J.J. College of Arts & Science (Autonomous), Pudukottai

Department of Microbiology

Course Outcomes

B.Sc. Microbiology – USMB

Course Name - Fundamentals of Microbiology	Course Code - U1R1MBCC1
Upon Completion of the course students would be able to	
CO 1	Know the general information about history and scope of Microbiology
CO 2	Perform microscopic and Staining experiment
CO 3	Learn sterilization techniques
CO 4	Aware on characteristic feature of Prokaryotes and Eukaryotes
CO 5	Cultivate and Preserve microbes on their own
Course Name - Biochemistry	Course Code - U1R1MBAC1
Upon Completion of the course students would be able to	
CO 1	Acquainted on of bio - molecules
CO 2	Get thorough knowledge on Types of DNA and RNA
CO 3	Conscious on lipids
CO 4	General Information about nucleic acids
CO 5	Clear idea on Enzymes.
Course Name – Microbial Physiology	Course Code – U2R1MBCC3
Upon Completion of the course students would be able to	
CO 1	Get information about Nutrition and Growth of Microorganisms
CO 2	Clear idea on Bacterial Enzyme
CO 3	Get knowledge on metabolism of Carbohydrate
CO 4	Get general information about membrane transport system
CO 5	Work in fermentation industry

Course Name - Biotechnology	Course Code – U2R1MBAC3
Upon Completion of the course students would be able to	
CO 1	Learn the techniques in applied areas of Biotechnology
CO 2	Procure knowledge on super bugs
CO 3	Become proficient to get placement in interdisciplinary life science industries
CO 4	Become placed in production Units of pharmaceutical companies
CO 5	Become efficient in bioremediation and monitoring the polluted environment
Course Name - Microbial Genetics and Molecular Biology	Course Code – U3R1MBCC5
Upon Completion of the course students would be able to	
CO 1	Collect knowledge about nucleic acids are genetic material
CO 2	Gain understanding of replication of DNA and RNA
CO 3	Know about the gene transfer mechanisms
CO 4	Acquire knowledge on operon concepts
CO 5	Learn mutations and repair systems
Course Name – Biostatistics	Course Code – U3R1MBAC4
Upon Completion of the course students would be able to	
CO 1	Understand the basic concept of statistics, and also apply statistical measures which are used to analyze the data.
CO 2	Procure knowledge on diagrammatic representation
CO 3	Acquire knowledge on measures of central tendency and dispersion.
CO 4	Prepare reports to conclude the findings in data analysis.
CO 5	Understand the concept of Skewness & kurtosis.

Course Name - Environment and Agricultural Microbiology	Course Code – U4R1MBCC7

Upon Completion of the course students would be able to	
CO 1	Learn about physico- chemical characteristics and microbes' role imparted
CO 2	Become familiar with Indian crop diseases
CO 3	Become well-known about air- born and water-borne diseases
CO 4	Acquire knowledge in aquatic ecosystem
CO 5	Learn solid and liquid waste management techniques
Course Name - Bioinformatics	Course Code – U4R1MBAC6
Upon Completion of the course students would be able to	
CO 1	Gain knowledge on Operating systems
CO 2	Understand the concepts of sequence analysis and the prediction of structure.
CO 3	Gain the knowledge regarding the software and its application in research field.
CO 4	Identify the evolutionary distance between organisms or species.
CO 5	Acquire knowledge on FASTA and BLAST programs
Course Name – Vermitechnology	Course Code – U4R1MBSBE1
Upon Completion of the course students would be able to	
CO 1	Acquire Knowledge on vermicompost bed preparation.
CO 2	Become familiar on environmental degradation.
CO 3	Aware on Biological, chemical and environmental concept pertaining to Vermitechnology.
CO 4	Have knowledge on vermicompost bed preparation.
CO 5	Conscious on environmental degradation.

Course Name - Immunology		Course Code – U5R1MBCC9
Upon Completion of the course students would be able to		
CO 1	Get information immunity and blood grouping	
CO 2	Differentiate various lymphoid organs and its functions	
CO 3	Acquire Knowledge on antigen and antibody molecules	
CO 4	Perform antigen antibody reactions *invitro*	
CO 5	Learn about allergic reactions and transplantation	
Course Name - Virology and Medical Microbiology		Course Code – U5R1MBCC10
Upon Completion of the course students would be able to		
CO 1	Get information about the viruses.	
CO 2	Describe the viral diseases.	
CO 3	Work in clinical labs.	
CO 4	Acquire knowledge on control measures of diseases	
CO 5	Gain knowledge on emerging diseases and their control measures.	
Course Name – Medical Lab Technology		Course Code – U5R1MBSBE2
Upon Completion of the course students would be able to		
CO 1	Acquire Knowledge on Blood system and their functions.	
CO 2	Gain Knowledge on Cardiovascular system and diagnostic pathology.	
CO 3	Work on clinical labs.	
CO 4	Learn about handling animals and laboratory safety	
CO 5	Get knowledge on clinical tests	

Course Name - Microbial Biotechnology	Course Code - U5R1MBMBE1
Upon Completion of the course students would be able to	
CO 1	Learn Genomics and Proteomics techniques
CO 2	Understand immobilization and its applications
CO 3	Get knowledge on Gene therapy
CO 4	Acquire information about nanotechnology
CO 5	Know about patents
Course Name - Biofertilizer	Course Code - U5R1MBIDC1
Upon Completion of the course students would be able to	
CO 1	Gain knowledge on microbes used as biofertilizers
CO 2	Learn about the mass production of microbial inoculant
CO 3	Acquire Knowledge on isolation of *Azospirillum* and *Azotobacter*
CO 4	Aware of Phosphate solubilizing microbes
CO 5	Get grip on taxonomy of mycorrhizae
Course Name – Food Microbiology	Course Code - U6R1MBCC12
Upon Completion of the course students would be able to	
CO 1	Learn microbes in food
CO 2	Understand microbes in food spoilage
CO 3	Get knowledge on microbial food.
CO 4	Acquire information about food preservation
CO 5	Work in food industries

Course Name - Industrial Microbiology	Course Code - U6R1MBCC13
Upon Completion of the course students would be able to	
CO 1	Get knowledge on historical background of industrial microbiology
CO 2	Learn fermentors and fermentation media.
CO 3	Perform downstream process
CO 4	Produce pharmaceutical products
CO 5	Get job in industries
Course Name - Genetic Engineering	Course Code - U6R1MBMBE2
Upon Completion of the course students would be able to	
CO 1	Get knowledge on structure and properties of nucleic acids
CO 2	Gain insight on vectors and its types
CO 3	Understand about enzymes and their actions
CO 4	Read up gene manipulation techniques
CO 5	Receive information about blotting techniques
Course Name – Bioinstrumentation	Course Code - U6R1MBMBE3
Upon Completion of the course students would be able to	
CO 1	Get knowledge about basic chemistry in preparation of solution imparted
CO 2	Become proficient in doing analytical techniques
CO 3	Become well-versed in handling all instruments
CO 4	Become skill-fit for Research and Development Gained knowledge
CO 5	Gain knowledge on radio on radio-isotopic techniques

Course Name - Mushroom Technology		Course Code - U6R1MBSBE3
Upon Completion of the course students would be able to		
CO 1	Gain Knowledge on mushroom cultivation techniques so that they can become employable in agro-based industries.	
CO 2	Get basic idea on training to go for self-employment	
CO 3	Seek information on difference between edible mushroom and poisonous mushroom	
CO 4	Become familiar on food preparation using mushroom	
CO 5	Obtain knowledge on nutrition in mushroom	
Course Name - Applied Microbiology		Course Code - U6R1MBIDC2
Upon Completion of the course students would be able to		
CO 1	Aware on preservation of various foods	
CO 2	Learnt about the production alcoholic beverages	
CO 3	Gain knowledge on control and treatment of various diseases	
CO 4	Become aware of biodiversity of aquatic environment	
CO 5	Acquire knowledge on applications of marine microorganisms	
Course Name - Microbiome		Course Code - U6R1MBMBE4
Upon Completion of the course students would be able to		
CO 1	Become familiar on human microbiome	
CO 2	Conscious in personal microbiota development	
CO 3	Aware of healthy aging and longevity	
CO 4	Learn the diet and disease	
CO 5	Diagnose the disease	
Course Name - Microbial Diversity		Course Code - U6R1MBMBE5

Upon Completion of the course students would be able to	
CO 1	Perceive on Microbial Diversity
CO 2	Know about taxonomy of Eubacteria and Actinomycetes
CO 3	Aware of taxonomy of Photosynthetic bacteria
CO 4	Get idea on taxonomy of fungi
CO 5	Learn about taxonomy of algae
Course Name - Extremophiles	Course Code - U6R1MBMBE6
Upon Completion of the course students would be able to	
CO 1	Acquire knowledge on extremophiles
CO 2	Know about application of extremophiles
CO 3	Learn about physiological adaptations in extremophiles
CO 4	Familiar on Alkalophiles and Halophiles
CO 5	Conscious on Thermophiles and Psychrophiles
Course Name - Organic Farming	Course Code - U6R1MBSBE4
Upon Completion of the course students would be able to	
CO 1	Learn the principles and practices of Organic farming
CO 2	Acquire knowledge on historical basis
CO 3	Get knowledge on organic matters
CO 4	Develop critical and creative thinking in farming
CO 5	Understand and realize the social, economic and political context
Course Name - Biofertilizer Technology	Course Code - U6R1MBSBE5
Upon Completion of the course students would be able to	
CO 1	Isolate , identify and screen the strains
CO 2	Find out a suitable carriers for mass production

CO 3	Develop suitable techniques of mass production
CO 4	Recommend optimum dose, time and methods of biofertilizers
CO 5	Supply of quality liquid biofertilizer on no loss no profit basis
Practical I - Fundamentals of Microbiology	Course Code - U1R1MBCC2P
Upon Completion of the course students would be able to	
CO 1	Develop basic skill in aseptic techniques
CO 2	Understand various accessories for microbiology practicals
CO 3	Perform various staining techniques
CO 4	Familiar on nutritional requirements of bacterial
CO 5	Acquainted with structural detail of Prokaryotic and Eukaryotic cells
Practical II- Microbial Physiology	Course Code - U2R1MBCC4P
Upon Completion of the course students would be able to	
CO 1	Understand concepts of growth and reproduction of bacteria
CO 2	Cultivate bacteria with different cultivation technique
CO 3	Understand the enumeration technique for microbes
CO 4	Aware of screening of bacteria
CO 5	Conscious on biochemical tests
Practical III- Microbial Genetics & Molecular Biology	Course Code - U3R1MBCC6P
Upon Completion of the course students would be able to	
CO 1	Isolate auxotrophic mutants
CO 2	Estimate the DNA & RNA
CO 3	Familiar in isolating Plasmid DNA and Chromosomal DNA
CO 4	Conscious in Bacterial transformation
CO 5	Get knowledge on SDS-PAGE

Practical IV- Environment and Agricultural Microbiology	Course Code - U4R1MBCC8P
Upon Completion of the course students would be able to	
CO 1	Know the methods to identify plant pathogens
CO 2	Know the methods of isolation, identification and mass production of Biofertilizers
CO 3	Get knowledge in enumerating soil microorganisms
CO 4	Assess the quality of air
CO 5	Analyse the water quality
Practical V- Immunology and Medical Microbiology	**Course Code - U5R1MBCC11P**
Upon Completion of the course students would be able to	
CO 1	Learn diagnostic techniques
CO 2	Work in clinical laboratory
CO 3	Analyse the blood grouping
CO 4	Acquire knowledge on antibacterial sensitivity test
CO 5	Demonstrate fungi
Practical VI- Food Microbiology and Industrial Microbiology	**Course Code - U6R1MBCC14P**
Upon Completion of the course students would be able to	
CO 1	Assess the quality of Milk
CO 2	Isolate and identify the microorganisms in food sample
CO 3	Cultivate Mushroom
CO 4	Familiar on preparing wine
CO 5	Estimate alcohol