DEPARTMENT OF MICROBIOLOGY

Course Outcomes:

Paper	Paper Name	Outcomes After completion of the course the student should be able to
SEMESTER I		
PAPER – I	**Introductory microbiology and microbial diversity**	**CO 1**. Introduction to History of microbiology Development and Scope of Microbiology, Understand the Cell organization, characters and classification of microbes. **CO 2**.Methods of sterilization microbial culture and preservation, Enrichment culturing and lyophilization process. **CO 3**.Principlesofstaining, Principles of microscopy, Student are practiced with bacterial Growthand nutrition requirement Student are practiced with Macromolecules and their types. **CO 4**.Understanding the importance microbial growth, microbial activity cultivation of aerobes and anaerobes. **CO 5. U**ltra structure of prokaryotic cell and other filamentous bacteria.
SEMESTER II		

PAPER – II	**Microbial physiology and biochemistry**	**CO 1**.Students will study about classification and characters of carbohydrates and lipids. **CO 2**.Classification ,structures and function of amina acids ,proteins. **CO 3**.Understanding the structure of nucleic acids ,models of DNA ,types of RNA. **CO 4**.Aerobic respiration, aerobic respiration metabolism and Fermentation process. **CO 5**.Properties and classification of enzymes Co enzymes and co factors Enzyme inhibition and enzyme kinetics.
SEMESTER III		
PAPER – III	**Medical microbiology and immunology**	**CO 1**. Experience of haematology and immune techniques. Introduction of Immunology. **CO 2**.Students will have a detail description on structure of Immune Cells andOrgans, Antigens and Antibodies. **CO 3**.Major Histo compatibility Complex, Complement System, Generation ofImmuneResponse. **CO 4**.Students will understand the problems related ImmunologicalDisordersandTumourImmunity , ImmunologicalTechniques. **CO 5**.Students have practiced immune haematology.

SEMESTER IV		
PAPER – IV:	**Industrial microbiology**	**CO 1.** Studentswillearnaboutthedifferenttypesoffermentationprocesses, equipment used andmicrobiologicalprocessesinvolved. **CO 2**.Students will gain knowledge of significance and activities ofmicroorganisms infood. **CO 3**.Studentswillgainknowledgeaboutmicrobiologyofmilkandfermentedproducts. **CO 4**.students will also know the microbial quality control and quality. **CO 5**.schemes used infoodindustries.
PAPER – V:	**Molecular biology and microbial genetics**	**CO 1**.Studentswillstudythe detailed structure of nucleic acids. **CO 2**.Studentswillearnindetailthemolecularprocessessuchasreplication,transcription and translation. **CO 3**.Study of detail the structure of DNA and RNA **CO 4**.knowledge on the replication of the former and in-depth **CO 5**.knowledge on the transcription and translation of the nucleic acids.
SEMESTER V		

PAPER – VI(A)	**Food and Diary microbiology**	**CO 1**.Explain the chemistry underlying the properties of various food component, chemical reactions that occur during food preparation and storage. **CO 2**.Discuss the important pathogens and spoilage microorganisms in foods. Explain the effects of common food, food storage conditions on survival and growth of microbial contaminants. Obtain food protection manager certification. **CO 3**.Discuss basic principles of common food preservation methods. fermentation processes, equipment used and microbiological processes involved. **CO 4**.Students will gain knowledge of significance and activities of microorganisms in food microbiology of milk and fermented products. **CO 5**.Students will also know the microbial quality control and quality schemesused in food industries.
PAPER – VI(B)	**Environmental and agricultural microbiology**	**CO 1**.Terrestrial environment, Aquatic environment, Extreme habitats **CO 2**.role microorganism in bio geo chemical cycles. Treatment of drinking water, MPN test **CO 3**.outlines of solid waste, liquid waste management **CO 4**.plant growth promoting microorganisms **CO 5**.concept of plant disease