Programme: M. Sc. Microbiology

SEMESTER- I			
Core I	**Fundamentals of Microbiology**		
Course Code : 21PMIC11	**Hrs/ Week: 5**	**Hrs/ Sem: 75**	**Credits: 4**

Course Outcome:

CO. No	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	get an idea about the historical events in microbiology.	1	Kn
CO-2	know the scope of microbiology	1,2	Kn
CO-3	know parts of microscope, type and its principle	1,2	Kn
CO-4	distinguish different methods of staining techniques	3	Un
CO-5	analyse nutritional requirements of microbes.	5,6	Ev
CO-6	understand the techniques for isolation of pure culture of microorganisms.	1,5,6	Un

SEMESTER I			
Core – II	**Microbial Diversity and Classification**		
Course Code : 21PMIC12	**Hrs/ Week: 5**	**Hrs/ Sem: 75**	**Credits: 4**

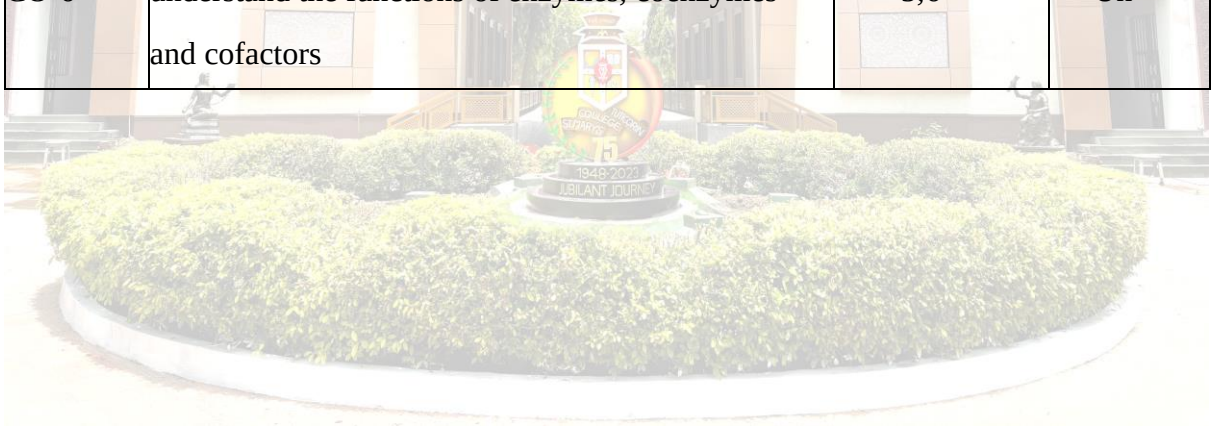
Course Outcome:

C O No	Upon completion of this course, students will be able to	PSO addressed	CL
CO -1	understand the ubiquitous nature of microbes.	1	Un
CO -2	explain the basic concept of microbial diversity and classification.	3	Re
CO -3	discuss the knowledge about the various diversification in microorganism	4	Cr
CO -4	explain the knowledge of reproduction in microbes	5	Un
CO- 5	describe genetic characters of microbes.	5	Un

SEMESTER I			
Core III	**Biochemistry**		
Course Code : 21PMIC13	**Hrs/ Week: 4**	**Hrs/ Sem: 60**	**Credits: 4**

Course Outcome :

CO No	Upon completion of this course, students will be able to	PSO addressed	C L
CO-1	compare and contrast the structure, classification and function of the carbohydrates.	1,2	Un, Kn
CO-2	understand the structure, classification and function of lipids.	1,3	Un
CO-3	compare and contrast saturated, mono-saturated and poly-saturated fatty acids.	1	Kn
CO-4	know the structure and classification of proteins	5	Kn
CO-5	know the dna, rna structure, function, types and importance	6	Kn
CO-6	understand the functions of enzymes, coenzymes and cofactors	5,6	Un



SEMESTER – I			
Core – IV	**Microbial Physiology**		
Course Code : 21PMIC14	**Hrs/ Week: 4**	**Hrs/ Sem: 60**	**Credits: 4**

Course Outcome :

CO No	Upon completion of this course students will be able to	PSO addressed	CL
CO -1	illustrate the basic knowledge about the microbial physiology fuctions and its various metabolism	3	Re
CO - 2	define various components of electron transport chain and their functions.	4,3	Re
CO -3	elaborate the bacterial growth curve and the measurement of their cell growth	4	Cr
CO - 4	explain the various bacterial transport mechanisms and their secretion system	2	Un
CO - 5	discuss about various electron transport takes place under aerobic and anaerobic condition.	1,3	Cr
CO- 6	interpret the list of fermentation mechanisms for atp regeneration.	7	Un

SEMESTER – II			
Core – V	**Immunology**		
Course Code : 21PMIC21	**Hrs/Week : 5**	**Hrs/Sem : 75**	**Credits : 4**

Course Outcome:

CO No	Upon completion of this course, students will be able to	PSO addressed	CL
CO - 1	prioritize various applications of monoclonal antibodies and types of vaccines.	1	E v
CO - 2	recall about the classification of various immune cells and their functions in elevating immune response.	4	R e
CO - 3	improve knowledge about the nature , functions and characteristics of antigen and antibodies involved in immune response.	3,2	C r
CO - 4	improve the knowledge about various hypersensitivity reactions and transplantation immunology.	3,4	Cr
CO - 5	illustrate various complement fixation pathways and their basic mechanisms.	6	U n
CO - 6	interpret the knowledge about various antigen and antibody reactions with their principle.	1	Un

SEMESTER-II			
Core-VI	**Medical Microbiology**		
Course Code: 21PMIC22	**Hrs/Week: 5**	**Hrs/Sem: 75**	**Credits:4**

Course Outcome:

CO. No	Upon completion of this course, students will be able to	PSO addressed	CL
CO -1	recall the clinical microbiology concept to patient care	1	Re
CO -2	analyse the level information in the subject of medical microbiology	6	An
CO -3	illustrate the different classes of microbes	3	Un
CO -4	describe the applied microbiology aspects of clinical technique.	1	Un
CO- 5	describe the role of chemotherapic technique	4	Un
CO -6	explain the drug resistance capacity of microbes	4	Un

SEMESTER – II			
Core –VII Microbial Genetics and Molecular Biology			
Course Code: 21PMIC23	**Hrs/ Week: 4**	**Hrs/ Sem: 60**	**Credit: 4**

Course Outcome:

CO No	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	relate the genetics of microorganisms	1	Re
CO-2	recall the molecular mechanisms of microorganisms	1	Re
CO-3	explain all important topics to prepare for competitive exams	5	Un
CO-4	examine the history of molecular biology	2	An
CO-5	analyse about nucleic acids, their damage and repair mechanism	6	An
CO-6	compare all gene transfer methods	2	Ev

SEMESTER-III			
Core-X- Genetic Engineering			
Course Code -21PMIC32	**Hrs/Week:5**	**Hrs/Sem:75**	**Credits:4**

Course outcomes:

C O No	Upon completion of this course, students will be able to	PSO's Addressed	CL
CO- 1	explain the knowledge about cloning	2	An,Un
CO -2	perceive the applications of genetic engineering in various fields	4	Un, Re
CO- 3	understands the hazardous and potential risk in releasing transgenic into environment	5	Un
CO -4	create the techniques used in genetic engineering	2	An, Re
CO -5	discuss the cloning techniques and the production of transgenic materials	4	Un,An
CO -6	understand the synthesis of genetically modified commercial products	4	Un

SEMESTER –III			
Core – XII	**Research Methodology**		
Course Code : 21PMIC34	**Hrs/Week: 4**	**Hrs/Sem: 60**	**Credits: 4**

Course Outcome:

CO No	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	analyse the laboratory equipment's	2	An
CO-2	evaluate the rights granted by IPR	6	Ev
CO-3	determine the process involved in centrifugation and chromatography techniques	6	Ev
CO-4	estimate project writing method and to estimate Data's used in projects.	1	Ev
CO-5	identify the journals to publish articles	1	AP
CO-6	design article to present on seminar and the conference	5	Cr

SEMESTER –IV			
Core XV	**Applied Microbiology**		
Course Code: 21PMIC43	**Hrs/Week: 4**	**Hrs/Sem: 60**	**Credits:4**

Course Outcomes:

CO No	Upon completion of this course, students will be able to	PSO's Addressed	CL
CO-1	acquire basic knowledge on applied microbiology	4	Un
CO -2	explain the basics of composting technology	4	Un
CO-3	appreciate the production of biogas technology	4	An
CO-4	grasp the fundamental knowledge about mushroom cultivation	4	Un
CO-5	acquire basic knowledge about spirullina production	2	Ap
CO-6	gets knowledge about biodegradation.	4,2	Un

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