



"Education for Knowledge, Science and Culture"
-Shikshanmaharshi Dr. Bapuji Salunkhe
Shri Swami Vivekanand Shikshan Sanstha's
Vivekanand College, Kolhapur
(An Empowered Autonomous Institute)



Department of Microbiology (UG)

Academic Year 2025-26

Course Outcomes (COs): Microbiology

B.Sc. Part III Microbiology

Semester V

DSE-1010E1: Paper IX - IMMUNOLOGY

CO No.	On completion of the course, student will be able to:
CO1	Understand the overall organization of the Immune system.
CO2	Explain the salient features of antigen antibody reaction & its use in diagnostics and in various other studies
CO3	Understand various viral, bacterial & fungal diseases, their causative agent, mode of infection, epidemiology lab diagnosis, treatment and prophylaxis
CO4	Explain different antimicrobial agents with respect to their mode of action uses

DSE-1010E2: Paper X - MEDICAL MICROBIOLOGY

CO No.	On completion of the course, student will be able to:
CO1	Correlate disease symptoms with causative agent, isolate and identify pathogens.
CO2	Understand mechanism of action of antimicrobial drugs and their uses as prophylactic agents.
CO3	Explain pathogenicity of organisms associated with human infections.
CO4	Explain different antimicrobial agents with respect to their mode of action uses.

DSC-XI DSC03MIC53 PAPER XI- AGRICULTURAL MICROBIOLOGY	
CO1	Understand various plant microbe interactions especially rhizosphere and their applications especially the biofertilizers and their production techniques
CO2	Understand various biogeochemical cycles - C, N, P cycle and microbes involved
CO3	Perform isolation of agriculturally important microorganisms and formulate biofertilizers
CO4	Explain role of microorganisms and common symptoms of plant diseases
DSE-I DSE03MIC51: Paper XII - INDUSTRIAL MICROBIOLOGY	
CO No.	On completion of the course, student will be able to:
CO1	Know methods used for industrial production of various products using microorganisms
CO2	Explain various techniques for product recovery after fermentation
CO3	Understand the cause of spoilage of food and methods for preservation of food
CO4	Design the methods for preservation of industrially important microorganisms
DSE-I DSE03MIC52 Paper XII - FERMENTATION TECHNOLOGY-I	
CO No.	On completion of the course, student will be able to:
CO1	Know methods used for industrial production of various products using microorganisms
CO2	Explain various techniques for product recovery after fermentation
CO3	Apply methods used for recovery of fermentation products.
CO4	Identify the industrially important microorganisms using screening technique.
VSC-PR-IV VSC03MIC 59 PRACTICALS BASED ON SOIL MICROBIOLOGY	
CO No.	On completion of the course, student will be able to:
CO1	Explain physical and chemical characteristics of soil.

CO2	Describe the role of microorganisms in soil fertility.
CO3	Describe the role of microorganisms in various elemental cycles.
CO4	Define soil quality and its relation to Soil Microbiology

Semester VI

DSC XIII DSC03MIC61: PAPER XIII- MICROBIAL GENETICS

CO No.	On completion of the course, student will be able to:
CO1	Understand molecular mechanism involved in gene regulation
CO2	Understand the basic concept of operon and mutation
CO3	Discuss the principle, working and applications of molecular biology techniques including PCR and DNA sequencing
CO4	Explain techniques used to manipulate genes & formation of clones

DSC XIV DSC03MIC62: PAPER XIV- MICROBIAL BIOCHEMISTRY


CO No.	On completion of the course, student will be able to:
CO1	Explain Metabolic pathways and Bioenergetics
CO2	Understand Various downstream processing
CO3	Understand Basic concept related to enzyme
CO4	Determine enzyme production and its activity

DSC XV DSC03MIC63: PAPER XV- MEDICAL MICROBIOLOGY

CO No.	On completion of the course, student will be able to:
CO1	Correlate disease symptoms with causative agent, isolate and identify pathogens.
CO2	Understand mechanism of action of antimicrobial drugs and their uses as prophylactic agents.
CO3	Explain pathogenicity of organisms associated with human infections.

CO4	Explain different antimicrobial agents with respect to their mode of action uses.
DSE-II DSE03MIC61: PAPER XVI- ENVIRONMENTAL MICROBIOLOGY	
CO No.	On completion of the course, student will be able to:
CO1	Understand the basic principle of environment microbiology and be able to apply these principles to understanding and solving environmental problems
CO2	Know the Microorganisms responsible for water pollution and their transmission
CO3	Describe classification of lakes, sources, consequences and control of eutrophication
CO4	Explain various bioburden test and clean room concepts
DSE-II DSE03MIC61 PAPER XVI- FERMENTATION TECHNOLOGY II	
CO No.	On completion of the course, student will be able to:
CO1	Know methods used for industrial production of various products using microorganisms.
CO2	Explain various techniques for product recovery after fermentation
CO3	Understand the importance of fermentation economics.
CO4	Know Computer applications in downstream processing.
VSC-PR-IV VSC03MIC69 WASTE WATER MANAGEMENT	
CO No.	On completion of the course, student will be able to:
CO1	Explain physical and chemical characteristics of waste water
CO2	Examine various types of solid waste in water and categorize it.
CO3	Understand role of microorganism in water pollution
CO4	Predict impact of water pollution on all life forms




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