



Koneru Lakshmaiah Education Foundation

(Category -1, Deemed to be University estd. u/s. 3 of the UGC Act, 1956)

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Campus: Green Fields, Vaddeswaram - 522 302, Guntur District, Andhra Pradesh, INDIA.

Phone No. 08645 - 350200; www.klef.ac.in; www.klef.edu.in; www.kluniversity.in

Admin Off: 29-36-38, Museum Road, Governorpet, Vijayawada - 520 002. Ph: +91 - 866 - 3500122, 2577715, 2576129.

DEPARTMENT OF BIOTECHNOLOGY

M.TECH-BIOTECHNOLOGY

ACADEMIC YEAR: 2019-2020


S.NO.	Course code	Course Title	CO NO.	Description of the Course Outcome
1	19BT5101	Mathematics and Biostatistics	C01	Estimate the degree of linear and non-linear relationship between the variables and drawing conclusions
			C02	Interpret and communicate the outcomes in the context of a problem by Designs of Experiment in the context of parametric and non parametric approach
			C03	Finding roots for transcendental and algebraic equation in terms of Biology by root finding techniques
			C04	Solving first order differential equations in real time data
2	19BT5102	Biochemical Engineering	C01	To understand the basic concept of biochemical engineering and understand various reactions
			C02	Understand and specify reactors used in industrial bioprocesses, develop mathematical models for bioreactors and analyze their behavior (dynamic and steady state).
			C03	Understand basic principles of mass transfer phenomenon in bioprocessing, and its importance and application in aerobic systems
			C04	Understand various reactor systems and its used in biochemical engineering
			C05	To learn the application of biochemical engineering while solving the real- time problems


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3	19BT5103	Molecular Biology and r-DNA Technology	C01	Understand DNA Structure & Replication and Transcription And Translation
			C02	Understand the Regulation of Gene Expression
			C03	Acquire knowledge of Enzymes and Vectors In Cloning
			C04	Acquire knowledge of PCR, Sequencing & RNA Technologies, biological models and transgenic
			C05	Apply the knowledge of Molecular Biology & rDNA Technology methods
4	19BT5104	Applied Bioinformatics	C01	Acquire the theoretical basis of applied bioinformatics and understand the access and retrieval of biological information from databases.
			C02	Explain the proteomic and metabolomic approaches at current trends
			C03	Develop gene expression profiling to understand expression in both prokaryotes and eukaryotes databases.
			C04	Demonstrate the systems biology tools using retrieved complex data from
			C05	Choose the gene sequences, structures of molecules and metabolomic data from the databases.
5	19BT5105	Plant and Animal Biotechnology	C01	Understand the basics of plant tissue culture, protoplast culture and somatic hybrids
			C02	Apply the Plant Tissue culture to Genetic engineering and development of transgenic plants
			C03	Understand the basics and importance of animal tissue culture
			C04	Apply the Transgenic technology to Animals and applications of transgenic animal technology
			C05	Compare in vitro cultured plants, cells and metabolites


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6	19BT5106	Immunotechnology	C01	Acquire the knowledge about immune systems
			C02	Understand the concepts of immunological responses
			C03	Understand immunity with respect to disorders and infection
			C04	Understand the technological advances in immunology
			C05	Conduct various immunological assays and apply them to diagnostics
7	19BT5107	Bioreactor Modelling and Simulation	C01	Understand the Fundamentals of Modeling and apply their principles in bioprocess.
			C02	Understand the Enzymes and growth kinetic models and Ability to apply their principles in bioprocess.
			C03	Understand batch and product formation kinetic models and ability to apply their principles in bioprocess.
			C04	Understand principles of biological systems and apply simulation principles for better biomass and product formation.
8	19BT5108	Downstream Processing	C01	Acquire the knowledge of primary separation and recovery processes
			C02	Apply the principles of solid removal unit operations and product enrichment operations
			C03	Apply the principles of aqueous two-phase extraction process and product purification methods
			C04	Analyze the methods of alternative separation, product polishing and formulations
			C05	Evaluate the bioseparation methods for recovery, isolation and purification of various bioproducts


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9	19BT51A1	Protein Engineering	C01	students will develop a comprehensive understanding of protein structure and function, including the principles of protein folding, stability, and dynamics
			C02	Students will explore the diverse applications of protein engineering in biotechnology and medicine
			C03	Students will gain proficiency in protein design and engineering techniques used to modify protein structure and function for various applications
			C04	students will develop critical analysis and research skills through hands-on laboratory experiments, literature reviews, and independent research projects.
10	19BT51B1	Food Technology	C01	students will acquire advanced knowledge of the principles and concepts of food science and technology.
			C02	Students will master techniques for ensuring food quality and safety throughout the food supply chain.
			C03	students will develop innovation and product development skills to create novel food products that meet consumer demands and industry trends
			C04	Students will examine the environmental, social, and economic aspects of food production and consumption, with a focus on sustainability and environmental impact
11	19BT51B2	Transport phenomenon in bioprocess	C01	Acquire the knowledge of primary separation and recovery processes
			C02	Apply the principles of solid removal unit operations and product enrichment operations
			C03	Apply the principles of aqueous two-phase extraction process and product purification methods
			C04	Analyze the methods of alternative separation, product polishing and formulations


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12	19BT51C1	Perl programming and Bioperl	C01	Students will develop proficiency in the Perl programming language, including syntax, data structures, control flow, and regular expressions
			C02	Students will gain a solid understanding of bioinformatics concepts and algorithms relevant to molecular biology and genomics
			C03	Students will become proficient in using Bioperl, a comprehensive toolkit for bioinformatics programming in Perl
			C04	Students will apply their Perl programming and Bioperl skills to real-world research projects in molecular biology and bioinformatics
13	19BT51C2	Bioprocess Technology	C01	Remembering the basics of bioreactor operational modes and microbial growth kinetics.
			C02	Understand the reactor consideration and kinetics of immobilized enzyme systems.
			C03	Understand the concept of mass transfer coefficient and bioreactor scaleup process
			C04	Apply the principles of bioprocess for the design consideration of different recombinant based cultivation systems.
14	19BT52C7	IPR&PATENT LAWS	C01	Interpret basic knowledge on intellectual property rights and their implications in biological research and product development.
			C02	Interpret the knowledge of documentation and protocols; case studies on patents and patent drafting.
			C03	Develop the knowledge about the biosafety and risk assessment of products derived from biotechnology and regulation of such products.
			C04	Develop the knowledge about the ethical issues in biological research.


 Head
 Department of Biotechnology
 J. J. Reddy Lakshmaiah Education Foundation
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ACADEMICS PROFESSOR INCHARGE

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