

KONERU LAKSHMAIAH EDUCATION FOUNDATION

DEPARTMENT OF BIOTECHNOLOGY

2017-2019_CO-PO ARTICULATION MATRIX

S.NO.	Course code	Course Title	Course Outcome	Pos		
				PO1	PO2	PO3
1	17BT5101	Mathematics and Biostatistics	Estimate the degree of linear and non-linear relationship between the variables and drawing conclusions	2		1
			Interpret and communicate the outcomes in the context of a problem by Designs of Experiment in the context of parametric and non parametric approach		2	
			Finding roots for transcendental and algebraic equation in terms of Biology by root finding techniques	1		3
			Solving first order differential equations in real time data	2	3	
2	17BT5102	Biochemical Engineering	To understand the basic concept of biochemical engineering and understand various reactions	2		1
			Understand and specify reactors used in industrial bioprocesses, develop mathematical models for bioreactors and analyze their behavior (dynamic and steady state).		2	
			Understand basic principles of mass transfer phenomenon in bioprocessing, and its importance and application in aerobic systems	1		3
			Understand various reactor systems and its used in biochemical engineering	2	3	
			To learn the application of biochemical engineering while solving the real-time problems	2		3

3	17BT5103	Molecular Biology and r-DNA Technology	Understand DNA Structure & Replication and Transcription And Translation	2		1
			Understand the Regulation of Gene Expression		2	
			Acquire knowledge of Enzymes and Vectors In Cloning	1		3
			Acquire knowledge of PCR, Sequencing & RNA Technologies, biological models and transgenic	2	3	
			Apply the knowledge of Molecular Biology & rDNA Technology methods		2	3
4	17BT5104	Applied Bioinformatics	Acquire the theoretical basis of applied bioinformatics and understand the access and retrieval of biological information from databases.	2		1
			Explain the proteomic and metabolomic approaches at current trends		2	
			Develop gene expression profiling to understand expression in both prokaryotes and eukaryotes	1		3
			Demonstrate the systems biology tools using retrieved complex data from databases.	2	3	
			Choose the gene sequences, structures of molecules and metabolomic data from the databases.		2	3
5	17BT5105	Plant and Animal Biotechnology	Understand the basics of plant tissue culture, protoplast culture and somatic hybrids	2		1
			Apply the Plant Tissue culture to Genetic engineering and development of transgenic plants		2	
			Understand the basics and importance of animal tissue culture	1		3
			Apply the Transgenic technology to Animals and applications of transgenic animal technology	2	3	
			Compare in vitro cultured plants, cells and metabolites		2	3

6	17BT5106	Immunotechnology	Acquire the knowledge about immune systems	2		1
			Understand the concepts of immunological responses		2	
			Understand immunity with respect to disorders and infection	1		3
			Understand the technological advances in immunology	2	3	
			Conduct various immunological assays and apply them to diagnostics		2	3
7	17BT5107	Bioreactor modeling and Simulation	Understand the Fundamentals of Modeling and apply their principles in bioprocess.	2		1
			Understand the Enzymes and growth kinetic models and Ability to apply their principles in bioprocess.		2	
			Understand batch and product formation kinetic models and ability to apply their principles in bioprocess.	1		3
			Understand principles of biological systems and apply simulation principles for better biomass and product formation.	2	3	
8	17BT5108	Downstream Processing	Acquire the knowledge of primary separation and recovery processes	2		1
			Apply the principles of solid removal unit operations and product enrichment operations		2	
			Apply the principles of aqueous two-phase extraction process and product purification methods	1		3
			Analyze the methods of alternative separation, product polishing and formulations	2	3	
			Evaluate the bioseparation methods for recovery, isolation and purification of various bioproducts		2	3

9	17BT51A1	Protein Engineering	Interpret the knowledge of various techniques deployed to screen and quantify and characterize the proteins.	2		1
			Interpret the knowledge about the structural and functional; relationship of the proteins, i.e. protein structures guide their function, and understand the importance in the research field through various examples.		2	
			Develop the knowledge about the protein folding mechanisms and	1		3
			Develop the knowledge of signal peptides, and role of various protein channeling organelles.	2	3	
10	17BT51B1	Food Technology	Understand microbiology of food production	2		1
			Applications of enzymology in food production		2	
			Applications of food preservation technologies	1		3
			Application of technologies for food storage and stability	2	3	
11	17BT51B2	Transport phenomenon in bioprocess	Acquire the knowledge of primary separation and recovery processes	2		1
			Apply the principles of solid removal unit operations and product enrichment operations		2	
			Apply the principles of aqueous two-phase extraction process and product purification methods	1		3
			Analyze the methods of alternative separation, product polishing and formulations	2	3	
12	17BT51C1	Perl programming and Bioperl	Understand basic concepts of programming	2		1
			Use BioPerl for sequence manipulation		2	
			Apply Python and BioPython programming for sequence alignment and phylogenetic tree construction	1		3
			Apply R programming for interpreting gene expression data.	2	3	

13	17BT51C2	Bioprocess Technology	Remembering the basics of bioreactor operational modes and microbial growth kinetics.	2		1
			Understand the reactor consideration and kinetics of immobilized enzyme systems.		2	
			Understand the concept of mass transfer coefficient and bioreactor scale up process.	1		3
			Apply the principles of bioprocess for the design consideration of different recombinant based cultivation systems.	2	3	
14	17BT52C7	IPR&PATENT LAWS	Interpret basic knowledge on intellectual property rights and their implications in biological research and product development.	2		1
			Interpret the knowledge of documentation and protocols; case studies on patents and patent drafting.		2	
			Develop the knowledge about the biosafety and risk assessment of products derived from biotechnology and regulation of such products.	1		3
			Develop the knowledge about the ethical issues in biological research.	2	3	