

Department of Microbiology

B.Sc. (Honors) Microbiology

Program Outcomes

The Science of Microbiology aims to gain and expand our fundamental understanding of microorganisms by studying their morphology, metabolism, physiology, reproduction and genetics. Microbiology research has been, and continues to be in central position to meet many of the current global aspirations and challenges, such as maintaining food, water and energy security for a healthy population on a habitable earth.

Program Specific Outcomes

- To introduce the students to the basics of microbiology and learn about various structural details of different types of microbes.
- To make students aware about morphology, physiology, ecology and genetics of bacteria and various organisms.
- To enhance the practical skills of the students in various microbiological and biotechnological experimentation.
- To impart knowledge regarding use of microorganisms in the production of various value added products useful for mankind.
- To make students familiar with role of microbes in environment and how these tiny beings can help in maintaining the environment.
- The subject provides the students with an understanding of the manipulation of genes in order to produce genetically modified organisms with better properties.

Course Outcomes

Sr. No	Subject Code	Subject Name	Subject category	Course Outcomes
B.Sc. (Honors) Microbiology 1st Year				
1	MICRO1C01	Introduction to Microbiology and Microbial Diversity	Core course	To introduce the students to the basics of microbiology and learn about various structural details of different types of microbes.
2	MICRO1C02	Bacteriology	Core course	To make students aware about morphology, physiology, ecology and genetics of bacteria.
3	MICRO1C03	Biochemistry	Core Course	The students will learn about the chemical structures of carbohydrate proteins and lipids and their structural and metabolic role in cellular system.
4	MICRO1C04	Virology	SEC	To make students familiar to the structural and metabolic aspects of virus and its control
5	BIOTECH1GE01	Mycology and Phycology	GE	To inform the students about different aspects of fungi and algae and their applications in different fields.
6.	BIOTECH1GE02	Cell Biology	GE	To make students understand how cells work and get a detailed knowledge of the various mechanisms on which living beings work
B.Sc. (Honors) Microbiology 2ndYear				
1	MICRO2C05	Microbial Physiology and Metabolism	Core	To make students aware about microbial cell structure, microbial growth and microbial metabolism
2	MICRO2C06	Environmental Microbiology	Core	To make students familiar with role of microbes in environment and how they can help in preserving the environment.
3	MICRO2C07	Recombinant DNA Technology	Core	The subject provides the students an understanding of the manipulation of genes in order to produce modified organisms with better

				properties.
4	MICRO2C08	Industrial Microbiology	Core	Gives knowledge of use of microorganisms in the production of various products.
5	MICRO2C09	Microbes in Sustainable Agriculture and Development	DSE	To make students aware about the use of microorganisms in sustainable agriculture
6	MICRO2C010	Mol. Diagnostics	Core	To make students aware about the different molecular techniques and methods used in their diagnosis and identification.
7	BIOTECH2GE3	Molecular Biology	GE	To make students familiar about structure, function of macromolecules viz. DNA, RNA, Proteins and their biosynthesis as well as regulation.
8	BIOTECH2GE4	Immunology	GE	The subject provides a detailed knowledge of our immune system and how it works to fight against various diseases.
9	MICR2SE01	Microbial Quality Control in Food and Pharmaceutical Industries	SEC	To make students aware about the different types of media and other cultural and molecular techniques used in the detection and control of common contaminants in food and other industries.
10	MICROSEC03	Biofertilizers and Biopesticides	SEC	To make students aware about the use of microorganism in sustainable agriculture

B.Sc. (Honors) Microbiology 3rd Year

11	MICRO3C011	Food and Dairy Microbiology	Core Course	To make students aware about the variety of microorganisms that contaminate or damage food and those that can be used for food processing, preservation and fermentation
12	MICRO3C12	Medical Microbiology	Core course	This branch of microbiology is concerned with the diagnosis, prevention, and treatment of

				diseases caused by different types of microorganisms
13	MICRO3C13	Bioprocess Technology	Core Course	The Students will be aware about the technology used in the production of different pharmaceuticals , foods and flavours , fuels and chemicals with the help of the biocatalyst such as an enzyme, microorganisms, plant and animal cell in the bioreactor
14	MICRO3C14	Instrumentation and Biotechniques	Core Course	It gives the students detailed information about the working and instrumentation of various instruments used in microbiology and biotechnology
15	MICRO3DSE01	Biochemical Engineering	DSE	The students perform studies on cell, proteins and other biological substances to determine optimal conditions for growth and its inhibition
16	MICRO3DSE03	Ecology and Environment Managment	DSE	This paper give students the detailed knowledge of the interdependence between people and nature that is vital for food production , maintaining clean air and water And sustaining biodiversity in a changing climate
17	MICRO3DSE04	Parasitology	DSE	This field imparts with the study of disease causing microorganisms such as protozoans, helminths and arthropods
18	MICRO3DSE06	Advances in Microbiology	DSE	To impart knowledge of the basics principles of advanced methods used in identification of outbreak of emerging disease by genomics, proteomics , pangenomes, and microbial qourum sensing techniques.

