

Programme outcomes, Programme specific outcomes and course outcomes of all the Programme offered by the Institution

Regular modification of curriculum is carried out to accommodate the changes with relevance to the local/ national / regional/global developmental needs

Under B.Sc Microbiology program, having 6 semesters with 6 Mandatory Core papers and 4 Electives among which 2 have to be selected. The 6 Practical Courses are mandatory / Core. 2 are electives and one Research Project is available.

Programme outcomes,

In I Semester History of Microbiology, Microscopy, Sterilization, Bacterial cell structure and characterization of microorganisms were discussed along with Practicals.

In II Semester Biochemistry, Aspects of Biomolecules. pH, Buffer, Biocatalysis and Microbial Metabolism of Microorganisms – Microbial Nutrition and Microbial Growth and various microbiological techniques were provided. III Semester deals with Virology and Immunology with Practicals. IV Semester consist of Food & Agricultural Microbiology with Practicals. In V Semester Medical Microbiology is mandatory/ core and among the 2 Electives Molecular biology and Microbial Genetics & rDNA technology is chosen along with the Practicals.

In VI Semester Pharmaceutical Microbiology is mandatory/ core with practicals where as among the 2 Electives Industrial microbiology and Fermentation technology has to be opted by students. There is a mandatory individual Research project in VI Semester.

The course is reasoning and application based, making the students eligible for higher studies, jobs in various sectors and Entrepreneurship abilities.

With the individual Research projects, Research orientation will be improved which is reflected in the form of papers and conference presentations.

Applied papers are advanced, making the students updated in the field. More number of practicals are there in the course making the students well versed with the subject.

Course outcomes

Paper-I General Microbiology

Content:

History & Development of Microbiology, Microscopy, staining and sterilization techniques, Ultra-structure of cell, Different methods of microbial characterization

Scope:

Students will get basics and importance of Microbiology. Theory & practicals of Microscopy, staining, sterilization, characterization of microbes along with microbial structure will be studied.

Paper-II Biochemistry & metabolism

Content:

Different biomolecules, pH and buffering, enzymes, bacterial nutrition and growth

Scope:

This paper will provide basis to understand microbiology and applications. More techniques are covered which will be helpful in remaining courses. Bacterial nutrition and growth is very important for their useful for growth and control in diseases.

Paper-III Virology & Immunology

Content:

Nature of viruses, viral classification, cultivation of viruses and Type study of TMV & HIV. Immunology Types of Immunity, immune organs, cells, antibodies and antigen-antibody interactions were discussed

Scope:

Basics of virology will help in molecular biology & disease control. Immunology plays an important role in Diagnosis, Prevention and control of diseases.

Paper-IV Food & Agricultural Microbiology

Content:

First two units covers food microbiology and last two units covers Agricultural Microbiology. Microbial food spoilage, intoxication, poisoning, food production, preservation in food Microbiology. Microbial quality of water, different environmental cycles, plant growth promoting microbes, Biological nitrogen fixation, Biocontrol in agricultural Microbiology were covered.

Scope:

Food contamination, food preservation and water quality knowledge will help students to safeguard themselves and work in food industry. Plant growth promoting microorganisms, biocontrol, nitrogen fixing microbes role in favour of environment can be explored

CORE V Medical Microbiology

Content:

It contains Diagnostic and pathogenesis of various diseases. Antimicrobial defence and different toxins is covered.

Scope :

It provides knowledge of pathogenic microorganisms, their characterization, pathogenesis and control. Student can safeguard himself & society and can work diagnostics and hospitals.

Elective-I Molecular Biology and Microbial Genetics

Content:

DNA, RNA, Protein structure and synthesis. DNA damage, mutations and repair. Gene transfer methods.

Scope:

This paper provides basic information of molecular biology. Understanding of biomolecular synthesis and control will help in further study

Elective-II r DNA Technology

Content:

Covers materials required, procedures and applications of Recombinant DNA technology. Few advanced techniques of r DNA technology are also discussed.

Scope:

It is the most advanced subject in Microbiology having abroad applications in industrial, medical , agricultural fields. Hence students with this knowledge can work in biotechnology industries with above applications.

CORE VI Pharmaceutical Microbiology**Content:**

Covers basics of microbial control, antimicrobial agents. Antibiotics, microbiological assays and drug resistance.

Scope:

It provides the knowledge of various methods of disease control. With the knowledge students can work in hospitals, pharmacy and industries.

Elective-I: Industrial Microbiology**Content:**

Explains History, screening, media, Fermentation, assays with examples of industrially important processes.

Scope:

It makes students self reliance in the industrial application of Microbiology in life and industry. Entrepreneurship can be established with the gained knowledge.

Elective-II: Fermentation Technology**Content:**

It contains modern fermentation techniques with important processes like Bio-fertilizers, Bio-fuels etc., IPRs were also discussed.

Scope:

The students obtain the advanced knowledge to work in fermentation industries. The knowledge of IPR's makes students to enable to protect their technologies.