



Sai College®

COURSE OUTCOMES
OF
BACHELORS OF SCIENCE

VISION

The vision of the Department of Microbiology is that the knowledge in theory and practical aspects of Microbiology is imperative for the development of the country.

MISSION

The Department considers its mission as to produce personnel with expertise of the highest standard in the field of Microbiology to cater the increasing demand in the country for microbiologists.

Course Objectives

- Explain how microbes affect our daily lives and apply pure culture technique.
- Observe and measure microbial growth and develop core competencies in microbiology: structure and function, information flow, energy transfer and evolution.
- Manipulate bacteria genetically to address biological questions and communicate ideas and arguments effectively in writing and orally.
- Solve problems of quantity and rate and formulate and test hypotheses and collaborate and work in a team
- Analyze and use statistical methods to evaluate data

DEPARTMENT OF MICROBIOLOGY**SYLLABUS**

Paper	Name Of Paper
B.Sc. I	
Paper- I	General Microbiology & Basic Techniques
Paper- II	Biochemistry & Physiology
B.Sc. –II	
Paper- I	Molecular Biology & Genetic Engineering
Paper- II	Bio-instrumentation & Biostatistics
B.Sc. III	
Paper –I	Medical Microbiology & Immunology
Paper-II	Environmental, Industrial & Agricultural Microbiology

Course Outcomes

At the end of this course, a student will have developed ability to:

Paper	Name of Paper	Course Outcome
B.Sc. I		

Paper I	General Microbiology & Basic Techniques	CO-1: Study of Fundamental, history and development of microbiology. CO-2: Understand the basic Microbial techniques CO-3: Study of virology and bacteriology CO-4: Study of Mycology CO-5: Study of Phycology & Protozoology
Paper II	Biochemistry & Physiology	CO-1: Basics study of carbohydrates and proteins CO-2: Study of Lipid and Nucleic acid CO-3: To basic study of Enzymology CO-4: To study of Microbial metabolism CO-5: To give better understanding of Growth Physiology and Transport system.

Lab course		<p>CO-1: Preparation of solid/liquid culture media</p> <p>CO-2: Isolation of single colonies on solid media</p> <p>CO-3: Enumeration of bacterial numbers by serial dilution and plating</p> <p>CO-4: Simple and differential staining</p> <p>CO-5: Measurement of Microorganism (Micrometry) and camera Lucida drawing of isolated organism</p> <p>CO-6: Determination of bacterial growth by optical density measurement</p> <p>CO-7: General and specific qualitative tests for carbohydrates, amino acids and lipids.</p> <p>CO-8: Estimation of proteins and blood glucose.</p> <p>CO-9: Assay of the amilysis and phosphatas.</p>
B.Sc. II		
	Molecular Biology & Genetic Engineering	<p>CO-1: Understand the fundamental and Molecular biology</p> <p>CO-2: to study of Central dogma of protein synthesis</p> <p>CO-3: Study of mutation and DNA repair Mechanism</p> <p>CO-4: Study of Gene Regulation</p> <p>CO-5: study of genetic Engineering</p>

Paper – I		
Paper-II	Bio-instrumentation & Biostatistics	<p>CO-1: To learn about Microscopy and Centrifugation.</p> <p>CO-2: Study of pH metry and Chromatography</p> <p>CO-3: Study of Spectrophotometry</p> <p>CO-4: Study of Electrophoresis and X-ray diffraction</p> <p>CO-5: To Understand Biostatistics</p>
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Lab course		<p>CO-1: Determination of antibiotic resistance by plating method.</p> <p>CO-2: Assaying of microbial enzymes ; catalyst protease form a peroxidises, cellulose, celobioases, amylase, diastase.</p> <p>CO-3: Exercise on paper and gel electrophoresis.</p> <p>CO-4: Exercise on paper, thin and column chromatography.</p> <p>CO-5: Determination of pH of various water and soil sample.</p> <p>CO-6: Testing of Lambert Beer's law.</p> <p>CO-7: Determination of Lamba Max of Dye by spectrophotometer.</p> <p>CO-8: Isolation of resistant bacteria from soil and water sample.</p>
B.Sc. Part III		
Paper-I	Medical Microbiology &	CO-1: Study of air borne diseases.

	Immunology	<p>CO-2: Study of water borne diseases.</p> <p>CO-3: Study of clinical disease and diagnosis.</p> <p>CO-4: Basic concept of immunity.</p> <p>CO-5: Study of immuno disease diagnosis.</p>
Paper-II	Environmental, Industrial & Agricultural Microbiology	<p>CO-1: Study of air microbiology.</p> <p>CO-2: Study of water microbiology.</p> <p>CO-3: Study of soil microbiology.</p> <p>CO-4: Study of Industrial microbiology.</p> <p>CO-5: Study of agricultural microbiology.</p>
Lab course		<p>CO-1: Isolation of bacteria from air and soil (crop fields)</p> <p>CO-2: Isolation of fungi from air and soil.</p> <p>CO-3: Relationship between OD and CFU measurements.</p> <p>CO-4: Measurement of fungal growth by dry weight and wet weight.</p> <p>CO-5: Study of Rhizospheric and Phyllospheric microbes from economically important plant.</p> <p>CO-6: Biodegradation study of some organic molecules.</p> <p>CO-7: Microbial assessment of potable water.</p> <p>CO-8: Determination of BOD, COD and DO.</p>

		<p>CO-9: Determination of blood group by slide agglutination test TLC/DLC.</p> <p>CO-10: Determination of Hemoglobin.</p> <p>CO-11: Determination of quality of milk by MBRT.</p> <p>CO-12: Isolation of Rhizobium from root nodules.</p>
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