CBCS -Syllabus

Computer Science
B.Sc. (M.E.Cs., M.S.Cs. & M.Ch.Cs.)
(For the Students admitted in 2019-20 & onwards)

Department of Physics
Nizam College (Autonomous)
Osmania University
Hyderabad – 500 001

NIZAM COLLEGE (AUTONOMOUS)
CBCS Pattern for Undergraduate B.Sc. Program

Semester I to VI : Academic year 2019-20 onwards

Semester	Courses	Hours per week	Duration of Exam Hrs	Marks			No. of Credits
				Internal	External	Total	
SEM-I	**Theory**						
	DSC-102: (Paper-1) **Programming Methodology (C-Language)**	4	3	20	80	100	4
	Practicals						
	DSC-102: **C-Programs Lab** (Lab-1)	3	3		50	50	1

Semester	Courses	Hours per week	Duration of Exam Hrs	Marks			No. of Credits
				Internal	External	Total	
SEM-II	**Theory**						
	DSC-202: (Paper-2) **Object oriented Programming (C^{++})**	4	3	20	80	100	4
	Practicals						
	DSC-202: **C++ Programs Lab** (Lab 2)	3	3		50	50	1

Semester	Courses	Hours per week	Duration of Exam Hrs	Marks			No. of Credits
				Internal	External	Total	
SEM III	**Theory**						
	DSC-302: (Paper-3) **Data Structures**	4	3	20	80	100	4
	Practicals						
	DSC-302: **DS- programs Lab** (Lab-3)	3	3		50	50	1
	SEC – 2 PYTHON – 1	2	11/2	10	40	50	2

Semester	Courses	Hours per week	Duration of Exam Hrs	Marks			No. of Credits
				Internal	External	Total	
SEM IV	**Theory**						
	DSC-402: (Paper-4) **Operating systems, Computer Orgn & Networking**	4	3	20	80	100	4
	Practicals						
	DSC-402: **Shell program Lab** (Lab-4)	3	3		50	50	1
	SEC – 4 PYTHON – 2	2	11/2	10	40	50	2

SEM V	Theory	Hours/ week	Duration of Exam HRS	Internal marks	External marks	Total marks	No. of credits
	DSE-502(A): (Paper-5) **Java Programming**	4	3	20	80	100	4
	DSE-502(B): (Paper-5) **SAD & Internet Prog (SAD, HTML, VB Script & Java Script)**	4	3	20	80	100	4
	GE: Generic Elective Information Technologies	4	3	20	80	100	4
	Practicals:						
	DSE-502(A): **Java Lab** (Lab 5)	3	3		50	50	1
	DSE-502(B): Lab-5 **Html prog VB script & Java Script program lab**	3	2		25	25	1

Semester	Courses	Hours per week	Duration of Exam Hrs	Marks			No. of Credits
				Internal	External	Total	
SEM VI	Theory						
	DSE-602(A):(Paper-6) **DBMS**	4	3	20	80	100	4
	DSE-602(B)(Paper-6) **RDBMS & VB**	4	3	20	80	100	4
	Project Report /	4 4	11/2 3	15 VV+ 10 PR	75	100	4
	Optional Paper			20	80	100	4
	Practicals						
	DSE-602(A): (Lab 6) **DBMS-SQL Lab**	3	3		50	50	1
	DSE-602(B): Lab 6 **Visual Basic Lab**	3	3		50	50	1

SNO	COURSE CATEGORY	NO OF COURSES	CREDITS PER COURSE	TOTAL CREDITS
1	SEC	2	2	4
2	GE	1	4	4
3	PROJECT	1	4	4
4	DSC	4	4+1	20
5	DSE	4	4+1	20
		TOTAL CREDITS		52

CC: Core Course DSC: Discipline Specific Course, DSE: Discipline Specific Elective, VV: Viva –Voce, PR: Presentation

NIZAM COLLEGE (AUTONOMOUS)
OSMANIA UNIVERSITY, HYDERABAD - 500 001
B.Sc. COMPUTER SCIENCE SYLLABUS
(w.e.f. from AY 20019-2020)
I SEMESTER
Paper – 1 (DSC – 102)
Programming Methodology (C - Language)
(60 hours @ 4 hrs per week)

UNIT – I   Introduction   **(15 hours)**

Computer Fundamentals: Introduction of Computers, Classification of Computers, Anatomy of a Computer, Memory hierarchy, Introduction to OS.

Program Fundamentals: Generation and Classification of Programming Languages, Compiling, Interpreting, Loading linking of a program.

Algorithms: Definitions, Different ways of stating Algorithms.(Step-form, Psedo-code, flowchart).Structured Programming Concept.

Introduction to C Programming language-Historical development, what is c, where c stands-**C preprocessor**- features of C-preprocessor.

C programming language concepts-character set, variables and constants, datatypes, Arithmetic, relational and logical operators and their hierarchy and associativity- expressions and statements.

UNIT – II   Control Statements, Functions and Arrays   **(15 hours)**

Control statements - if-else and else-if. Switch. **Loops** -while, for, do-while and break, exit and continue statements, goto and labels.

Functions –What is a function, uses of functions, function prototypes, passing parameters, standard library functions and user-defined functions, types of functions, Recursive functions, uses of Recursive functions.

Arrays – Introduction, declaration and processing of array- types of arrays, passing arrays as parameters to functions- programs such as Bubble Sort, Linear Search, Matrix Multiplication, addition and Transpose of a Matrix using arrays and functions.

Unit III   Strings and Pointers   **(15 hours)**

String manipulation –Introduction, declaration, initialization and basic string functions with examples.

Pointers-Introduction, declaration and uses of pointers - pointer arithmetic- Macro Expansion-macro with arguments.

Dynamic Memory allocation- Malloc, Calloc, Realloc functions- array manipulation using pointer notation, pointers and function arguments.

UNIT-IV   Structures, Unions and Files   **(15 hours)**

Structures and Unions – Introduction, declaration and processing - difference between structures, arrays and unions. Structures and functions - Pointers to structures - typedef.

FILES: I/O and file system defining, opening and closing a file- file commands - input/output operations on files.

Practicals: @ 3 hours per week.

C-Programs using the Turbo C Compiler covering the concepts given in Appendix – I.

Suggested reading:

1. Prasip Dey, Manas Ghosh, Computer Fundamentals and Programming in C (2e)
2. Proramming with C : E.Balaguruswamy (TMH)
3 .Programming using C language –Venugopal
4. Programming using C language- Byron Gottfried McGraw Hill (Schaum's series)
5. Let us C –Yashwanth Kanetker

Paper – 1 (DSC-102)
(C - LANGUAGE PRACTICALS)
(3 hours per week.)

List of C Programs using Turbo C compiler covering the following concepts:-

1. Practice on few Dos commands.
2. Simple programs on data types.
3. Input / Output statements.
4. Various Control statements.
5. Programs on all loops.
6. Programs on break and exit statement.
7. Programs using functions.
8. At least same five Programs, using iteration and Recursive Functions using concepts like –factorial, Fibonacci, sum of n-numbers, displaying array elements using recursive functions, display first n-numbers.
9. Arrays (Matrix operations).
10. Pointers and structures.
11. Program on typed.
12. Handling array elements using pointers.
13. Swapping of two numbers using pointers and a function.
14. Sorting of an array using pointers and functions.
15. Pointer Arithmetic.
16. Sorting and array of structures.
17. Passing of individual elements of a structure to a function
18. Passing an entire structure to function.
19. Structures-Arrays-Pointers.

II SEMESTER
Paper – 2 (DSC – 202)
OBJECT ORIENTED PROGRAMMING (C++)
(60 hours @ 4 hrs per week)
(w.e.f. from AY 2019-2020)

UNIT–I OOP Basics, C++ Basics, Functions   **(15 hours)**
OOP :- paradigm, comparison with procedure oriented programming(POP)-basic concepts, benefits, OOP languages, applications.
C++ :- Introduction, applications, example program, Tokens, data types, constants, operators, precedence, associativity, expressions, type conversions, Control Structures, Arrays, Strings, Pointers.
Functions:-Introduction, prototype, reference variables, value and reference address parameters, inline functions, default arguments, const arguments, function overloading, passing arrays to functions.

UNIT–II Classes, Dynamic Objects and Operator overloading   **(15 hours)**
Classes - Introduction, specification, class objects, accessing class members, defining member functions, access specifiers, pointers in a class, passing objects as arguments, returning objects from functions, memory allocation for objects, static data members, static member functions- public, private & protected data members, and member functions, array of objects, friend functions, friend classes, dynamic memory allocation.
Constructors - default, parameterized, multiple constructors - constructors with default arguments - dynamic initialization of objects, copy constructor, dynamic constructor, Destructors**.**
Dynamic Objects:- Introduction, pointers to objects, creating and deleting dynamic objects, pointers to object members, this pointer.
Operator Overloading - Introduction, operator function, overloading unary, binary operator, overloading binary operators using friend function, rules for overloading operators **- T**ype Conversion.
UNIT–III Inheritance, Polymorphism, C++ Streams   **(15 hours)**
Inheritance - Introduction, base class and derived class, types of Inheritance(single, multiple, hierarchical, multilevel, hybrid and multipath inheritance), overriding base class members, public, protected and private inheritance, constructors and destructors in derived classes, Virtual base classes, abstract class, usage, benefits and costs of inheritance.
Polymorphism - pointers to derived classes, virtual functions, rules for virtual functions, pure virtual function.
 C++ Streams:-stream classes, unformatted I/O operations, formatted I/O operations, manipulators.

UNIT-IV Templates, Files and Exception Handling   **(15 hours)**
Templates-class templates and class templates with multiple parameter, function template and function template with multiple parameters, overloading template functions, member function templates, non-type template arguments.
Files Introduction, opening and closing, detecting end of file, file modes, file pointers, sequential I/O operations, updating a file random access.
Exception Handling-basics, exception handling mechanism, throw, catch, rethrowing exception, specifying exception.
Practicals : @ 3 hours per week.
C ++ Programs using the Turbo C ++ Compiler covering the concepts given in Appendix – I.
Suggested Reading:
1. Mastering C++: Venugopal, Sudarshan
2. Object Oriented Programming with C++: E Balaguruswamy (TMH)

Paper – 2 (DSC-202)
(C++ - PRACTICALS)
(3 hours per week)

List of C++ Programs using Turbo C++ compiler in the following concepts (USING CLASSES):-
1. Data types, Operators
2. Selection statements
3. Iteration statements
4. Pointers
5. Call by value, Reference and Address
6. Inline Function
7. Function Overloading
8. Passing 1-D & 2-D arrays to functions
9. Classes
10. Constructors, Destructors
11. Static Members
12. Friend Function, Friend Class
13. Dynamic Memory Allocation using new and delete
14. Pointer to object
15. Overloading unary operator, Overloading binary operators
16. Overloading binary operators using Friend function
17. Single and Multilevel Inheritance, Multiple Inheritance, Hierarchical Inheritance
18. Constructors and Destructors in derived classes
19. Virtual Function
20. Class Template, Function Template
21. Sequential access, random access
22. Reading and Writing class objects

B.Sc. COMPUTER SCIENCE
SEMESTER-III: DSC: 302 (Paper – 3)
DATA STRUCTURES
(60 hours @ 4 hrs per week)
(w.e.f. from AY 2020-2021)

UNIT – I   Introduction   **(15 hours)**
Introduction to data structures- types of data structures – liner & non linear structures, examples -Arrays- operations such as insertion, deletion, searching- traversing - combining arrays – representation of stacks and queues using arrays **-** programs.
Stack Applications - Infix, Postfix, Prefix concepts, converting algebraic expressions from infix to postfix, infix to prefix - string manipulation.

UNIT - II   Linked Lists   **(15 hours)**
Linked Lists- dynamic storage management – types of lists - Single, double and circular Linked lists - creation of single and double linked list, operations like insertion, deletion, traversing - representation of stacks and queues using single linked lists – programs.

UNIT III   Trees   **(15 hours)**
Trees – Introduction, Representation of a General Tree, Binary Tree Introduction, Binary Tree Abstract Data Type, Implementation of Binary Trees, Binary Tree traversal –Pre-order, In-order, Post-order, Traversals, Application of Binary Trees Briefly.
Graphs: Introduction, Graph Abstract Data Type, Represetation of Graphs, Graph Traversal- Depth-First Search, Breadth-First Search, Spanning Tree-Prim's Algorithm,Kruskal's Algorithm.
Hashing: Introduction, Hash Funtions, Collision Resolution Strategies.

UNIT IV   Graphs   **(15 hours)**
Searching and Sorting: Sequential (Linear) Search, Binary Search, Bubble Sort, Insertion Sort, Selection Sort, Quick Sort, Merge Sort and Comparision of Sorting Techniques.
Heaps: Concept, Implementation, Abstract Data type, Heap Sort.

Suggested Reading:
1. Data Structures using C and C++, Aaron M Tenenbaum , PHI
2. Varsha H. Patil, Data Structures using C++
3. Data structures: Seymour, Lipschutz , Schum's Series, McGraw Hill
4. Data Structures using C++ - Sahani
5. Data Structures using C++ - Yashwanth Kanetker.

III SEMESTER
Paper – 3 (DSC -302)
(DATA STRUCTURES – PRACTICALS)
(3 hours per week)

List of Data Structure Programs using Turbo C++ and C/C++ language compiler in the following concepts (USING CLASSES) :-
1. Operations on Arrays - insertion, deletion, traversal, searching.
2. Implementation of Stacks and Queues (using Arrays).
3. Implementation and operations on single linked lists & double linked lists (Use structures).
4. Operations on stack using linked lists.
5. Operations on queue using linked lists.
6. Binary tree (creation and traversal using recursive procedure)
7. Programs on sorting techniques
8. Programs on Searching techniques
9. Infix to Postfix, Infix to prefix

WITH EFFECT FROM ACADEMIC YEAR 2020 – 2021
NIZAM COLLEGE
B.SC (COMPUTER SCIENCE)
PYTHON – 1 : SEC-2
SKILL ENHANCEMENT COURSE III SEMESTER
THEORY 2 HOURS / WEEK   2 CREDITS
(30 hours @ 2 hrs per week)

UNIT – I   **15 Hours**

Introduction to Python Programming: How a Program Works, Using Python, Program Development Cycle, Input, Processing, and Output, Displaying Output with the Print Function, Comments, Variables, Reading Input from the Keyboard, Performing Calculations (Operators. Type conversions, Expressions), More about Data Output. Decision Structures and Boolean Logic: if, if-else, if-elif-else Statements, Nested Decision Structures, Comparing Strings, Logical Operators, Boolean Variables. Repetition Structures: Introduction, while loop, for loop, Calculating a Running Total, Input Validation Loops, Nested Loops.

Unit – II   **15 Hours**

Functions: Introduction, Defining and Calling a Void Function, Designing a Program to Use Functions, Local Variables, Passing Arguments to Functions, Global Variables and Global Constants, Value-Returning Functions- Generating Random Numbers, Writing Our Own Value-Returning Functions, The math Module, Storing Functions inModules. File and Exceptions: Introduction to File Input and Output, Using Loops to Process Files, Processing Records,Exceptions.

Text Tony Gaddis, Starting Out With Python(3e)

References

1. Kenneth A. Lambert, Fundamentals ofPython

2. Clinton W. Brownley, Foundations for Analytics withPython

3. JamesPayne,BeginningPythonusingPython2.6andPython3

4. Charles Dierach, Introduction to Computer Science usingPython

5. PaulGries,PracticalProgramming:AnIntroductiontoComputerScienceusingPython3

B.Sc. COMPUTER SCIENCE
SEMESTER-IV: DSC: 402 (Paper – 4)
OPERATING SYSTEMS COMPUTER ORGANIZATION AND NETWORKS
(60 hours @ 4 hrs per week)
(w.e.f. from AY 2020-2021)

UNIT I   Fundamentals of OS   (15 hours)
Operating System – Introduction, what is an OS, History, OS Concepts, structure of OS, Functions of OS.
Process management – Introduction to Process, process Model, Implementation of process.
Memory Management – Swapping, Paging – Page replacement Algorithms, Virtual Memory.
File System- Files.
Input – Output - Principles of Input- Output, Input –Output Software.

UNIT II   Unix operating system   (15 hours)
Introduction to Unix operating system - Salient features of UNIX - Unix system organizations - Types of shells – sh , ksh , rsh, csh-Unix commands- UNIX file system- Redirection & piping.
Vi-Editor - Mode of operation - Block commands - Find and replace, search, delete, yank and paste- Command line options in vi.
Shell Programming - First step to shell programming including if-else structure, loop control structure.

Unit III   Computer organization   (15 hours)
Introduction to computers -   history of computer generations – Block diagram of a computer-CPU-Memory - ROM , RAM, Input/Output Devices.
Computer system- bus interconnection, internal memory, cache, external memory – magnetic tapes and disks, optical memory.
Input/Output – External devices – programmed I/O, Interrupt-driven-I/O, DMA
CPU – structure, processor, register organization, instruction cycle, instruction sets, instruction formats - addressing modes.

UNIT IV   Networks   (15 hours)
Introduction to Data Communication-Basic concepts of networking hardware, protocols
OSI Reference Model, TCP/IP.
Interfaces–DTE,DCE-Interfaces.
Types of Signals**,** Analog & digital data transmission, Modems, Transmission media.

Suggested Reading:
1. **O**perating System – Modern Operating System – Andrew.S Tenenbaum
2. Unix – Shell Programming in Unix – Yashwanth Kanitker
3. Networks - Data Communication and Networks - Behrouz Forouzan
4.   Computer Organization and Architecture – William Stallings

IV SEMESTER
Paper – IV (DSC -402)
SHELL PROGRAMING PRACTICALS
(3 hours per week.)

List of Shell Programs using Unix OS in the following concepts :-
1. Unix Commands
2. Pipes and Filters
3. Redirection
4. Vi – editor commands
5. Shell Programs Using selection structure
6. Shell Programs Using loops
7. Execution of the following C programs in Unix
   - Factorial program
   - Fibonacci program
   - Prime number
   - Input and output to a file
   - Student marks average

WITH EFFECT FROM ACADEMIC YEAR 2020 – 2021
NIZAM COLLEGE
B.SC (COMPUTER SCIENCE)
IV – SEMESTER
COURSE IV SEMESTER
PYTHON – 2 : SEC – 4
THEORY 2 HOURS / WEEK   2 CREDITS
(30 hours @ 2 hrs per week)

Unit – I   **15 Hours**

Lists and Tuples: Sequences, Introduction to Lists, List slicing, Finding Items in Lists with the in Operator, List Methods and Useful Built-in Functions, Copying Lists, Processing Lists, Two-Dimensional Lists, Tuples. Strings: Basic String Operations, String Slicing, Testing, Searching, and Manipulating Strings. Dictionaries and Sets: Dictionaries, Sets, Serializing Objects. Recursion: Introduction, Problem Solving with Recursion, Examples of Recursive Algorithms.

Unit – II   **15 Hours**

Object-Oriented Programming: Procedural and Object-Oriented Programming, Classes, Working with Instances, Techniques for Designing Classes, Inheritance, Polymorphism. GUI Programming: Graphical User Interfaces, Using the tkinter Module, Display text with Label Widgets, Organizing Widgets with Frames, Button Widgets and Info Dialog Boxes, Getting Input with Entry Widget, Using Labels as Output Fields, Radio Buttons, Check Buttons.

Text Tony Gaddis, Starting Out With Python(3e)
3. JamesPayne,BeginningPythonusingPython2.6andPython3

References
 1. Kenneth A. Lambert, Fundamentals ofPython
2. Clinton W. Brownley, Foundations for Analytics withPython

4. Charles Dierach, Introduction to Computer Science usingPython
 5. PaulGries,PracticalProgramming:AnIntroductiontoComputerScienceusingPython3

NIZAMCOLLEGE
FACULTY OF SCIENCE

Department of B.Sc. Computer Science

GE : Generic Elective ; Information Technologies

Theory 4Hours/Week 4 credits

SEMESTER – V

(60 hours @ 4 hrs per week)
(w.e.f. from AY 2021-2022)

Unit – I   **15 Hours**

Information Technology Basics – introduction, Need for Information Storage and Processing, Information

Technology Components , Role of information Technology, Information Technology and the Internet .

Emerging Trends in IT - Introduction , Electronic Commerce (E-Commerce), Electronic Data Interchange(EDI),Smart Cards , Mobile Communication, Internet Protocol TV.

Unit – II   **15 Hours**

Computer Software: Introduction, Classification of Computer Software, System Software, Applications Software, Firmware, Middleware, Acquiring Computer Software.

Operating Systems: Introduction, Evolution of OS, Process Management, Memory Management, File Management, Device Management, Security Management, Command Interpreter, Windows, Linux.

Unit – III   **15 Hours**

Introduction to Algorithms and Programming Languages: Algorithm, Control Structures, Flowcharts, Pseudo code, Programming Languages, Generations of Programming Languages.

Database Systems: File Oriented Approach, Database Oriented Approach, Database Views, Three-Schema Architecture, Database Models, Components of DBMS, Introduction of SQL Queries.

Unit – IV   **15 Hours**

Computer Networks: Introduction, Connection Media, Data Transmission Mode, Data Multiplexing, Data Switching, Network Topologies, Types of Networks, Networking Devices, OSI Model.

The Internet: Internet Services, Types of Internet Connections, Internet Security.

Emerging Computer Technologies: Distributed Networking, Peer-to-peer Computing, Grid Computing,

Cloud Computing, Utility Computing, On0demand Computing, Wireless Network, Bluetooth, Artificial

Intelligence.

Text Wiley India Editorial Team,Fundamentals of Informat ion Technology

ReemaThareja, Fundamentals ofComputers

Reference s P. K. sinha, ComputerFundamentals

Anita Goel, ComputerFundamentals

V. Rajaraman, Fundamentals of Computers

E. Balagurusamy, Fundamentals of Computers

J. Glenn Brookshear, Dennis Brylow, Computer Science An Overview

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NIZAMCOLLEGE
FACULTY OF SCIENCE
Department of B.Sc. Computer Science
SEMESTER – V
Java Programming ; DSE – 502 (A)
Theory 4Hours/Week ; Practical 3 Hours/Week ; 5 credits
80C + 15 I = 5 A (50 P)
(60 hours @ 4 hrs per week)
(w.e.f. from AY 2021-2022)

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Unit I   **Java Genesis & overview, Classes**   **15 Hours**

Java Genesis-creation of java, java's importance, to the Internet, java's byte code, java buzzwords. **Java Overview-** OOP, OOP principle, a first simple program, **data types** (Integers, floating-point, characters, Boolean), variables, **type casting**(automatic, explicit), arrays,

Operators (arithmetic, bitwise, relational, logical, assignment, conditional), operator precedence, **control statements-selection** (if, switch), **iteration** (while, do…while, for), **jump statements** (break, continue, return).

Classes-fundamentals, objects, object reference variable, method, method overloading, constructors, overloading constructors, this keyword.

UNIT II   **Inheritance, Package, Interface, Exception handling**   **15 Hours**

Inheritance-basics, using super keyword, multilevel hierarchy, constructors, method overriding, Dynamic Method Dispatch, abstract classes, final keyword.

Packages-Introduction, access protection, importing packages.

Interfaces-Defining and implementing interfaces, applying interfaces, variables in interfaces, Extending interface.

Exception Handing - Fundamentals, exception types, using try and catch, multiple catch clauses, nested try statements, throw, throws, finally, java's built-in exception.

UNIT III: **AWT**   **15 Hours**

Applet-Applet tag**,** applet life cycle methods, drawing graphics in applet.

Event Handling- delegation event model, event classes, sources of events, event listener interfaces, Action Listener interface, Mouse Listener interface.

AWT-Introduction, AWT classes, adding controls to applets: text field, labels, buttons.

Layout Managers-border, flow, grid, grid bag, card.

Frame-creating frame windows**.**

UNIT IV   **JDBC and Servlets**   **15 Hours**

JDBC-basics, drivers, type of statements (statement, prepared statement, callable statement), create table, insert records, select, update record, delete record.

Servlet-Introduction, life cycle, a simple servlet, servlet API, HTTP get and post methods,

Cookies, session tracking, using JDBC servlets, linking of JDBC with ODBC.

Suggested Reading:

1. The Complete Reference Java2 – Herbert Schildt   (third edition)

2. Java2 Programming Black Book—Steven Holzner   (Dreamtech press)

V SEMESTER

Java Programming ; DSE – 502 (A)

PRACTICALS : 3 hours per week

List of Java Programs using JDK 1.4 in   the following concepts:-
1. simple applications (using matrices, simple interest, compound interest etc)
2. data types, arrays, operators
3. selection statement, iteration statement
4. classes, method overloading
5. constructor overloading
6. static, final
7. strings, user input
8. Inheritance
9. method overriding
10. dynamic method dispatch
11. Packages, Interfaces, Exception Handling
12. Applet, frame
13. layout managers(border, flow, grid)
14. JDBC : create table, insert, select, update, delete records
15. Servlet, DB interaction using servlets

NIZAMCOLLEGE
FACULTY OF SCIENCE
Department of B.Sc. Computer Science
SEMESTER – V
System Analysis Design & Internet Programming ; DSE – 502(B)
Theory 4Hours/Week ; Practical 3 Hours/Week ; 5 credits
80C + 15 I = 5 A (50 P)
(60 hours @ 4 hrs per week)

(w.e.f. from AY 2021-2022)

Unit I   : System Analysis and Design   **15 Hours**

Introduction to SAD - Model of a system, System Development Life Cycle(SDLC)-Tools of Analysis – Data flow diagrams (DFD) – Symbols, drawing DFD's with Examples, Physical and logical DFD's - examples using DFDs, Decision Trees, Decision Tables and Data Dictionaries.

Structured Design - Qualities of a good design. Modularity - cohesive and coupling properties.

Structured Charts-Top Down and Bottom Up Methods.

Unit II   : HTML   **15 Hours**

Introduction To HTML - HTML elements - tags and attributes - head, base, meta, title, script and styles – body of html - paragraph div, hr, br.

Lists - UL and OL. Nested lists, Images - types of format - inserting images - attributes. Tables - table rows, table data, cell and its attributes - table attributes - column span, row span, Style Sheets, Hypertext Anchors - links to objects.

Unit III : VB SCRIPT   **15 Hours**

VB Script Variables, Operators. Control Structures - if then else.

Loops in VB Script - for next, do –while, while. Identifiers, Objects, Properties, Methods & Events in VB Script. VB Script functions with Examples.

Unit – IV : Java Script   **15 Hours**

Introduction to Java script, Java Script and Forms Variables, Functions, Operators, Conditional Statements and Loops, Arrays DOM, Strings, Event and Event Handling, Java Script Closures.

Suggested Reading:

1. System Analysis and Design E.M. Awad (Galgotia
2. Robert W.Sebesta, Programming the World Wide Web, 3rd Edition, Pearson Education,2006
3. Wendy Willard, HTML5, McGraw Hill Education (India) Edition,2013
4. Software engineering- Roser Pressman
5. HTML Black Book—Steven Holzner
6. VB Script—Techmedia
7. V B Script - E, Balaguruswamy
8. John Pollock, Java Script, 4th Edition, McGraw Hill Education (India) Edition,2013

INTERNET PROGRAMMING (HTML, VBScript, Java Script)
DSE – 502 (B) Practical : 3 Hours/Week

List of Programs in the following concepts:-
HTML
1. HTML elements, tags and attributes
2. Head, base, meta
3. Styles, body, paragraph
4. lists, images, tables, anchors
5. style sheets

VB Script
1. Variables, Arrays, Control Structure
2. Loops, Objects
3. Methods, events
4. Properties

Java Script
1. Methods of date and timeobjects
2. Demonstrating object hierarchy usingcollection
3. Using Java Script events

NIZAMCOLLEGE
FACULTY OF SCIENCE
Department of B.Sc. Computer Science
SEMESTER – 6 (DSE – 602(A))
DBMS
Theory 4Hours/Week ; Practical 3 Hours/Week ; 5 credits
80C + 15 I = 5 A (50 P)
(60 hours @ 4 hrs per week)
(w.e.f. from AY 2021-2022)

UNIT I: INTRODUCTION TO DATA BASE   **15 Hours**

Database Environment - Basic Concepts and definitions, File processing System, Advantages of Database approach, Components of Database Environment.

Data Development Process – database Development with in Information Systems Development - Database Development process, Three Schema Architecture for Database development - Three- Tier database location Architecture.

UNIT II   MODELLING THE DATA BASE   **15 Hours**

Modeling Data in the Organization -Modeling the rules of organization, The E-R Model, E-R Model Constructs, Relationships- the Enhanced E-R Model- Representing Super types and Sub types - Specifying Constraints in Super Type/Sub Type relationship.

UNIT III   LOGICAL DATA BASE DESIGN   **15 Hours**

Logical Database Design and Relational Model - The Relational Data model, Integrity Constraints, Transforming EER – Diagrams into relations, Introduction to Normalisation, The basic Normal Forms, BCNF, 4NF.

Physical Database Design and performance - Physical Database Design process, Designing fields, Designing physical records and Denormalisation, Designing physical files, Using and selecting Indexes, Designing Databases.

UNIT IV   SQL   **15 Hours**

SQL - The SQL Environment, Defining the Database in SQL, Inserting , Updating and Deleting Data, Internal Schema Definition in RDBMS, Processing Single Tables, Processing Multiple Tables, Ensuring Transaction Integrity, Data Dictionary Facilities.

SQL-99 enhancements and extensions to SQL.

Create student, bank, tables. Create library information, insert, delete, update, alter and modify student, bank and library data.

Suggested Reading:

1. Modern Database Management Systems-- Jeffery Hoffer, Mc Fadden, Mary B. Prescott.

2. Database system concepts – H.F. Korth

VI SEMESTER

SQL Practical ; DSE – 602 (A)

3 hours per week

List of SQL Queries using Oracle 8i in the following concepts:-
1. DDL Commands
2. DML Commands
3. DCL Commands
4. Integrity Constraints
5. Joins
6. Creation of Project Tables
7. Creation of Project E-R Diagrams

NIZAMCOLLEGE
FACULTY OF SCIENCE
Department of B.Sc. Computer Science
SEMESTER – VI DSE – 602 (B)
Visual Programming And RDBMS; Theory 4Hours/Week ; Practical 3 Hours/Week ; 5 credits
80C + 15 I = 5 A (50 P)
(60 hours @ 4 hrs per week)
(w.e.f. from AY 2021-2022)

UNIT I: Visual Programming   15 Hours

Visual Basic - Introduction to Visual Basic, GUI, IDE.

Types of Variables - public and private variable - declaration of variables.

C**ontrol Statements** - if, if-else, goto.

Loops – with - endwith, for-next, do-while, while - wend, do-until etc.

Creating user interfaces with windows common Controls - labels - textbox - command button - combo box, list box, check box, option button - scroll box(horizontal/vertical) etc.

UNIT II   Data Connectivity and Active X Control   15 Hours

Data Bound Controls - DB combo, DB list, DB grid, MS flex grid.

Access methods such as Data Access Objects (DAO), Remote Data Objects (RDO), Active Data Objects (ADO) - crystal (Data) reports.

Active X Controls. Reports – Crystal Reports.

UNIT III   The Client/Server Database Environment   15 Hours

Client/Server Architectures, III Tier Architectures, Partitioning and Application. Role of the Main Frame using parallel computer architectures, Using middleware, Establishing client server security, Client Server Issues.

UNIT IV   Data and Database Administration   15 Hours

The roles of data and database administrators, Modelling Enterprise Data, Planning for Databases, Managing Data security, Backing-up Databases, Controlling concurrent access, Managing Data Quality, Data Dictionaries and repositories, Overview of Tuning the database for performance.

Suggested Reading:

1. Mastering VB, BPB Publications.

2. Visual Basic 6.0 , Julia Case Bradley, Anitha

3. Modern Database Management Systems-- Jeffery Hoffer, Mc Fadden, Mary B. Prescott.

VI SEMESTER : DSE – 602 (B)
VISUAL BASIC Practical

3 hours per week

List of Visual Basic 6.0 programs in the following concepts:-

1. VB Simple Programs

2. Controls, Forms, DB Controls

3. DB Connectivity using ADO'S, DAO'S, RDO's

4. Active X Controls

5. Reports Generation

6. Project Execution: Project Forms, Connectivity to Database, Report Generation, Demo