factor, Laws of minimum, Laws of Tolerance and Tragedy of commons	2
Micronutrients and macronutrients	2
Types of ecosystem – freshwater, marine and terrestrial	4
Population characteristics and dynamics – conceptual approach	4
Growth curves and pyramids; sigmoid curve, J curve and hyperbola; logistic equation and concepts relating to growth	3
Total	**15 Hours**

Name of the Teacher: Dr. VenkataRamanaiahSolanki
Assistant Professor ©

Signature:

Head, Department of Zoology:

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NIZAM COLLEGE: DEPARTMENT OF ZOOLOGY

Lesson Plan for the academic year 2017- 2018 **(Semester I)**

Class: M.Sc. Previuos **Section:** Zoology

Course/Paper: II – ZOO_ 102: **Environmental and Conservation Biology [ECB]**

UNIT - III: **Biogeography of India, Habitats and Resources** **No. of Hours Allotted:** 15 Hrs

Topics to be covered	No. of. Hours
Classical concepts of biogeography – continental drift, endemism, refugia	3
Biogeographical regions of India and their salient features	2
Classification, function and values of habitats – Freshwater wetlands, deserts, grasslandsand forests	4
Concepts of natural resources – renewable and non-renewable resources	3
Overexploitation of resources – deforestation, water table depletion and landdegradation	3
Total	**15 Hours**

Name of the Teacher: Dr. VenkataRamanaiahSolanki
Assistant Professor ©

Signature:

Head, Department of Zoology:

Signature:

NIZAM COLLEGE: DEPARTMENT OF ZOOLOGY

Lesson Plan for the academic year 2017- 2018 **(Semester I)**

Class: M.Sc. Previous **Section:** Zoology

Course/Paper: Zoo_104 Taxonomy, Systematics and Functional Anatomy of Invertebrates [TSFAI)

UNIT: IV – **Minor and Other Phyla** **No. of Hours Allotted:** 15 Hrs

Topics to be covered	No. of. Hours
UNIT IV - Systematic position, general organization and affinities of Ctenophora and Nemertea(Rhynchoceola)	3
Systematic position, general organization and affinities of Rotifera	3
Systematic position, general organization and affinities of Bryozoa (Ectoprocta)	3
Systematic position, general organization and affinities of Onychophora and Chaetognatha	3
Systematic position, general organization and affinities of Hemichordata	3
Total	**15 Hours**

Name of the Teacher: Dr. VenkataRamanaiahSolanki
Assistant Professor ©

Signature:

Head, Department of Zoology:

Signature:

NIZAM COLLEGE: DEPARTMENT OF ZOOLOGY

Lesson Plan for the academic year 2017- 2018 **(Semester II)**

Class: M.Sc. Final **Section:** Zoology

Course/Paper: IV –Zoo_402Fish biology

UNIT - I **Introduction and Diversity of Fishes** **No. of Hours Allotted:** 15 Hrs

Topics to be covered	No. of. Hours
Introduction, general characteristics evolutionary succession fossil history of fishes.	3
The early evolution of fishes Chondrichthian fishes - Sharks, Skates and Rays.	3
Characterization and classification of: Ostracoderms, placoderms, acanthodians, holocephali, elasmobranchs.	3
Characterization and classification of cyclostomes, sarcopterygii dipnoi, actinopterygii.	3
Integumentary system - basic structure of skin, dermal and epidermal pigments, fins, andscales.	3
Total	**15 Hours**

Name of the Teacher: Dr. VenkataRamanaiahSolanki
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Signature:
Head, Department of Zoology:

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NIZAM COLLEGE: DEPARTMENT OF ZOOLOGY

Lesson Plan for the academic year 2017- 2018 **(Semester II)**

Class: M.Sc. Final **Section:** Zoology

Course/Paper: II –Zoo_402Fish Biology

UNIT - IV **Fish biology and Embryogenesis** **No. of Hours Allotted:** 15 Hrs

Topics to be covered	No. of. Hours
Nervous system- Central nervous system, brain and peripheral nervous system.	3
Sense organs – Olfactory, taste buds, touch receptors, photoreceptors, lateral line and internalear.	3
Endocrine system – Pituitary gland, urohypophysis, adrenal gland, gonads, and thyroid gland	3
Reproductive system- Male and female reproductive organs; role of hormones.	3
Embryogenesis - Early development and post embryonic development	3
Total	**15 Hours**

Name of the Teacher: Dr. VenkataRamanaiahSolanki
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Signature:

Head, Department of Zoology:

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NIZAM COLLEGE: DEPARTMENT OF ZOOLOGY

Lesson Plan for the academic year 2017- 2018 **(Semester VI)**

Class: B.Sc. III Year **Section:** Zoology

Course/Paper: VII – **ANIMAL PHYSIOLOGY, GENETICS AND EVOLUTION**

UNIT - III: Genetics and Organic Evolution **No. of Hours Allotted:** 15 Hrs

Topics to be covered	No. of. Hours
Human karyotyping barr bodies , Lyon hypothesis and amniocentesis, chromosomal disorders-autosomal and sex chromosomes	5
Genetic basis of Evolution, Gene pool and gene frequencies, Hardy-Weinberg's Law, Force of destabilization, natural selection, genetic drift, Mutation, Isolation Migration.	8
Speciation - Allopatry sympatry	2
Total	**15 Hours**

Name of the Teacher: Dr. VenkataRamanaiahSolanki

Assistant Professor ©

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Head, Department of Zoology:

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NIZAM COLLEGE: DEPARTMENT OF ZOOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester II)

Class: BSC **Section:** ZOOLOGY

Course/Paper: ENDOCRINOLOGY EVOLUTION

Unit: 1 **No. of Hours Allotted**: 15 hours

Topics to be covered	No. of Hours
Physiology of endocrine systems	1
Relationship between hypothalamus and pituitary gland	2
Hormones of hypothalamus	1
Hormones of adenohypophysis	2
Hormones of neurohypophsis	2
Hormones of pineal gland	1
Hormones of thyroid gland	1
Hormones of parathyroid gland	1
Hormones of thymus	1
Hormones of adrenal gland	2
Hormones of pancreas	1
Endocrine control of mammalian reproduction	1
Male and female hormones	1
Hormonal control of menstrual cycle	**1**

Name of the Teacher: DR S.Padmaja
Signature:

Head, Department of
Signature:

NIZAM COLLEGE: DEPARTMENT OF ZOOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester II)

Class: MSC **Section:** ZOOLOGY

Course/Paper: CAP II

Unit: II **No. of Hours Allotted**: 15

Topics to be covered	**No. of Hours**
Gland effectors for secretion	3
Mechanism of target tissue activation and mechanism of secretion	1
Types of muscle fibers fast and slow	1
Asynchronous flight muscles	2
Mechanism and chemistry of muscle contraction	2
Accessory movements	2
Skeletal levers, elastic movements	1
Effectors for movement cyclosis amoeboid movements	1
Ciliary and flagellar movements	1
Control of movements	1
	15

Name of the Teacher: DR S.Padmaja
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NIZAM COLLEGE: DEPARTMENT OF ZOOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester II)
Class: MSC **Section:** ZOOLOGY

Course/Paper: CAP II

Unit: I **No. of Hours Allotted**: 15

Topics to be covered	**No. of Hours**
General receptor characteristics	1
Receptor potential and sensory coding	2
Adaptations in organ systems for reception chemo thermo	1
Mechano electro receptors: structure, function and distribution	1
Central nervous system- insect to vertebrate comparison	4
Integration of effective behaviors	3
Spinal reflex- learning and memory genetic basis	2
Stress biology and related disorders	1
	15

Name of the Teacher: DR S.Padmaja Head, Department of
Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF ZOOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester II)

Class: MSC **Section:** ZOOLOGY

Course/Paper: ANIMAL PHYSIOLOGY

Unit: III **No. of Hours Allotted**: 15

Topics to be covered	**No. of Hours**
Types of muscle fibers	2
Ultra structure of muscle fibers	2
Molecular events during muscle contraction	1
Twitch tetanus summation	1
Neuron – ultra structure and axoplasmic flow	1
Synapse types of synapse- electrical and chemical	1
Molecular events during chemical synapse	2
Action potential	1
Resting potential significance of sodium and potassium pump	1
Threshold potential	1
All or none law	1
Types of neurotransmitters	1
	15

Name of the Teacher: DR S.Padmaja
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NIZAM COLLEGE: DEPARTMENT OF ZOOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester II)

Class: MSC **Section:** ZOOLOGY

Course/Paper:

Unit: III lipid metabolism **No. of Hours Allotted**: 15

Topics to be covered	**No. of Hours**
Introduction to lipids nomenclature and types	1
Detailed classification of lipids	1
Fatty acid oxidation	2
Fatty acid bio synthesis	2
Cholesterol structure	1
Cholesterol bio synthesis	3
Cholesterol metabolism	1
Bile salts spingomyliens	1
Lipo proteins prostaglandins	1
Lipidosis	2
	15

Name of the Teacher: DR S.Padmaja Head, Department of
Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF ZOOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2017-2018 (Semester II)

Class: MSC **Section:** ZOOLOGY

Course/Paper: CAP I

Unit: I **No. of Hours Allotted**: 15

Topics to be covered	**No. of Hours**
Scope and importance of comparative approach to physiology	1
Origin of nutritive types nomenclature definition and concepts	2
Special dietary requirements of animals, amino acid and vitamins	2
Mechanism of food intake and feeding mechanism	1
Digestive enzymes classification and nomenclature	2
Regulatory physiology of digestion	1
Coordination of digestive activities – visceral and g.i. hormones	2
Comparative aspects of carbohydrate path way	2
Glycolysis gluconeogenesis	1
Integration and regulation	1
	15

Name of the Teacher:
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NIZAM COLLEGE: DEPARTMENT OF ZOOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester II)

Class: MSC **Section:** ZOOLOGY

Course/Paper: CAP I

Unit: III **No. of Hours Allotted**: 15

Topics to be covered	**No. of Hours**
Problems of osmoregulation and biological responses in different environments	1
Comparative aspects of osmoregulatory problems in different animal groups	2
Excretory organs and general mechanism of excretion in various animals	2
Freezing and winter hardening	3
Lethal limits and resistance adaptation	2
Behavioral and locomotary adaptations	3
Heat regulation Physical and Chemical	1
Temperature regulation in homeotherms neural mechanisms of thermal regulation	1
	15

Name of the Teacher: Head, Department of
Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF ZOOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester II)

Class: BSC **Section:** ZOOLOGY

Course/Paper: ENDOCRINOLOGY EVOLUTION

Unit: 1 **No. of Hours Allotted**: 15 hours

Topics to be covered	No. of Hours
Physiology of endocrine systems	1
Relationship between hypothalamus and pituitary gland	2
Hormones of hypothalamus	1
Hormones of adenohypophysis	2
Hormones of neurohypophsis	2
Hormones of pineal gland	1
Hormones of thyroid gland	1
Hormones of parathyroid gland	1
Hormones of thymus	1
Hormones of adrenal gland	2
Hormones of pancreas	1
Endocrine control of mammalian reproduction	1
Male and female hormones	1
Hormonal control of menstrual cycle	**1**

Name of the Teacher: DR S.Padmaja
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NIZAM COLLEGE: DEPARTMENT OF ZOOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester II)

Class: MSC **Section:** ZOOLOGY

Course/Paper: CAP II

Unit: II **No. of Hours Allotted**: 15

Topics to be covered	**No. of Hours**
Gland effectors for secretion	3
Mechanism of target tissue activation and mechanism of secretion	1
Types of muscle fibers fast and slow	1
Asynchronous flight muscles	2
Mechanism and chemistry of muscle contraction	2
Accessory movements	2
Skeletal levers, elastic movements	1
Effectors for movement cyclosis amoeboid movements	1
Ciliary and flagellar movements	1
Control of movements	1
	15

Name of the Teacher: DR S.Padmaja Head, Department of
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NIZAM COLLEGE: DEPARTMENT OF ZOOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester II)
Class: MSC **Section:** ZOOLOGY

Course/Paper: CAP II

Unit: I **No. of Hours Allotted**: 15

Topics to be covered	**No. of Hours**
General receptor characteristics	1
Receptor potential and sensory coding	2
Adaptations in organ systems for reception chemo thermo	1
Mechano electro receptors: structure, function and distribution	1
Central nervous system- insect to vertebrate comparison	4
Integration of effective behaviors	3
Spinal reflex- learning and memory genetic basis	2
Stress biology and related disorders	1
	15

Name of the Teacher: DR S.Padmaja Head, Department of
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NIZAM COLLEGE: DEPARTMENT OF ZOOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester II)

Class: MSC **Section:** ZOOLOGY

Course/Paper: ANIMAL PHYSIOLOGY

Unit: III **No. of Hours Allotted**: 15

Topics to be covered	**No. of Hours**
Types of muscle fibers	2
Ultra structure of muscle fibers	2
Molecular events during muscle contraction	1
Twitch tetanus summation	1
Neuron – ultra structure and axoplasmic flow	1
Synapse types of synapse- electrical and chemical	1
Molecular events during chemical synapse	2
Action potential	1
Resting potential significance of sodium and potassium pump	1
Threshold potential	1
All or none law	1
Types of neurotransmitters	1
	15

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Head, Department of
Signature:

NIZAM COLLEGE: DEPARTMENT OF ZOOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester II)
Class: MSC **Section:** ZOOLOGY

Course/Paper:

Unit: III lipid metabolism **No. of Hours Allotted**: 15

Topics to be covered	**No. of Hours**
Introduction to lipids nomenclature and types	1
Detailed classification of lipids	1
Fatty acid oxidation	2
Fatty acid bio synthesis	2
Cholesterol structure	1
Cholesterol bio synthesis	3
Cholesterol metabolism	1
Bile salts spingomyliens	1
Lipo proteins prostaglandins	1
Lipidosis	2
	15

Name of the Teacher: DR S.Padmaja Head, Department of
Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF ZOOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester II)

Class: MSC **Section:** ZOOLOGY

Course/Paper: CAP I

Unit: I **No. of Hours Allotted**: 15

Topics to be covered	**No. of Hours**
Scope and importance of comparative approach to physiology	1
Origin of nutritive types nomenclature definition and concepts	2
Special dietary requirements of animals, amino acid and vitamins	2
Mechanism of food intake and feeding mechanism	1
Digestive enzymes classification and nomenclature	2
Regulatory physiology of digestion	1
Coordination of digestive activities – visceral and g.i. hormones	2
Comparative aspects of carbohydrate path way	2
Glycolysis gluconeogenesis	1
Integration and regulation	1
	15

Name of the Teacher: Head, Department of

Signature: Signature:

NIZAM COLLEGE: DEPARTMENT OF ZOOLOGY

LESSON PLAN FOR THE ACADEMIC YEAR 2020-2021 (Semester II)

Class: MSC **Section:** ZOOLOGY

Course/Paper: CAP I

Unit: III **No. of Hours Allotted**: 15

Topics to be covered	**No. of Hours**
Problems of osmoregulation and biological responses in different environments	1
Comparative aspects of osmoregulatory problems in different animal groups	2
Excretory organs and general mechanism of excretion in various animals	2
Freezing and winter hardening	3
Lethal limits and resistance adaptation	2
Behavioral and locomotary adaptations	3
Heat regulation Physical and Chemical	1
Temperature regulation in homeotherms neural mechanisms of thermal regulation	1
	15

Name of the Teacher: Head, Department of
Signature: Signature: