

DEPARTMENT OF MICROBIOLOGY

SEMESTER – I

Course Title :- General Microbiology

COURSE CODE : MB101

CO1: Can learn about history of microbiology, contributions of different scientists in the field of Microbiology and also applications related to this field.

CO2: Can learn about different types of microscopic techniques, measurement/calibration of microbes

CO3: Can learn about how to stain micro organisms using different staining techniques (dyes). By staining students can observe the shape and arrangement of cells. Students can also see the motility of bacteria by hanging drop method.

CO4: Can learn about classification of micro organisms. They can also learn about general characters of prokaryotic microorganisms.

CO5: Can learn about ultra structure of bacteria and viruses in detail. In addition students are also exposed to general characters and classification of eukaryotic micro organisms.

CO6: Can learn about different nutritional types in microorganisms and biochemical pathways underlying their mechanism.

CO7: Can learn about different sterilization techniques and mechanism of growth and factors

CO6: In practicals students will learn microscope handling, calibration, staining and morphology of some micro organisms.

SEMESTER-I

Title: Microbiology and Human health

COURSE CODE :GE/MB 101

CO 1: Non-microbiology students are made to learn about the history of microbiology, contributions of different scientists, basic culture techniques such as staining, and cultivation methods.

CO 2: In this students are made to learn about Microorganisms related to human health i.e. Normal microbial flora, and some pathogens.

SEMESTER – II

Course Title :- MICROBIAL DIVERSITY

COURSE CODE : MB201

CO1: Concept of Biodiversity– Can learn about elements of biodiversity, its economic value. Students can also learn about classification of living organisms and get an idea about Bergey's manual.

CO2: Prokaryotic Microbial Diversity– Here students will learn about the diversity of prokaryotic microorganisms such as Archaeobacteria, Cyanobacteria etc.

CO3: Eukaryotic Microbial Diversity – Students will learn about diversity of eukaryotic microorganisms such as fungi, algae, protozoa etc.

CO4: Microbial Ecosystems – Students can learn about interactions between microorganisms in addition to understanding about microbiome and other ecosystems.

CO5: PRACTICALS - In practicals students are made to learn isolation of methanogens, halophiles, cyanobacteria etc.

CO6: PRACTICALS – Students can learn about how to observe algae, protozoa, and the making of a winogradsky column that shows microbial diversity.

SEMESTER - IV

FOOD FERMENTATION TECHNIQUES

Course type: SEC/MB401

CO1: Students can learn about different fermented foods such as milk based products and grain based products.

CO2: Students can understand the concept of probiotics

CO3: Can learn about various food products made from fermented vegetables.

CO4: Can study about fermented fish and meat products.

SEMESTER - IV

Title: MEDICAL MICROBIOLOGY & IMMUNOLOGY

COURSE CODE : MB401

CO1: Can learn about concepts of normal flora, bacterial toxins and antimicrobial resistance.

CO2: Can get knowledge about air borne, food and water borne, and sexually transmitted diseases.

CO3: Can learn about zoonotic diseases and nosocomial infections.

CO4: Can learn about cells and organs of immune system.

CO5: Can get knowledge about concepts of antigen and antibody.

CO6: Can learn about antigen-antibody reactions and immunofluorescence techniques.

SEMESTER-IV

Title: MUSHROOM CULTIVATION

Course Outcomes:SEC/MB401

CO1: Can learn about mushrooms and their history.

CO2: Can gain knowledge about edible mushrooms and their global status of production

CO3: Can know about nutritional and health benefits of mushrooms

CO4: can learn in detail about steps involved in mushroom production.

CO5: Can learn about pests and pathogens of mushrooms and post harvest handling and care of mushroom production.

SEMESTER-V

Title: IMMUNOLOGY

COURSE CODE : MB501

CO 1 HISTORY OF IMMUNOLOGY AND IMMUNITY

Students are made to learn about concepts of immunology such as antigens, antibodies, complement and types of immunity.

CO 2 CELLS AND ORGANS OF IMMUNE SYSTEM

Students can learn about Primary and secondary organs of immune system and cells of immune system.

CO 3 ANTIGENS AND ANTIBODY REACTION

Students can learn about Components of complement and activation of complement, types of antigens-Antibody reactions, Labeled antibody based techniques

CO 4 IMMUNOLOGICAL PROCESSES AND APPLICATIONS

In this section students can learn about types of hypersensitivity, autoimmunity, monoclonal antibodies and vaccines.

SEMESTER-VI

Title: FOOD MICROBIOLOGY

COURSE CODE : MB601

CO 1

Students can learn about Microorganisms of food materials and their sources. In this section students are made aware of microbes responsible for spoilage of foods.

CO 2

Students can learn about Microbiological production of fermented foods, Biochemical activities of microbes in milk. Microorganisms as food i.e. SCP, Edible mushrooms, Probiotics.

CO 3

Students can learn about Methods of Food preservation, food poisoning and Food intoxication.

CO 4

Students can learn about Microbiology of potable and polluted water, Solid waste disposal and Outline of biodegradation of environmental pollution –pesticides

SEMESTER-VI

Title: HOSPITAL WASTE MANAGEMENT

SEC PAPER

CO 1 · students can learn about types of Hospital waste and its Management. Guidelines of Central Pollution Control Board (CPCB), Safe disposal of the Radioactive waste rules.

CO 2 · in this section students are made to learn about Basic steps in health care waste management such as Segregation, Disinfection, Storage and Transportation.

SEMESTER-VI

Title: MEDICAL MICROBIOLOGY

COURSE CODE : MB701

CO 1 INTRODUCTION TO MEDICAL MICROBIOLOGY

Students can learn about basic concepts of medical microbiology such as normal flora, infections, antibacterial substances. Etc.

CO 2 DIAGNOSTIC AND THERAPEUTICAL MICROBIOLOGY

In this section students can learn about general principles of diagnostic microbiology, lab diagnosis methods and chemotherapy concepts.

CO 3 MEDICAL BACTERIOLOGY

Students are made to study in detail about air borne, food and water borne diseases.

CO 4 MEDICAL VIROLOGY AND PARASITOLOGY

Students can learn about some other diseases such as influenza, hepatitis, polio, amoebiasis, rabies, malaria, hepatitis, AIDS etc.