

BSc MICROBIOLOGY

Courses and Course Outcome

SEMESTER 1		
Course Code	Course Name	Course Outcome
MBG1B01	GENERAL MICROBIOLOGY	<ul style="list-style-type: none">• CO1: Knowledge and understanding that besides common bacteria, there are several other microbes.• CO2: To differentiate large number of common bacteria by their salient characteristics; classify bacteria into groups.
MBG1C02	BIOSTATISTICS	<ul style="list-style-type: none">• CO1: To identify convenient sample by sampling theory.• CO2: To define the principal concepts of probability.
BCH1C01	BIOCHEMISTRY I	<ul style="list-style-type: none">• CO1: To understand the structure of carbohydrates, proteins, amino acids, lipids, etc.
SEMESTER 2		
MBG2B02	MICROBIAL PHYSIOLOGY AND TAXONOMY	<ul style="list-style-type: none">• CO1: To differentiate concepts of aerobic and anaerobic respiration and how these are manifested in the form of different metabolic pathways in microorganisms.
MBG2C04	BIOSTATISTICS	<ul style="list-style-type: none">• CO1: To define some concepts about hypothesis testing.• CO2: To arrange the result of hypothesis testing and make statistical decision.
BCH2C02	BIOCHEMISTRY II	<ul style="list-style-type: none">• CO1: To make knowledge on biophysical chemistry and bio instrumentation.
SEMESTER 3		
MBG3B03	ENVIRONMENTAL AND SANITATION MICROBIOLOGY	<ul style="list-style-type: none">• CO1: Identify the important role microorganisms play in maintaining healthy environment by degradation of solid/liquid wastes; how these activities of microorganisms are used in sewage treatment plants, production

		<p>of activated sludge and functioning of septic tanks.</p> <ul style="list-style-type: none"> • CO2: To understand the significance of BOD/COD and various tests involving use of enumerating faecal <i>E. coli</i> for assessing quality of water.
BCH3C03	BIOCHEMISTRY III	<ul style="list-style-type: none"> • CO1: To explain various metabolic pathways in the cell.
A11	GENERALCOURSE 1-BIODIVERSITY - SCOPE AND RELEVANCE	<ul style="list-style-type: none"> • CO1: To demonstrate ability to critically and systematically integrate knowledge and perspectives and to analyse, assess and deal with complex biological problems, issues and situations within the field of biodiversity and systematics. • CO2: To demonstrate an ability to reflect on their personal impact on biodiversity in a global perspective.
A12	GENERAL COURSE II - RESEARCH METHODOLOGY	<ul style="list-style-type: none"> • CO1: To demonstrate knowledge of research processes. • CO2: To perform literature reviews using print and online databases
CSC3C09	COMPUTER FUNDAMENTALS, MS EXCEL, SPSS	<ul style="list-style-type: none"> • CO1: Explain basic Computer fundamentals • CO2: Explain basics of MS Excel • CO3: Familiarizing SPSS • CO4: Implement Data analysis using SPSS • CO5: Implement Data analysis using MS EXCEL
SEMESTER 4		
MBG4B04	SOIL AND AGRICULTURAL MICROBIOLOGY	<ul style="list-style-type: none"> • CO1: To understand various plant microbes' interactions especially rhizosphere, phyllo sphere and mycorrhizae and their applications especially the biofertilizers and their production techniques.
MBG4B05(P)	MICROBIOLOGY PRACTICAL I	<ul style="list-style-type: none"> • CO1 : To know the principles underlying sterilization of culture media , glassware and plasticware to be used for microbiological work. • CO2:Prepare different types of media for the cultivation of microorganisms in a microbiological lab. • CO3: Determine the effect of various factors influencing the growth of microorganisms. • CO4: Demonstrate techniques for isolation and enumeration of microbes from various sample.

BCH4C04	BIOCHEMISTRY IV	<ul style="list-style-type: none"> • CO1: To make knowledge on hormones, vitamins, nucleic acids, etc.
A13	NATURAL RESOURCE MANAGEMENT	<ul style="list-style-type: none"> • CO1: Awareness regarding existing natural resources and their management strategies.
A14	INTELLECTUAL PROPERTY RIGHTS	<ul style="list-style-type: none"> • CO1: Knowledge about different types of intellectual property rights. • CO2: Awareness of safeguarding intellectual property rights in its actual form.
CSC4C10	PYTHON PROGRAMMING	<ul style="list-style-type: none"> • CO1: Explain basic principles of Python programming language. • CO2: Implement decision making and loop statements in Python. • CO3: Implement GUI applications using Python. • CO4: Explain modular programming concepts using Python. • CO5: Familiarize with concepts in Python.
SEMESTER 5		
MBG5B06	INDUSTRIAL MICROBIOLOGY	<ul style="list-style-type: none"> • CO1: Get equipped with a theoretical and practical understanding of industrial microbiology. • CO2: Appreciate how microbiology is applied in manufacture of industrial products. • CO3: Know how to source for microorganisms of industrial importance from the environment.
MBG5B07	FOOD AND DAIRY MICROBIOLOGY	<ul style="list-style-type: none"> • CO1: To know the spoilage mechanisms in foods and thus identify methods to control deterioration and spoilage. • CO2: To recognize and describe the characteristics of important pathogens and spoilage microorganisms in foods.
MBG5B08	IMMUNOLOGY	<ul style="list-style-type: none"> • CO1: Explain the biological functions of various immune cells and organs. • CO2: Recognize the cellular coordination in the generation of immune responses. • CO3: Illustrate the types, structure and basic features of antigen and antibody • CO4: Demonstrate the significance of MHC, C system and immunological tolerance. • CO5: Classify antigen-antibody reactions involved in diagnosis of infections. • CO6: Describe the types and mechanisms of hypersensitivity,

		<p>autoimmunity and graft rejection reactions.</p> <ul style="list-style-type: none"> • CO7: Discuss the causes, molecular mechanisms, immunological responses and treatment options of tumour development.
MBG5B09	MEDICAL MICROBIOLOGY I	<ul style="list-style-type: none"> • CO1: Explain the concept of infection, its types, sources and the mode of transmission of various diseases. • CO2: Discuss the methods for collection and transportation of clinical samples. • CO3: Compare the morphology, cultural and biochemical characteristics, pathogenesis, laboratory diagnosis, treatment and prophylaxis of various bacterial diseases.
SEMESTER 6		
MBG6B10	GENETICS AND GENETIC ENGINEERING	<ul style="list-style-type: none"> • CO1: To understand the properties, structure and function of genes in living organisms at the molecular level. • CO2: To make a conceptual knowledge about DNA as a genetic material, enzymology, and replication strategies. • CO3: To explain the significance of central dogma of molecular biology.
MBG6B11	MEDICAL MICROBIOLOGY II	<ul style="list-style-type: none"> • CO1: To identify commonly available fungi and algae and their characteristic.
MBG6B12(P), MBG6B13(P)&MBG6B14(P)	MICROBIOLOGY PRACTICALII, III, &IV	<ul style="list-style-type: none"> • CO1: To handle and independently work on lab protocols involving industrial and food microbiology. • CO2: To recognize and describe the molecular techniques used in the laboratory.
MBG6B15(E2)	MOLECULAR BIOLOGY	<ul style="list-style-type: none"> • CO1: To Understand genome organization of model organisms namely <i>E. coli</i> and <i>Saccharomyces</i>, and the molecular mechanisms that underlying mutations. • CO2: To developed a fairly good knowledge about the three well known mechanisms by which genetic material is transferred among the microorganisms namely transformation, transduction and conjugation.
MBG6B16(PR)	PROJECT	<ul style="list-style-type: none"> • CO1: To give a practical exposure to the process of microbiology Students are also encouraged to take up a research-oriented work to formulate a research problem and produce results based on its implementation/simulation/experimental analysis.

