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UNIVERSITY
NAAC ACCREDITED
THANJAVUR - 613 403 - TAMILNADU

SCHOOL OF ARTS AND SCIENCE

DEPARTMENT OF BIOTECHNOLOGY

B.Sc. BIOTECHNOLOGY

CURRICULUM

REGULATION-2017

Head of the Department
Department of Biotechnology
School of Arts & Science
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PRIST Deemed to be University
Thanjavur - 613 403, Tamilnadu.

B.Sc., Graduate Attributes

Research, inquiry and analytical thinking abilities.

Capability and motivation for intellectual development.

Ethical, social and professional understanding.

Communication in intra and inter disciplinary

Teamwork, collaborative and management skills in scientific research

Information literacy in respective discipline

B.Sc., Program Educational Objectives PEO

PEO 1 : To obtain detailed information about the fundamentals of Biotechnology, allied subjects and life skills.

PEO 2 : To provide information about the molecular methods which involved in cellular processes of living systems such as microbes to higher order organisms for applied aspects. To address the emerging need for skilled scientific manpower with research ethics involving organisms.

PEO 3 : To impart the basics and current molecular tools in the areas of Molecular Diagnostics, Fermentation Technology, Plant, Animal & Environmental Biotechnology are included to train the students for man power development and also sensitize them to scope for research. The practical subjects will provide information about the careers in the industry and applied research where biological system is employed.

PEO 4 : To make the graduates of Biotechnology to learn and to adopt in a competitive world of technology update and contribute to all forms of life

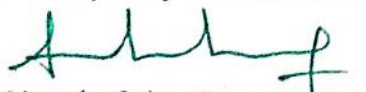
PEO5- To enable them to excute a research objective through experimentation


B.Sc., Programme Specific Outcome (PSO)

PSO1- Graduates will exhibit contemporary knowledge in Biotechnology and students will be eligible for doing jobs in pharmaceutical and biotechnological Industry.

PSO2-An expert in biotechnology and allied fields (medical, microbial, agricultural, environmental, plant and animal) for utilizing the practical skill to address biotechnological challenges.

PSO3- Graduates will be able to work individually as well as in team to survive in multidisciplinary environment.


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PSO4- If students will engage themselves in the process of effective learning, it will give opportunities to utilize acquired knowledge for the catering the needs of science and technology as well as for the betterment of human mankind.

PSO5- Graduates will be able to understand the potentials, and impact of biotechnological innovations on environment and their implementation for finding sustainable solution to issues pertaining to environment, health sector, agriculture, etc.

B.Sc., Program Outcome PO

PO1- Understand the basic concepts, fundamental principles, and the scientific theories related to various scientific phenomena and their relevancies in the day-to-day life

PO2- Understanding and better knowledge of the causes, types and control methods for environmental pollution by the students.

PO3- The student will be able to discuss the mechanisms associated with gene expression system in prokaryotes and eukaryotes.

PO4- Developed various communication skills such as reading, listening, speaking etc.,

PO5- Acquired the skills in handling scientific instruments, planning and performing in laboratory experiments

PO6- Ethics: Convey and practice social, environmental and biological ethics.

PO7- To get knowledge about research tools and learn to do review literature. Ability to carryout independent literature survey corresponding to the specific publications type and asses basic research tool

B.Sc., Biotechnology (C)

C1- Fundamentals of Biological System

C2- Fundamentals of Biological System Lab

C3- Biological Chemistry

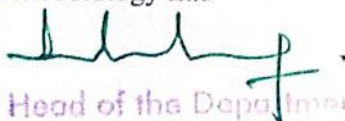
C4- Biological Chemistry Lab


C5- Cell Biology and Genetics

C6- Cell Biology and Genetics Lab

C7- Microbiology


C8- Microbiology Lab

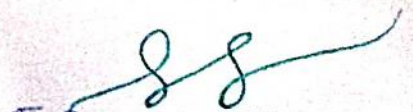

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- C9- Research LED Seminar
- C10-Plant Physiology
- C11-Plant Physiology Lab
- C12- Immunology
- C13- Immunology Lab
- C14- Research Methodology
- C15- Animal Physiology
- C16- Animal Physiology Lab
- C17- Bioinformatics and Biostatistics
- C18- Bioinformatics and Biostatistics Lab
- C19- Development Biology
- C20- Cell and Tissue Culture
- C21- Enzyme and Enzyme Technology
- C22- Development Biology, Tissue Culture Lab
- C23- Enzyme and Enzyme Technology Lab
- C24-Discipline Specific Elective
- C25- Plant and animal Biotechnology
- C26- Applied Biotechnology
- C27- Plant, Animal and Applied Biotechnology Lab
- C28- Environmental Biotechnology Lab
- C29- Discipline Specific Elective
- C30-Package lab- I-VI
- C31- Communicative English LabI-VI

B.sc., Curriculum Mapping


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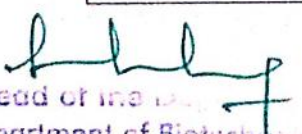
Programme Educational objectives Vs Programme Outcome


Programme Outcome PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
Programme specific outcome PSO							
PSO1	*	*		*	*	*	*
PSO2			*		*	*	*
PSO3	*	*	*		*		
PSO4	*	*	*			*	*
PSO5	*		*	*	*		*

B.Sc Biotechnology Curriculum Mapping

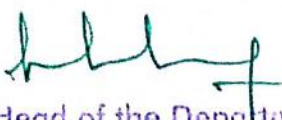
Programme Outcome Vs Course Outcome

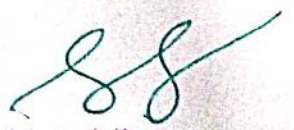
Programme Outcome- PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
Courses Outcome- CO							
CO1	*	*	*	*	*	*	*
CO2	*	*	*	*	*	*	*
CO3	*	*	*	*	*	*	*
CO4	*	*	*	*	*	*	*
CO5	*	*	*	*	*	*	*
CO6	*	*	*	*	*	*	*
CO7				*	*	*	*
CO8	*	*	*	*	*	*	*


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CO9				*	*	*	*
CO10	*	*	*	*	*	*	*
CO11			*	*	*	*	*
CO12	*	*	*	*	*	*	*
CO13	*	*	*	*	*	*	*
CO14	*	*	*	*	*	*	*
CO15	*	*	*	*	*	*	*
CO16	*	*	*	*	*	*	*
CO17	*	*	*	*	*	*	*
CO18	*	*	*	*	*	*	*
CO19	*	*	*	*	*	*	*
CO20				*	*	*	*
CO21	*	*	*	*	*	*	*
CO22				*	*	*	*
CO23	*	*	*	*	*	*	*
CO24			*	*	*	*	*
CO25	*	*	*	*	*	*	*
CO26	*	*	*	*	*	*	*
CO27	*	*	*	*	*	*	*
CO28	*	*	*	*	*	*	*
CO29	*	*	*	*	*	*	*
CO30	*	*	*	*	*	*	*
CO31	*	*	*	*	*	*	*


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Department of Biotechnology**

17UGBTGEC

2017 Regulation

**Program Outcomes and Course outcomes of
B.Sc., Mapping of COs and Pos**

Semester	Course Code	Title of the Course	Cos	POS							
				PO1	PO 2	PO 3	PO 4	PO 5	PO 6	PO7	
I	17110AEC11	Language-I (Tamil-I)	Learn the changes that have occurred in literature since the classical period. Make use of vocabulary systematically. Understand how to lead one's life realizing the modernity and its environment/atmosphere. Develop vocabulary	1	2	1	0	1	1	2	1
I	17111AEC11	Advanced English-I	Learn to edit and do proof reading Read and comprehend literature	1	2	1	1	0	2	1	0
I	17111AEC12	English-I	Read and comprehend literature Appreciate poetry and prose	1	2	1	1	0	2	2	0

							1	3	1	1	1	1	2	1
							3	1	1	0	0	0	0	2
							2	0	0	2	0	2	2	0
	17117AEC13	Fundamentals of Biological system					2	1	3	0	3	0	0	3
	I						3	1	0	2	3	0	0	2
							2	1	1	1	3	2	2	3
	17117AEC14L	Fundamentals of Biological system Lab					2	0	1	1	0	1	1	2
	I						2	1	1	1	1	1	1	3
							2	0	1	1	1	2	2	3
	117115AEC15	Biological Chemistry					3	1	1	1	1	1	0	3
	I						2	0	1	1	1	1	0	3

			The Power and functions of the Judiciary learnt thoroughly	2	0	1	1	1	1	1	1	1	1
			Appreciation of Democratic Parliamentary Rule is learnt	2	0	0	3	1	1	1	1	1	1
			Know what devotion really is.	2	1	2	2	1	1	1	1	1	1
	17110AEC21	Language-II (Tamil-II)	Know the fruitfulness obtained through devotion	1	1	2	2	1	2	1	2	1	1
II			Perceive the progress achieved in the society through devotion.	1	2	0	1	2	2	2	2	1	1
			Develop technological skills.	1	2	1	0	2	2	2	2	0	0
	17111AEC21	Advanced English-II	Able to write in a variety of formats	2	2	1	1	0	2	2	2	2	2
II			Read biographies and develop personality	1	2	0	1	1	2	2	2	2	2
			Appreciate different forms of literature	0	2	0	1	0	2	2	2	0	0
	17111AEC22	English-II	Acquire language skills through literature	2	2	1	1	1	2	1	2	1	1
II			Broadens the horizon of knowledge	1	2	1	1	0	2	1	2	1	1
			This paper will enable the students to learn the basics and lay strong foundation in understanding the composition of cells, how cells work is fundamental to living systems.	1	2	0	0	2	2	2	2	0	0
			The course outcome is to train the students in understanding genetics and relate modern DNA technology for disease diagnostics and therapy	1	2	0	0	0	2	0	2	0	0
	17117AEC23	Cell Biology and Genetics	Students will be taught Mendelian genetics, their principles and gene interaction.	3	0	0	0	2	2	2	2	1	1
II			This gives them a strong foundation on the basic unit of life.	3	0	1	1	2	2	2	2	0	0

II	17117AEC24L	Cell Biology and Genetics lab	Able to isolate the DNA, identify and distinguish different blood cells, to solve simple genetic problems and analyze Human karyotype	3	1	1	1	1	1	1	1	1
				2	1	0	1	1	1	0	1	
II	17116AEC25	Microbiology	They learn about DNA, RNA and their replication, mutations, DNA repair mechanism	0	1	1	1	1	2	1	1	1
				3	1	1	1	1	1	3	1	
II	17117AEC26L	Microbiology lab	This fundamental paper discusses the importance of microorganisms	2	0	0	1	1	2	2	1	1
				3	0	1	0	0	2	2	1	
II	17117RLC27	Research LED Seminar	At the end of the course, the student has understanding on the metabolism and mechanism of microbial life	2	0	0	1	1	1	1	1	1
				2	1	1	0	1	1	2	1	
II	17116AEC26L	Microbiology lab	Gain knowledge about metabolism.	2	0	0	1	1	1	1	1	1
				2	1	1	0	1	1	2	1	
II	17117AEC26L	Microbiology lab	Develop basic skill in aseptic techniques	3	1	1	1	1	1	2	1	1
				2	1	1	1	1	1	1	1	
II	17117AEC26L	Microbiology lab	Understand various accessories for microbiology practicals	2	1	1	1	1	1	1	1	1
				2	0	1	1	1	1	2	2	
II	17117AEC26L	Microbiology lab	Perform various staining techniques	2	0	0	1	1	1	1	2	2
				2	0	1	0	1	1	2	2	
II	17117AEC26L	Microbiology lab	Cultivate bacteria with different cultivation technique	2	0	1	1	1	1	1	2	2
				2	0	1	0	1	1	2	2	
II	17117AEC26L	Microbiology lab	Exposure to various research domains	3	0	1	1	1	0	0	2	2
				3	0	1	1	1	0	0	2	
II	17117AEC26L	Microbiology lab	Acquaintance with languages of research	3	1	1	1	1	1	1	1	1
				3	1	1	1	1	1	1	1	
II	17117AEC26L	Microbiology lab	Development of research aptitude	3	1	1	1	1	1	1	1	1
				3	1	1	1	1	1	1	1	

			Identify the names and functions of the PowerPoint interface.	3	1	0	0	0	2	2
			Create, edit, save, and print presentations.	2	2	0	1	2	2	2
			Format presentations.	2	2	0	0	2	2	3
			Add a graphic to a presentation.	2	2	0	0	1	2	3
			Create and manipulate a simple slideshow with outlines and notes.	2	2	0	0	1	2	3
II	17120SEC02A	Skill Based Elective – II	Create slide presentations that include text, graphics, animation, and transitions.	3	3	0	0	1	2	2
			Learn grammar.	3	3	1	1	2	2	3
			Use a variety of reading strategies	1	1	0	2	2	2	2
II	17111SEC02L	Communicative English Lab-II	Enhance the skill of making grammatically correct sentences.	0	0	0	0	0	2	0
			Achieve one's goal by following the ancestral path	1	2	0	1	2	2	1
			Learn to lead life of perfection by realizing the uncertainty in the life	1	2	1	0	1	2	1
III	17110AEC31	Language-III (Tamil-III)	Attain happiness through honesty	1	2	0	1	2	2	2
			Understand phonetics.	1	2	1	0	1	2	2
			Develop writing skill	2	2	0	2	2	2	1
III	17111AEC31	Advanced English-III	Able to develop creative writing	0	0	0	0	0	0	0
III	17111AEC32	English-III	Enable to appreciate different types of prose	2	2	1	1	1	2	2

		English Lab-III	Enhance their fluency in English	2	2	1	0	1	2	0
			Develop speaking and writing skills	2	2	0	1	0	2	0
			Develop individual perspectives that demonstrate critical thinking skills	0	2	0	0	1	1	0
			Realize how the ancient people changed their lifestyle according to the ages	2	3	1	0	1	1	1
	17110AEC41	Language-IV (Tamil-IV)	Learn how to change one's lifestyle according to the needs of the future	2	3	0	0	1	1	2
IV			Accept the modern trends and its uses	2	3	1	0	1	1	1
			Develop writing skill.	2	3	0	0	2	2	1
	17111AEC41	Advanced English-IV	Comprehend and describe poems	2	0	1	0	2	2	1
IV			Learn interviewing skills	0	3	0	0	0	2	0
			Improve their ability to read and understand them	2	2	0	1	1	2	1
	17111AEC42	English-IV	Know the genius of Shakespeare	0	2	0	0	0	2	0
IV			Express in writing their views.	2	2	0	0	1	2	0
	17117AEC43	Animal physiology	To provide advanced undergraduate and introductory graduate students with a comprehensive overview of animal physiology from molecular, cellular and whole animal systems approaches.	3	1	1	1	1	2	1
IV			To critically evaluate clinical and research case problems relating to endocrinology and cell biology.	3	1	0	1	1	2	2

IV	17117AEC44L	Animal Physiology Lab	Have an enhanced knowledge and appreciation of mammalian physiology	2	1	1	1	1	0	2	2
			Understand the functions of important physiological systems including the cardiorespiratory, renal, reproductive and metabolic systems	3	0	1	1	0	2	2	2
IV			It trains the students with essentiality of molecules, cells, tissues and organs involved in the defense mechanism	2	1	1	0	1	2	3	
			Know the applications and limitations of different bioinformatics and statistical methods.	2	1	1	0	1	2	3	
	17117AEC45	Bioinformatics and biostatistics	Be able to perform and interpret bioinformatics and statistical analyses with real molecular biology data.	1	0	0	0	0	2	1	
IV			Be able to describe statistical methods and probability distributions relevant for molecular biology data.	3	1	1	0	1	2	1	
			This laboratory course will prepare the students for various applications of bioinformatics in life science research.	3	2	1	1	1	2	2	
	17116AEC46L	Bioinformatics and Biostatistics Lab	The student will be able to apply basic principles of biology, computer science and mathematics to address complex biological problems	3	1	1	1	1	2	2	
IV			This course imparts the knowledge of basic statistical methods to solve problems	2	1	1	2	0	1	3	
	17120SEC04A	Skill based Elective-IV	Examine database concepts and explore the Microsoft Office Access environment.	3	1	0	2	0	1	3	
IV			Design a simple database.	1	2	0	2	1	1	3	

			Be able to compare and contrast the process of gastrulation in the various model organisms discussed	2	0	1	0	1	1	1	2
	17117AEC52	Cell and Tissue culture	Fundamentals of plant tissue culture. Plant regeneration and organogenesis. Embryogenesis. Organ, anther and pollen culture. Ovary, ovule and embryo culture. Callus suspension culture.	3	1	1	0	1	2	3	
V			Protoplast, isolation, culture and fusion. Production of hybrids and cybrids.	2	1	0	1	2	2	3	
			The course will provide an overview of the key enzymes currently used in large scale industrial processes	2	1	1	0	1	1		
	17117AEC53	Enzyme and enzyme technology	This course includes the isolation, purification and characterization of enzymes and their applications	3	3	1	0	1	3	2	
V			Discover the current and future trends of applying enzyme technology for the commercialization purpose of biotechnological products.	3	2	1	3	1	3	3	
			Demonstrate a basic understanding of developmental terms and mechanisms.	2	1	0	0	3	1	2	
			Utilize laboratory techniques to design and carry-out experimental studies.	2	1	0	0	3	1	1	
	17117AEC54L	Developmental biology, tissue culture lab	Conservation of endangered plant species	3	1	0	0	3	2	2	
V			Molecular, pharmacological and biochemical investigations of different aspects of plant growth and development such as in vitro flowering.	3	0	1	0	1	2	3	

V	17117AEC55L	Enzyme and Enzyme Technology Lab	Distinguish the fundamentals of enzyme properties, nomenclatures, characteristics and mechanisms	2	0	1	1	1	1	1	2	2
			Apply biochemical calculation for enzyme kinetics	2	0	1	1	1	1	1	1	3
			Compare methods for production, purification, characterization and immobilization of enzymes	2	1	1	1	1	1	1	1	2
			Discuss various application of enzymes that can benefit human life	2	1	2	0	1	1	1	1	2
			Utilize the knowledge on creation of a genomic library	2	1	2	1	1	2	1	1	2
			Explain the significance of model organisms in recombinant DNA technology	3	1	1	1	1	2	2	2	3
V	17117DSC56A	Discipline Specific Elective -I rDNA Technology	This course teaches rDNA technology techniques and their application in the field of genetic engineering They learn about plasmids, vectors and gain knowledge on the construction of cDNA libraries	2	0	1	1	1	3	2	2	3
			Understand and apply the principles and techniques of molecular biology which prepares students for further education and/or employment in teaching, basic research, or the health professions	2	0	0	1	0	0	0	2	2
			Explain the concept of recombination, linkage mapping and elucidate the gene transfer mechanisms in prokaryotes and eukaryotes	3	2	1	1	1	1	1	1	2
V	17117DSC56B	Molecular Biology	Know the terms and terminologies related to molecular biology and microbial	2	2	1	0	1	1	1	1	2

V	17117BRC57	Participation in Bounded Research	Hands on exposure to problem solving tools in contemporary research	1	2	1	0	1	1	2
			Evolution of research intuitiveness and orientation	3	1	1	1	1	1	3
			Familiarity with cutting edge research trends	2	2	1	1	1	1	2
			Work with the Photoshop workspace	2	0	0	1	1	1	2
			Navigate images	3	0	0	0	1	1	3
			Resize and crop images	3	0	1	0	1	2	2
			Make and work with selections	2	2	1	1	1	2	1
			Create new layers and perform other basic layer functions	2	2	1	0	1	2	1
V	17120SEC05A	Skill based Elective-V	Transform images	2	3	1	1	1	2	2
			Develop corporate skills.	2	3	0	0	0	2	2
			Handle their day to day affairs well with their knowledge of language skills.	2	2	0	0	0	2	1
V	17111SEC05L	Communicative English Lab-V	Get a Job.	2	2	1	0	2	2	2
			This course teaches organization and expression of plant and animal genome and plant and animal tissue culture	2	2	0	1	0	2	2
VI	17117AEC61	Plant and Animal Biotechnology	Students learn about transgenic animal, their application in pharmaceutical industry, cloning and its importance.	2	3	0	0	0	2	1

			Describe the most commonly applied disinfection methods, and the steps typically involved in drinking water treatment process	2	0	1	1	1	1	2	1
			Biofuels: Advantages , Energy from biomass, Biogas, Biohydrogen, Biosafety • Toxicity Bio magnification, Threshold Dose, Factor Affecting Toxicity.	3	0	0	1	1	1	1	1
		Discipline Specific Elective - II Environmental Biotechnology	Students will gain about environmental pollutions, preventive measures.	1	1	0	0	1	1	2	3
VI	17117DSC65A		Explain the microbial processes and growth requirements underlying the activated sludge process, nitrification, denitrification, enhanced phosphorus removal, and anaerobic digestion	2	1	1	0	1	1	2	3
			The students in the course are exposed to the diversity, function, ecological adaptation of microorganisms within the environment	1	2	1	2	1	1	1	2
VI	17117DSC65B	Environmental Management	This course gives the importance of microbial life to key ecosystem process and teaches the role of biotechnology to address environmental issues	1	2	1	2	1	1	1	2
			Understand basic concepts of research and its methodologies	1	1	0	1	1	1	1	2
		Project Work	Identify appropriate research problem and parameters	2	1	0	0	1	1	1	3
VI	17117PRW67		Prepare a research report	2	0	0	0	1	1	2	3
			Learn to create animated graphics, add sound and interactivity.	1	0	1	0	1	1	2	2
		Skill Based Elective – VI	Can develop Website	2	1	1	1	1	1	2	2
VI	17120SEC06A		CD based presentations	3	1	1	1	1	1	2	2
VI	17111SEC06L	Communicative	Apply study skills	3	0	0	1	1	1	1	2

	English Lab-VI	Widen creative thinking	3	0	0	1	1	1	1	1
		Be a good team worker	3	2	1	2	1	1	1	1
		Make them proficient in English	1	1	1	3	1	1	1	1

1- Low, 2-Medium, 3- Higher, 0 No correlation



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 Program Outcomes and Course outcomes of
 M.Sc., Mapping of COs and POs

Semester	Course Code	Title of the Course	COs	POS					
				PO1	PO2	PO3	PO4	PO5	PO6
I	17217SEC11	General Microbiology	Students can gain the idea of how to identify the microorganisms based on the modern polyphasic approach.	3	1	0	1	2	2
	17217SEC12	Molecular genetics	After successful completion of the paper the students will get an overall view about genetic makeup of organisms and can take up a career in research.	2	0	0	1	2	2
	17217SEC13	Biochemistry	This paper in biochemistry has been designed to provide the student with a firm foundation in the biochemical aspects of cellular functions which forms a base for their future research.	3	0	0	3	2	2
	17217SEC14L	Microbiology & Molecular Genetics Lab	After successful completion of the paper the students will get an overall view about genetic Make up of organisms and can take up a career in research.	2	2	1	0	1	2

17217DSC15A	Immunology	This course will provide the student insights into the various aspects of Immunology such as classical immunology, clinical immunology, immunotherapy and diagnostic immunology.	2	1	1	0	0	1
17217DSC15B	Biosafety and Biodiversity	To study the diversity of plants and animal life in a particular habitat, ethical issues and potential of biotechnology for the benefit of man kind	3	1	1	2	2	1
17216RLC16	Research Led Seminar	Exposure to various research domains	3	2	1	0	2	2
		Acquaintance with languages of research	3	2	2	0	0	1
		Development of research aptitude	2	1	1	2	2	1
17217SEC21	Cell & Molecular Biology	Students after completion of this paper will be exceptionally well prepared to pursue careers in cellular and sub cellular biological research, biomedical research, or medicine or allied health fields.	2	1	1	1	1	
17217SEC22	Biophysics & Bioinformatics	This paper has been designed to give the students comprehensive training in the emerging and exciting upcoming field of Systems Biology, which will help students to get career in both industry/R&D.	2	1	1	2	1	
17217SEC23	Industrial Biotechnology	This course is important in the era of industrialization leading to environmental hazards and hence will help students to take up a career in tackling industrial pollution and also to take up the research in areas like development of biological systems for remediation of contaminated environments (land, air, water), and for environment-friendly processes such as green manufacturing technologies and sustainable development.	2	1	0	1	1	1
II								

17217SEC24L	Molecular Biology & Industrial Biotechnology Lab	Students after completion of this paper will be exceptionally well prepared to pursue careers in cellular and sub cellular biological research, biomedical research, or medicine or allied health fields	2	1	0	0	1	1	2
17217DSC25A	Endocrinology	To know the pathophysiological significance of the system with special reference to humans.	1	2	0	1	1	1	3
17217DSC25B	Intellectual Property Rights	To get registration in our country and foreign countries of their invention, designs and thesis or theory written by the students during their project work and for this they must have knowledge of patents, copy right, trademarks, designs and information Technology Act. Further teacher will have to demonstrate with products and ask the student to identify the different types of IPR'	2	2	1	1	2	2	2
17217RMC26	Research Methodology	Understanding research questions and tools	1	2	1	1	2	2	2
		Experience in scientific writings	3	1	1	0	2	1	
		Practice in various aspects of scientific publications	3	1	1	0	2	1	
		Inculcation of research ethics	3	1	1	1	2	1	
17217BRC27	Participation in Bounded Research	Hands on exposure to problem solving tools in contemporary research	3	0	0	2	1	2	
		Evolution of research intuitiveness and orientation	3	1	0	3	1	1	
		Familiarity with cutting edge research trends	2	1	0	3	1	1	
III	17217SEC31	Recombinant DNA technology	Utilize the knowledge on creation of a genomic library	2	2	0	3	2	1
			Explain the significance of model organisms in recombinant DNA technology	1	1	0	1	1	1

			<p>This course teaches rDNA technology techniques and their application in the field of genetic engineering. They learn about plasmids, vectors and gain knowledge on the construction of cDNA libraries.</p>	1	1	1	1	1	1	1	1
17217SEC32	Plant Biotechnology		<p>Understand the basic principles of plant kingdom and their economic importance.</p> <p>Explain the basics, methodology and applications of plant tissue culture.</p> <p>Conceptualize plant transformation, selection of desirable genes for crop improvement, design binary vector and procedure for generating GM crops.</p> <p>To learn basic cell culture, type, subculture media preparation and applications</p> <p>To understand the difference between stem cell types and methods for producing transgenic animals</p> <p>To improve artificial embryo transfer and nuclear transfer methods and applications</p> <p>Describe the different types of blood groups and different types of blood cells and their function in the human body.</p> <p>Learn various techniques like Immunoelectrophoresis, ELISA, Immunoprecipitation etc.</p> <p>Culture and maintain animal cell cultures, various method of preservation and counting of viable cells.</p>	2	1	1	1	3	0	2	1
17217SEC33	Animal Biotechnology		<p>To learn basic cell culture, type, subculture media preparation and applications</p> <p>To understand the difference between stem cell types and methods for producing transgenic animals</p> <p>To improve artificial embryo transfer and nuclear transfer methods and applications</p> <p>Describe the different types of blood groups and different types of blood cells and their function in the human body.</p> <p>Learn various techniques like Immunoelectrophoresis, ELISA, Immunoprecipitation etc.</p> <p>Culture and maintain animal cell cultures, various method of preservation and counting of viable cells.</p>	2	1	2	2	2	2	1	2
17217SEC34L	DNA technology & Animal biotechnology-lab		<p>To learn basic cell culture, type, subculture media preparation and applications</p> <p>To understand the difference between stem cell types and methods for producing transgenic animals</p> <p>To improve artificial embryo transfer and nuclear transfer methods and applications</p> <p>Describe the different types of blood groups and different types of blood cells and their function in the human body.</p> <p>Learn various techniques like Immunoelectrophoresis, ELISA, Immunoprecipitation etc.</p> <p>Culture and maintain animal cell cultures, various method of preservation and counting of viable cells.</p>	2	0	0	0	2	0	1	2

	17217DSC34A	Nanobiotechnology	This course will act as a bridge between students from non-biology course at all levels	2	1	1	1	1	1	1	1
	17217DSC34B	Environmental biotechnology	This course is important in the era of industrialization leading to environmental hazards and hence will help students to take up a career in tackling industrial pollution and also who is willing to take up the research in areas like development of biological systems for remediation of contaminated environments (land, air, water), and for environment- friendly processes such as green manufacturing technologies and sustainable development	3	0	1	0	2	1		
IV	17217SRC37	Participation in Scaffold Research	Acquired detailed knowledge of antimicrobial agents, their mechanism of action	2	1	1	0	1	1	1	
			Developed understanding of different types of disinfectants/antiseptics bactericidal and bacteriostatic actions	3	1	2	0	2	1		
	Regulatory practices, biosensors and applications in Pharmaceuticals	2	1	0	1	2	1				
	Quality Assurance and Validation	2	0	0	1	2	2				
17217PRW41	Project work	Experience from a master's project and international literature.	1		0	1	2	2			
		Develop ability to independently carry out a complete scientific process.	1	1	1	1	2				
		Learn about how to write dissertations and proposals for the scientific community.	1		0	1	1	2			

1- Low, 2-Medium, 3- Higher, 0 No correlation


Head of the Department

Department of Biotechnology

School of Arts & Science

Prist Deemed to be University, Thanjavur.


Dean of Arts & Science

Prist Deemed to be University

Thanjavur - 613 403, Tamilnadu.