



Sanjivani Rural Education Society's
SANJIVANI ARTS, COMMERCE AND SCIENCE COLLEGE

At: Sahajanandnagar, Post: Shingnapur, Tal: Kopergaon,
Dist: Ahmednagar (M.S.) Pin:423603

Recognized by Govt. of Maharashtra, Affiliated to University of Pune, ID.No.PU/AN/ACS/130/2012



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Department of Microbiology

Program Outcomes (POs)	
PO1	Demonstrate a comprehensive understanding of the principles and concepts in introduction to microbiology, basic techniques in microbiology, medical microbiology, immunology, genetics, enzymology, agricultural microbiology, marine microbiology, Food and dairy microbiology, metabolism, molecular biology, fermentation technology, waste management, air, water, and soil microbiology and nanobiotechnology.
PO2	Acquaint with the historical developments in microbiology and the contributions of key scientists to the field, propose appropriate cultivation strategies for specific microorganisms based on their nutritional requirements and growth conditions, evaluate the impact of microorganisms on human health, agriculture, biotechnology, and the environment, and solve problems related to microbial contamination, sterilization, disinfection and control in various steps.
PO3	Analyze the roles of microorganisms in environmental processes, such as nutrient cycling, decomposition, and bioremediation, microbial populations in air, water, and soil samples to assess their quality and potential ecological impacts identify and classify microorganisms associated with medical conditions and relevant chemotherapeutic a treatment, misuse of antibiotics, industrial processes, and environmental samples, design and implement experiments to study bacterial physiology, genetics, and fermentation processes.
PO4	Explain the epidemiology, transmission, and clinical manifestations of various infectious diseases, cellular and molecular mechanisms of innate and adaptive immunity, and transplantation, analyze the impact of agricultural practices on soil microbial communities and sustainability, describe the fundamental principles of genetics, including inheritance, gene expression, and genetic mutations, Analyze the potential applications of marine and dairy microbes in biotechnology and industry, the role of microorganisms in waste degradation and bioremediation, use of nanoparticles in drug delivery, diagnostics, vaccine production, wastewater treatment and environmental remediation
PO5	Apply laboratory techniques and methodologies learned in practical courses to effectively conduct experiments such as aseptic techniques, microbial culturing, microscopy, staining techniques medical microbiology, immunology, enzymology, genetics, fermentation technology, food and dairy, Nanotechnology, marine, agriculture and other relevant areas and interpret experimental data, making informed conclusions and recommendations.


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PO6	Develop Research skills, formulate research questions, design and conduct experiments, and analyse data to address scientific inquiries and apply critical thinking to solve problems in various fields of microbiology and draw conclusions based on scientific evidence.
PO7	Recognize the dynamic nature of microbiology and its ongoing advancements and effectively communicate scientific information through written reports, oral presentations, and visual aids, tailored to different audiences including peers, professionals, and the general public and Industrial visits.
PO8	Explore applications of microbiology in biotechnology, such as producing enzymes, biofuels, bioplastics, antibiotics, or other valuable compounds through microbial fermentation. Develop novel probiotics or prebiotics for gut health, immune support.

Program Specific Outcomes (PSOs)

PSO-1	To accommodate more advanced topics in the syllabi, it is necessary to understand the basic science knowledge level of the students that have chosen the Microbiology discipline. Curricula of courses of state and central boards of higher secondary level were reviewed to avoid reiterations of previous syllabi.
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FY - Program Specific Outcomes (PSOs)

PSO-1	Students will be provided the basic information that includes – characteristics of microbial world. The microorganisms will be studied for morphological, structural characterization, isolations techniques from natural and extreme environments and their prominent features.
PSO-2	The methodology to develop keen observation i.e. different microscopy techniques, staining techniques and nutritional requirements will be taught in detail; including these aspects at laboratory level as well.
PSO-3	Introduction to biochemical characterization of components of micro-organism e.g. proteins, lipids, nucleic acids and carbohydrates and instrumental techniques to estimate these components qualitatively and quantitatively from micro-organisms or other natural sources will be the focus for second theory paper.
PSO-4	Relevant experimentation on these topics will be included in practical course. In practical course, students will be trained in preparing laboratory manuals, standard operating practices and logbooks


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