

Department of Microbiology
COs, Pos and PSOs (2022-2023)

| BACHELOR OF SCIENCE | |
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| PROGRAM: B.Sc. Microbiology | |
| Program Outcomes | PO-1. Critical Thinking: Take informed actions after identifying the assumptions that frame our thinking and actions, checking out the degree to which these assumptions are accurate and valid, and looking at our ideas and decisions (intellectual, organizational, and personal) from different perspectives. |
| | PO-2. Effective Communication: Speak, read, write and listen clearly in person and through electronic media in English and in one Indian language, and make meaning of the world by connecting people, ideas, books, media and technology. |
| | PO-3. Social Interaction: Elicit views of others, mediate disagreements and help reach conclusions in group settings. |
| | PO-4. Effective Citizenship: Demonstrate empathetic social concern and equity centred national development, and the ability to act with an informed awareness of issues and participate in civic life through volunteering. |
| | PO-5. Ethics: Recognize different value systems including your own, understand the moral dimensions of your decisions, and accept responsibility for them. |
| | PO-6. Environment and Sustainability: Understand the issues of environmental contexts and sustainable development. |
| | PO-7. Self-directed and Life-long Learning: Acquire the ability to engage in independent and life-long learning in the broadest context socio-technological change |
| Program Specific Outcomes | PSO-1. After completion of program, students will be able to have in-depth knowledge of basic concepts in Microbiology. |
| | PSO-2. Student will have set his foundation to pursue higher education in Microbiology. |
| | PSO-3. After completing the program student will have developed interdisciplinary approach and can pursue higher studies in subjects other than Microbiology. |
| | PSO-4. Students will have set his foundation to pursue higher education in subjects other than Microbiology. |
| Course Outcomes F.Y.B.Sc.(SEM-I, II)(CBCS- 2019) | |
| Paper I Course Code: MB-111 Course Name: Introduction to Microbial World | CO 1: To enrich students' knowledge and train them in the pure microbial sciences |
| | CO 2: To introduce the concepts of application and research in Microbiology o inculcate sense of scientific responsibilities and social and environment awareness |
| | CO 3: To help students build-up a progressive and successful career |
| | CO 4: To inculcate sense of scientific responsibilities and social and environment awareness |
| Paper II Course Code: MB-112 Course Name: Basic Techniques in Microbiology | CO 1: The microorganisms will be studied for morphological, structural characterization. |
| | CO 2: Isolations techniques from natural and extreme environments and their prominent features |
| | CO 3: Application of knowledge of microscope |

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| | CO 4: Studying various parameters for growth of bacteria |
| Course-I Course Code: MB-113 Course Name: Practical Course Based on Paper I and II | CO 1: Acquire technical skills laboratory equipment, tools, and materials. |
| | CO 2: Demonstrate an understanding of laboratory procedures including safety, and scientific methods. |
| | CO 3: Acquire the complementary skills of collaborative learning and teamwork in laboratory settings. |
| | CO 4: Application of knowledge of microscope |
| Paper I Course Code: MB-121 Course Name: Bacterial cell and Biochemistry | CO 1: To enrich students knowledge and train them in the pure microbial sciences |
| | CO 2: To introduce the concepts of application and research in Microbiology o inculcate sense of scientific responsibilities and social and environment awareness |
| | CO 3: To help students build-up a progressive and successful career |
| | CO 4: To inculcate sense of scientific responsibilities and social and environment awareness |
| Paper II Course Code: MB- 122 Course Name: Microbial Cultivation and Growth | CO 1: The microorganisms will be studied for morphological, structural characterization isolations techniques from natural and extreme environments and their prominent features. |
| | CO 2: Study of various growth media for isolation of an organism |
| | CO 3: Isolations techniques from natural and extreme environments and their prominent features. |
| | CO 4: Studying various parameters for growth of bacteria |
| Course- II Course Code:MB-123 Course Name: Practical Course Based on Paper I and II | CO 1: Acquire technical skills laboratory equipment, tools, and materials. |
| | CO 2: Demonstrate an understanding of laboratory procedures including safety, and scientific methods. |
| | CO 3: Acquire the complementary skills of collaborative learning and teamwork in laboratory settings. |
| | CO 4: Application of knowledge of microscope |
| Course Outcomes S.Y.B.Sc. (SEM- III, IV)(CBCS- 2019) | |
| Paper I Course Code: MB-211 Course Name: Medical Microbiology and Immunology | CO 1: Principles of taxonomy and classification of major groups of microorganisms can be studied in one of the papers. |
| | CO 2: This paper will also include the physiological studies on the groups of micro-organisms |
| | CO 3: To inculcate basic concept of immunity |
| | CO 4: To introduce students with the knowledge of ABO blood grouping |
| Paper II Course Code: MB-212 Course Name: Bacterial Physiology and Fermentation Technology | CO 1: To enrich students' knowledge and train them in the pure microbial sciences |
| | CO 2: To introduce the concepts of application and research in Fermentation Technology |
| | CO 3: To define certain physiological terms such as metabolism, catabolism and anabolism |
| | CO 4: To learn how to design a fermenter |
| Paper III Course Code: MB-213 Course Name: Practical Course Based on MB-211 | CO 1: To introduce the concepts of application of Blood Grouping |
| | CO 2: Practical at this level will also include application of biochemical tests for bacterial Characterization |
| | CO 3: To apply the knowledge of isolation in identifying a bacteria |

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| and MB-212 | CO 4: Acquire the complementary skills of collaborative learning and teamwork in laboratory settings. |
| Paper I Course Code: MB-221 Course Name: Bacterial Genetics | CO 1: To enrich students knowledge and train them in the pure microbial sciences |
| | CO 2: To introduce the concepts of application and research in Genetics |
| | CO 3: To inculcate sense of scientific responsibilities and social and environment awareness |
| | CO 4: To help learn the concept of mutation in DNA |
| Paper II Course Code: MB-222 Course Name: Air, water and soil Microbiology | CO 1: To study role of micro-organisms in environment in regards to pollution and biodegradation; water and sewage treatment |
| | CO 2: Soil Microbiology will give basic information regarding agricultural field |
| | CO 3: To correlate Soil Micro biome and Role of microorganisms in soil health |
| | CO 4: To learn the biomass production of biofertilizers and biocontrol agents |
| Paper III Course Code: MB-223 Course Name: Practical Course Based on MB-221 and MB-222 | CO 1: To impart the knowledge of Different Air Flora and calculation of the same |
| | CO 2: Preparation and Application of Bioinoculants |
| | CO 3: To study mutation in Bacteria using mutagens |
| | CO 4: Acquire the complementary skills of collaborative learning and teamwork in laboratory settings. |
| Course Outcomes T.Y.B.Sc. (SEM- V, IV)(CBCS- 2019) | |
| Course Code: MB-351 Course Name: Medical Microbiology I | CO 1: Understand the human anatomy, pathogens associated with diseases. |
| | CO 2: Acquire knowledge of principles underlying establishment of pathogens in human body |
| | CO 3: Comprehend of pathogenesis of specific pathogens causing microbial diseases. |
| | CO 4: Assess epidemiological patterns of microbial disease transmission as various modes, intensity at local and global level. |
| Course Code: MB-352 Course Name: Immunology I | CO 1: Understand immune system structure, composition, function and comparison of different types of immunity. |
| | CO 2: Acquire knowledge about antigens, Recognition of pathogens; antigen processing and presentation; Immunity to infection and pathological consequences of immunodeficiencies. |
| | CO 3: To learn the applications of Immunology in monoclonal antibodies, vaccines production and Immunotherapy. |
| | CO 4: Understand abnormal working of Immune system in hypersensitivity, auto immune diseases, immune tolerance and transplantation immunology. |
| Course Code: MB-353 Course Name: Enzymology | CO 1: To understand methods of active site determination, role of enzymes and its cofactors in microbial physiology. |
| | CO 2: To correlate regulation of metabolism at enzymatic levels and apply, methodology for commercial applications of enzymes |
| | CO 3: To learn to perform enzyme assay, purification and quantification of enzymes activity, enzyme kinetics in terms of initial, final velocity, mathematical expression of enzyme kinetic parameters. |
| | CO 4: To inculcate the Knowledge of enzyme kinetics in terms of initial, final velocity, mathematical expression of enzyme kinetic parameters. |

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| Course Code: MB-354 Course Name: Genetics | CO 1: To exhibit a knowledge base in Genetics and Molecular |
| | CO 2: To understand the central dogma of Molecular Biology |
| | CO 3: To construct genetic map of bacteria and fungi |
| | CO 4: To introduce the concepts of application and research in Genetics |
| Course Code: MB-355 Course Name: Fermentation Technology– I | CO 1: To impart technical understanding of commercial fermentations |
| | CO 2: To apply classical, advanced strain improvement and isolation techniques for fermentation processes. |
| | CO 3: To optimize and sterilize media used in fermentation industry for commercially economical and efficient fermentations. |
| | CO 4: To introduce the concepts of application and research in Fermentation Technology |
| Course Code: MB-356 Course Name: Agricultural Microbiology | CO 1: To understand plant growth improvement with respect to disease resistance, environment tolerance. |
| | CO 2: To correlate stages of plant disease development, epidemiology, symptom based classification, control methods. |
| | CO 3: To understand the importance of microorganisms in sustainable agriculture, biotechnological application of bio films, edible vaccines. |
| | CO 4: To correlate Soil Micro biome and Role of microorganisms in Agriculture |
| Course Code: MB-357 Course Name: Diagnostic Microbiology and Immunology | CO 1: Comprehend of pathogenesis of specific pathogens causing microbial diseases. |
| | CO 2: Acquire knowledge of principles underlying establishment of pathogens in human body |
| | CO 3: Learning to handle the biological samples |
| | CO 4: Acquire the complementary skills of collaborative learning and teamwork in laboratory settings |
| Course Code: MB-358 Course Name: Enzymology and Genetics | CO 1: Application of knowledge for Qualitative and Quantitative analysis of biomolecules |
| | CO 2: Practical application of separation techniques for sugars and amino acids |
| | CO 3: To access the technique for DNA isolation and detection |
| | CO 4: Acquire the complementary skills of collaborative learning and teamwork in laboratory settings |
| Course Code: MB-359 Course Name: Fermentation Technology- I and Agricultural Microbiology | CO 1: Preparing protocol for isolation of plant pathogen |
| | CO 2: Study of PGPR and their Isolation |
| | CO 3: Introducing various aspects with respect to Antibiotic |
| | CO 4: Acquire the complementary skills of collaborative learning and teamwork in laboratory settings |
| Course Code: MB-3510 Course Name: Marine Microbiology | CO 1: To acquire advances in the knowledge of marine microbes and marine ecology. |
| | CO 2: To learn the field research on marine processes and laboratory research on microorganisms. |
| | CO 3: To comprehend the role of marine microbes in bioremediation and bioprospecting. |
| | CO 4: To avail career opportunities in marine education, industry and research |
| Course Code: MB-3511 | CO 1: To understand prospects of dairying at commercial marketing. To acquire |

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| Course Name: Dairy Microbiology | skills of processing of milk and dairy products.. |
| | CO 2: To assess quality control in dairy industry. |
| | CO 3: To comprehend production of dairy products of commercial significance with emphasis to local and global market demand |
| | CO 4: To acquire skills of processing of milk and dairy products. |
| Course Code: MB-361 Course Name: Medical Microbiology II | CO 1: Acquire knowledge of principles underlying establishment of pathogens in human body. |
| | CO 2: Comprehend of pathogenesis of specific pathogens causing microbial diseases. |
| | CO 3: Gain Knowledge principles of chemotherapy of microbial diseases and development of drug resistance among pathogens and strategies to mitigate. |
| | CO 4: Develop identification systems for microbial disease diagnosis, disease treatment and prevention measures. |
| Course Code: MB-362 Course Name: Immunology- II | CO 1: To learn the applications of Immunology in monoclonal antibodies, vaccines production and Immunotherapy. |
| | CO 2: Understand abnormal working of Immune system in hypersensitivity, auto immune diseases, immune tolerance and transplantation immunology. |
| | CO 3: To develop strategies for Diagnosis of diseases based on antigen and antibody reactions with emphasis on prevailing communicable diseases. |
| | CO 4: To introduce the concepts of application and research in Immunology |
| Course Code: MB-363 Course Name: Metabolism | CO 1: To learn mechanisms of transport of solutes across the membrane |
| | CO 2: To get acquainted with mechanism of biosynthesis and degradation of bio molecules |
| | CO 3: To comprehend basic concept of autotrophic mode of metabolism of prokaryotes |
| | CO 4: To inculcate the knowledge of Lipids and their degradation pathways |
| Course Code: MB-364 Course Name: Molecular Biology | CO 1: To get introduced to concept of recombination and bacteriophage Genetics |
| | CO 2: To understand the concept cloning in bacteria |
| | CO 3: bacteria To demonstrate the knowledge of common and advanced laboratory practices in Molecular Biology |
| | CO 4: To introduce the concepts of application and research in Molecular Biology |
| Course Code: MB-365 Course Name: Fermentation Technology – II | CO 1: To impart technical understanding of commercial fermentations. |
| | CO 2: To acquaint fermentation economics, process patentability, process validation. |
| | CO 3: To comprehend the large scale productions of commercially significant fermentation products of classical and recent significance. |
| | CO 4: To introduce the concepts of application and research in Fermentation Technology |
| Course Code: MB-366 Course Name: Food Microbiology | CO 1: To describe food safety problems and solutions in India and global scale. |
| | CO 2: Identify and classify types of microorganisms in food processing and compare their characteristics and behavior |
| | CO 3: To learn food classification based on their perishability, intrinsic and extrinsic factors affecting the growth of microbes in foods, role of microorganisms in food fermentation. |
| | CO 4: To acquire knowledge about food spoilage, food borne diseases, predisposition and preventive and control measures. |

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| Course Code: MB-367 Course Name: Diagnostic Microbiology and Immunology | CO 1: Acquire knowledge of principles underlying establishment of pathogens in human body |
| | CO 2: Applying the knowledge of testing of antibiotic sensitivity |
| | CO 3: Study immunological lab techniques |
| | CO 4: Acquire the complementary skills of collaborative learning and teamwork in laboratory settings |
| Course Code: MB-368 Course Name: Metabolism and Molecular Biology | CO 1: To learn estimation biomolecules from a biological sample |
| | CO 2: To impart practical knowledge with respect to enzymology |
| | CO 3: Develop methodology to isolate and enumerate bacteriophage |
| | CO 4: Acquire the complementary skills of collaborative learning and teamwork in laboratory settings |
| Course Code: MB-369 Course Name: Fermentation Technology- II and Food Microbiology | CO 1: To comprehend the lab scale productions of commercially significant fermentation products of classical and recent significance. |
| | CO 2: To study the SOP construction |
| | CO 3: To acquire knowledge about food spoilage, food borne diseases, |
| | CO 4: Acquire the complementary skills of collaborative learning and teamwork in laboratory settings |
| Course Code: MB-3610 Course Name: Waste Management | CO 1: To understand waste management and its practicable applicability. |
| | CO 2: To assess the magnitude and influence of hazardous content of waste, pollution of waters and waste water treatment technologies. |
| | CO 3: To learn the design and working of treatment plants and methods used for liquid and solid waste treatment. |
| | CO 4: To impart the understanding of kinetics of biological systems used in waste treatment |
| Course Code: MB-3611 Course Name: Nano-biotechnology | CO 1: To understand design, development and application of Nanomaterials and their application in Nano devices. |
| | CO 2: To learn fundamentals of nanotechnology as to Synthesis and characterization techniques of nanoparticles. |
| | CO 3: To acquire knowledge of applications of nanomaterials in different disciplines of human life. |
| | CO 4: To compare the merits of using nanotechnology with existing technologies |
| MASTER OF SCIENCE | |
| PROGRAM: M.Sc. | |
| Program Outcomes | PO-1. Problem Identification- Identify complex problems in the society which can be addressed through science |
| | PO-2. Strategy Design- Formulate strategies and design experiment to address the societal problems using first principals of basic sciences and applied sciences |
| | PO-3. Scientific Approach- Adopt appropriate scientific techniques and resources to solve societal issues with an understanding of the limitations |
| | PO-4. Analytical thinking- Critically and analytically evaluate and interpret research based data to provide valid conclusions and solutions. |
| | PO-5. Leadership- Demonstrate leadership qualities by working collaboratively in a team , to set goals, communicate scientific information to stake holders, comprehend and write reports, develop documentation, make presentations and to give and receive clear instructions |

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| | PO-6. Ethics- Apply ethical principles, commit to professional ethics and responsibilities and norms of scientific practice |
| | PO-7. Life-Long Learning- Acquire the ability to engage in independent and life-long learning in the broadest context socio-technological change |
| Program Specific Outcomes | PSO-1. After completion of program, students will be able to have in-depth knowledge of concepts in Microbiology. |
| | PSO-2. Student will have set his foundation to pursue his/her career in Microbiology |
| | PSO-3. After completing the program student will have developed interdisciplinary approach and can pursue higher studies like Ph.D |
| | PSO-4. Students will have a good sense of social responsibility towards his/her surrounding |
| Course Outcomes M. Sc. I (Sem-I, II) (CBCS- 2019) | |
| Course Code: MB-501 Course Name: Microbial Systematics | CO 1: To Understand the concept of Phylogentic Approach |
| | CO 2: To learn various aspects of Microbial Diversity |
| | CO 3: To impart the knowledge about unculturable microbes |
| | CO 4: To study molecular evolution |
| Course Code: MB-502 Course Name: Quantitative Biology | CO 1: To Understand the concept of Statistics |
| | CO 2: To learn the concept of Null hypothesis |
| | CO 3: To impart knowledge regarding Chi Square test |
| | CO 4: To acquire knowledge of Probability |
| Course Code: MB-503 Course Name: Biochemistry and Metabolism | CO 1: To Understand the Structural Classification of Proteins |
| | CO 2: To learn the various techniques with respect to Molecular biology |
| | CO 3: To Comprehend the knowledge regarding the various developmental stages in an organism and also in plants |
| | CO 4: To assess the depth of cell, cell organelles, and cell cycle. |
| Course Code: MBTE11 Course Name: Fungal Systematics and Extremophiles | CO 1: To impart the knowledge regarding the differentiating characters in different classes of Fungi |
| | CO 2: Fundamental study of morphological characterization in fungal differentiation |
| | CO 3: To study different isolation, enrichment and classification techniques of different extremophiles |
| | CO 4: To study what exactly does extremophile means |
| Course Code: MBPE11 Course Name: Practical Based on Fungal Systematics and Extremophiles | CO 1: To isolate and identify fungi from natural sample |
| | CO 2: Studying Isolating Techniques for extermophiles |
| | CO 3: These aspects can be practiced better while carrying out the mini-projects. |
| | CO 4: Acquire the complementary skills of collaborative learning and teamwork in laboratory settings |
| Course Code: MBCP1 Course Name: Biochemical Techniques | CO 1: To introduce the concepts of application and research in Microbiology |
| | CO 2: Practical at this level will also include application of biostatistics principles and computers for data analysis and interpretation, and introduction to scientific writing and report preparation. |
| | CO 3: These aspects can be practiced better while carrying out the mini-projects. |

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| | CO 4: Acquire the complementary skills of collaborative learning and teamwork in laboratory settings |
| Course Code: MB-601 Course Name: Instrumentation and Molecular Biophysics | CO 1: To study separation of biomolecules using different Chromatography techniques |
| | CO 2: To make use of Knowledge regarding Spectroscopy |
| | CO 3: To explain the concept of biophysical techniques of NMR and X ray crystallography |
| | CO 4: To discuss the use of Radioisotopes in Confocal microscopy |
| Course Code: MB-602 Course Name: Molecular Biology | CO 1: To relate molecular techniques with respect to RNA processing in eukaryotes |
| | CO 2: To Construct C DNA library using Genetic engineering tools |
| | CO 3: To apply the knowledge in human genome project and study its application |
| | CO 4: Application of various detection methods for molecular diagnosis of cancer |
| Course Code: MB-603 Course Name: Enzymology, Energetics and Metabolism | CO 1: To classify Different models of allosterism |
| | CO 2: To determine value of free energy in problem based questions |
| | CO 3: To classify lipid by its chemical structure |
| | CO 4: To explain in deep the concept of metabolic regulation in carbohydrates |
| Course Code: MBTE23 Course Name: Nitrogen Metabolism, respiration and Photosynthesis | CO 1: To study the metabolic activities going on in soil through microorganism for the betterment of plants |
| | CO 2: To explain the concept of anaerobic respiration in detail |
| | CO 3: To differentiate between C3 C4 and CAM plants |
| | CO 4: To introduce the concepts of application and research in Plant metabolism |
| Course Code: MBPE23 Course Name: Practical Based on Nitrogen Metabolism, respiration and Photosynthesis | CO 1: To outline the protocol for isolation PGPR producing organism and its detection |
| | CO 2: To Design protocol for isolation of NF bacteria |
| | CO 3: To Study the degradation of various organic matter through microorganism |
| | CO 4: These aspects can be practiced better while carrying out the mini-projects. |
| Course Code: MBCP2 Course Name: Molecular Biology, enzymology and instrumentation techniques | CO 1: To apply the theoretical knowledge of Enzyme purification |
| | CO 2: To introduce the concepts of application and research in Microbiology |
| | CO 3: Practical at this level will also include application of biostatistics principles and computers for data analysis and interpretation, and introduction to scientific writing and report preparation. . |
| | CO 4: These aspects can be practiced better while carrying out the mini-projects. |
| M.Sc. II (Sem-III, IV) (CBCS- 2019) | |
| Course Code: MBCT 231 Course Name: Immunology | CO 1: To Study in detail Signal transduction pathways |
| | CO 2: To apply Knowledge of Biological response modifiers of cancer therapy and autoimmune disorders |
| | CO 3: To study in vivo and in vitro systems for experimental immunology |
| | CO 4: To explain and analyze diagnosis of tumor and related therapy |
| Course Code: MBCT 232 Course Name: Molecular Biology | CO 1: To study and learn how to sequence a genome |
| | CO 2: To get to know about social and ethical issues regarding genetically modified plants and animals |
| | CO 3: To relate Molecular biology with the transposons |

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| | CO 4: To analyze protein by its structure and proteomic expression |
| Course Code: MBCT 233 Course Name: Clinical Microbiology | CO 1: To relate the pathogens with their pathogenecity |
| | CO 2: To study in detail various Bacteria responsible for certain diseases |
| | CO 3: To study in detail various Viruses responsible for certain viral diseases |
| | CO 4: To introduce the concepts of application and research in Microbiology |
| Course Code: MBCP 234 Course Name: Practical based on Immunology, Molecular Biology, Clinical Microbiology | CO 1: To introduce the concepts of application and research in Microbiology |
| | CO 2: To introduce the concepts of application and research in Microbiology |
| | CO 3: To introduce the concepts of application and research in Microbiology |
| | CO 4: To introduce the concepts of application and research in Microbiology |
| Course Code: MBTE 236 Course Name: Bioremediation and Biomass Utilization | CO 1: To study Bio degradation pathways for various compounds |
| | CO 2: To use biomass of microorganism for production of different compounds |
| | CO 3: To commercially design the production of alcohol and fructose |
| | CO 4: To introduce the concepts of application and research in bioremediation using microorganisms |
| Course Code: MBEP 236 Course Name: Practical Based on Bioremediation and Biomass Utilization | CO 1: To design protocol for bio degradation of pesticides |
| | CO 2: To use biomass of microorganism for production of different compounds |
| | CO 3: To design protocol for bio degradation of aromatic compound |
| | CO 4: To introduce the concepts of application and research in Bioremediation |
| Course Code: MBCT 241 Course Name: Pharmaceutical Microbiology | CO 1: To inculcate the career opportunity in the field of Pharmaceutical Industry |
| | CO 2: To design protocol for drug Development |
| | CO 3: To study regulations imposed by WHO |
| | CO 4: To study properties like physiochemical properties of drug and drug metabolism |
| Course Code: MBCT 242 Course Name: Microbial Technology | CO 1: Explaining of design and operation of Bioreactors |
| | CO 2: To study various monitoring variables for fermentation process |
| | CO 3: To Study various microbial fermentation process for production of different products |
| | CO 4: To design Quality control and Quality Assurance Prosess |
| Course Code: MBCT 243 Course Name: Desertation | CO 1: Acquire the complementary skills of collaborative learning and teamwork in laboratory settings |
| | CO 2: To introduce the concepts of application and research in Microbiology |
| | CO 3: To inculcate a good sense of responsibility towards his/her surrounding |
| | CO 4: To build a understanding of research and related fields |
| Course Code: MBET 244 Course Name: Quality Assurance and Validation in pharmaceutical industry and development of anti infective | CO 1: To explain good manufacturing practices and good laboratory practices |
| | CO 2: To study in detail MIC and MBC For development of Anti infective |
| | CO 3: To study different susceptibility tests for Microorganisms |
| | CO 4: To inculcate the career opportunity in the field of Pharmaceutical Industry |
| Course Code: MBEP 244 Course Name: Practical based on Quality Assurance and Validation | CO 1: To perform sterility testing for pharmaceutical products |
| | CO 2: To study in detail MIC and MBC For development of Anti infective from plants |
| | CO 3: To Apply different susceptibility tests for microorganisms |

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| in pharmaceutical industry and development of anti infective | CO 4: Acquire the complementary skills of collaborative learning and teamwork in laboratory settings |
| Course Code: MBET 246 Course Name: Industrial Waste Water Treatment and Industrial Production of vaccines | CO 1: To study wastewater treatment processes for various industries |
| | CO 2: To differentiate between various types of Vaccines |
| | CO 3: To Apply the knowledge of vaccine production |
| | CO 4: To inculcate the career opportunity in the field of waste water treatment plants |
| Course Code: MBEP 246 Course Name: Practical based on Industrial Waste Water Treatment and Industrial Production of vaccines | CO 1: To test the pollution load in natural water |
| | CO 2: Application of knowledge regarding the vaccine production |
| | CO 3: To inculcate the career opportunity in the field of waste water treatment plants |
| | CO 4: Acquire the complementary skills of collaborative learning and teamwork in laboratory settings |



Principal
(Dr. P.M. Dighe)
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