

DEPARTMENT OF FOOD TECHNOLOGY															
Course outcomes															
SEMESTER - 1 & 2															
Course code	Course Name	Course outcomes	Program Outcomes (POs)												
			1	2	3	4	5	6	7	8	9	10	11	12	
MAT 101	LINEAR ALGEBRA AND CALCULUS	CO 1	solve systems of linear equations, diagonalize matrices and characterise quadratic forms	3	3	3	3	2	1			1	2		2
		CO 2	compute the partial and total derivatives and maxima and minima of multivariable functions	3	3	3	3	2	1			1	2		2
		CO 3	compute multiple integrals and apply them to find areas and volumes of geometrical shapes, mass and centre of gravity of plane laminas	3	3	3	3	2	1			1	2		2
		CO 4	perform various tests to determine whether a given series is convergent, absolutely convergent or conditionally convergent	3	2	3	2	1	1			1	2		2
		CO 5	determine the Taylor and Fourier series expansion of functions and learn their applications.	3	3	3	3	2	1			1	2		2
PHT 110	ENGINEERING PHYSICS B (FOR NON-CIRCUIT BRANCHES)	CO 1	Compute the quantitative aspects of waves and oscillations in engineering systems.	3	2							1	2		1
		CO 2	Apply the interaction of light with matter through interference, diffraction and identify these phenomena in different natural optical processes and optical instruments	3	2							1	2		1
		CO 3	Analyze the behaviour of matter in the atomic and subatomic level through the principles of quantum mechanics to perceive the microscopic processes in electronic devices.	3	2							1	2		1
		CO 4	Apply the knowledge of ultrasonics in non-destructive testing and use the principles of acoustics to explain the nature and characterization of acoustic design and to provide a safe and healthy environment	3								1	2		1
		CO 5	Apply the comprehended knowledge about laser and fibre optic communication systems in various engineering applications	3	2							1	2		1
		CO 1	Apply the basic concepts of electrochemistry and corrosion to explore its possible applications in various engineering fields.	1	2	1									
		CO 2	Understand various spectroscopic techniques like UV-Visible, IR, NMR and its applications.	1	1		1	2							

CYT 100	ENGINEERING CHEMISTRY	CO 3	Apply the knowledge of analytical method for characterizing a chemical mixture or a compound. Understand the basic concept of SEM for surface characterisation of nanomaterials	1	1		1	2												
		CO 4	Learn about the basics of stereochemistry and its application. Apply the knowledge of conducting polymers and advanced polymers in engineering.	2	1															
		CO 5	Study various types of water treatment methods to develop skills for treating wastewater.	1			1			3										
EST 100	ENGINEERING MECHANICS	CO 1	Recall principles and theorems related to rigid body mechanics	2	2															
		CO 2	Identify and describe the components of system of forces acting on the rigid body	3	3															
		CO 3	Apply the conditions of equilibrium to various practical problems involving different force system	3	3															
		CO 4	Choose appropriate theorems, principles or formulae to solve problems of mechanics	3	3															
		CO 5	Solve problems involving rigid bodies, applying the properties of distributed areas and masses	3	3															
EST 110	ENGINEERING GRAPHICS	CO 1	Draw the projection of points and lines located in different quadrants	3																
		CO 2	Prepare multiview orthographic projections of objects by visualizing them in different positions	3																
		CO 3	Draw sectional views and develop surfaces of a given object	3	1															
		CO 4	Prepare pictorial drawings using the principles of isometric and perspective projections to visualize objects in three dimensions.	3													1			
		CO 5	Convert 3D views to orthographic views	3													2			
		CO 6	Obtain multiview projections and solid models of objects using CAD tools	3				3									3			

		CO 4	Describe working of a voltage amplifier	2															
		CO 5	Outline the principle of an electronic instrumentation system	2														2	
		CO 6	Explain the principle of radio and cellular communication	2														2	
HUN 101	LIFE SKILLS	CO 1	Define and Identify different life skills required in personal and professional life						2		1	2	2	1	3				
		CO 2	Develop an awareness of the self and apply well-defined techniques to cope with emotions and stress.									3						2	
		CO 3	Explain the basic mechanics of effective communication and demonstrate these through presentations.						1			1	3						
		CO 4	Take part in group discussions										3						1
		CO 5	Use appropriate thinking and problem solving techniques to solve new problems		3		2	1											
		CO 6	Understand the basics of teamwork and leadership						1				3						
MAT 102	VECTOR CALCULUS, DIFFERENTIAL EQUATIONS AND TRANSFORMS	CO 1	Compute the derivatives and line integrals of vector functions and learn their applications	3	3	3	3	2	1			1	2					2	
		CO 2	Evaluate surface and volume integrals and learn their inter-relations and applications	3	3	3	3	2	1			1	2						2
		CO 3	Solve homogeneous and non-homogeneous linear differential equation with constant coefficients	3	3	3	3	2	1			1	2						2
		CO 4	Compute Laplace transform and apply them to solve ODEs arising in engineering	3	3	3	3	2	1			1	2						2
		CO 5	Determine the Fourier transforms of functions and apply them to solve problems arising in engineering	3	3	3	3	2	1			1	2						2

PHL 120	ENGINEERING PHYSICS LAB	CO 3	Understand the principle, concept, working and applications of relevant technologies and comparison of results with theoretical calculations	3				3			1	2			1
		CO 4	Analyze the techniques and skills associated with modern scientific tools such as lasers and fiber optics	3				3			1	2			1
		CO 5	Develop basic communication skills through working in groups in performing the laboratory experiments and by interpreting the results	3				3			1	2			1
CYL 120	ENGINEERING CHEMISTRY LAB	CO 1	Understand and practice different techniques of quantitative chemical analysis to generate experimental skills and apply these skills to various analyses	3				2							3
		CO 2	Develop skills relevant to synthesize organic polymers and acquire the practical skill to use TLC for the identification of drugs	3				3							3
		CO 3	Develop the ability to understand and explain the use of modern spectroscopic techniques for analysing and interpreting the IR spectra and NMR spectra of some organic compounds	3				3							3
		CO 4	Acquire the ability to understand, explain and use instrumental techniques for chemical analysis	3				3							3
		CO 5	Learn to design and carry out scientific experiments as well as accurately record and analyze the results of such experiments	3				1							3
		CO 6	Function as a member of a team, communicate effectively and engage in further learning. Also understand how chemistry addresses social, economical and environmental problems and why it is an integral part of curriculum	3				1							
ESL 120	CIVIL & MECHANICAL WORKSHOP	CO 1	Name different devices and tools used for civil engineering measurements	1				1	1			2	2		
		CO 2	Explain the use of various tools and devices for various field measurements	1				1	1			2	2		
		CO 3	Demonstrate the steps involved in basic civil engineering activities like plot measurement, setting out operation, evaluating the natural profile of land, plumbing and undertaking simple construction work	1				1	1			2	2	2	1
		CO 4	Choose materials and methods required for basic civil engineering activities like field measurements, masonry work and plumbing.	1				1	1			2	2	2	1
		CO 5	Compare different techniques and devices used in civil engineering measurements	1				1	1			2	2		1

		CO 6	Identify Basic Mechanical workshop operations in accordance with the material and objects	1																	
		CO 7	Apply appropriate Tools and Instruments with respect to the mechanical workshop trades	2																	
		CO 8	Apply appropriate safety measures with respect to the mechanical workshop trades	2																	
ESL 130	ELECTRICAL & ELECTRONICS WORKSHOP	CO 1	Demonstrate safety measures against electric shocks						3										1		
		CO 2	Identify the tools used for electrical wiring, electrical accessories, wires, cables, batteries and standard symbols	2															1		
		CO 3	Develop the connection diagram, identify the suitable accessories and materials necessary for wiring simple lighting circuits for domestic buildings	2			1		1			1	2	2						2	
		CO 4	Identify and test various electronic components	3																	2
		CO 5	Draw circuit schematics with EDA tools	3					2												2
		CO 6	Assemble and test electronic circuits on boards	3					2												1
		CO 7	Work in a team with good interpersonal skills												3	2					2
SEMESTER - 3																					
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					1	2	3	4	5	6	7	8	9	10	11	12					
		CO 1	Understand the concept and the solution of partial differential equation.	3	3	3	3	2	1									2		2	
		CO 2	Analyse and solve one dimensional wave equation and heat equation.	3	3	3	3	2	1									2		2	

MAT201	PARTIAL DIFFERENTIAL EQUATIONS AND COMPLEX ANALYSIS	CO 3	Understand complex functions, its continuity differentiability with the use of CauchyRiemann equations.	3	3	3	3	2	1					2		2	
		CO 4	Evaluate complex integrals using Cauchy's integral theorem and Cauchy's integral formula, understand the series expansion of analytic function	3	3	3	3	2	1						2		2
		CO 5	Understand the series expansion of complex function about a singularity and Apply residue theorem to compute several kinds of real integrals.	3	3	3	3	2	1						2		2
FTT 201	PRINCIPLES OF CHEMICAL ENGINEERING	CO 1	To apply the fundamental concepts of stoichiometry in foodindustries.	3	1												
		CO 2	To study the material and energy balance in unit operation and unitprocesses.	2		1											
		CO 3	To develop basic ideas of fluid flow characteristics.	2													1
		CO 4	To understand the various flow measuring devices.		2												
FTT 203	FOOD MICROBIOLOGY	CO 1	Learn the history of food microbiology,basics of Microscopy,major microorganisms in food;theirisolation,growth,quantificationandculture.	3	3	2	2		3							1	
		CO 2	Identify the factors and microbes involved in foodspoilage;foodborne pathogens, food poisoning and microbialtoxins.	3	3	2	2		1								1
		CO 3	Learn the qualitative and quantitative methods to detect microbes and microbial toxins in food.	2	3	2	3	1	1								2
		CO 4	Understand the Microbial quality assurance systems in food industry which includeGMP and HACCP.	2	2	3	3		1		1	3					2
		CO 5	To identify beneficial organisms in the food processing industry with emphasis on various fermented foods.	3	2	2			3								
		CO 1	Explain the different concepts and principles involved in design engineering.	2	1					1				1			

FTL 411	FOOD PRESERVATION LAB	CO2	Apply the principles of food processing to develop quality and safe value-added food products			2			3										
		CO3	Summarize principles of food preservation to enhance the shelf life of processed products	3															
		CO4	Explain the working of various food processing equipment and other devices in laboratory level			2													
		CO5	Demonstrate the preservation of fruits using heat treatment	3								3	3	3					
FTT 463	POST-HARVEST PHYSIOLOGY AND SPOILAGE IN FOOD	CO1	Identify the physiological and biochemical changes in horticultural produce after	3															
		CO2	Harvest and apply suitable control methods			3					3								
		CO3	Use suitable ripening techniques for the development of safe and quality ripened products	2															
		CO4	Acquire in sight on various factors involved in spoilage and the techniques for its control	2															
		CO5	Identify various storage methods for the shelf-life extension of horticultural produce	3															
FTQ413	SEMINAR	CO1	Identify academic documents from the literature which are related to her/his areas of interest (Cognitive knowledge level: Apply).	2	2	1	1		2	1							3		
		CO2	Read and apprehend an academic document from the literature which is related to her/his areas of interest (Cognitive knowledge level: Analyze).	3	3	2	3		2	1								3	
		CO3	Prepare a presentation about an academic document (Cognitive knowledge level: Create).	3	2			3			1			2				3	
		CO4	Give a presentation about an academic document (Cognitive knowledge level: Apply).	3				2			1			3				3	

		CO5	Prepare a technical report (Cognitiveknowledgelevel:Create).	3	3	3	3	2	2		2		3		3
FTD415	PROJECT PHASE I	CO1	Identify and synthesize problems, and propose the methodology for their solution.	2	2	2	1	2	2	2	1	1	1	1	2
		CO2	Prepare work plan, liaison with the team and complete the task as per schedule.	2	2	2		1	3	3	1	1		1	1
		CO3	Analyze and interpret the results obtained.									3	2	2	1
		CO4	Validate the results by theoretical and experimental means.					2			3	2	2	3	2
		CO5	Communicate technical information by means of written and oral reports"	2	3	3	1	2							1

SEMESTER 8

Course code	Course Name	Course outcomes	Program Outcomes (POs)												
			1	2	3	4	5	6	7	8	9	10	11	12	
FTT 402	FOODPLANTLAYOUTAND DESIGN	CO1	Apply the design considerations and foodsafety standards in development of plant Design and layout for food processingindustry.	3	2				2						
		CO2	Choose the plant location and plant layout for the new or existing food industry.	2	2	2									
		CO3	Apply the systematic layout planning in development of plantlayout.	3	2	2		2					2	2	
		CO4	Prepare flowsheet for the material movement and utility consumption in foodindustry.	3	2										
		CO5	Design and develop plantlayout and plant design for foodprocessing industries.	2	3	3									2
		CO1	Acquire an idea about scope,basic principles of foodtoxicology,classifications andthe factor affecting toxicity.	2			2		2						

		CO4	Emphasize on the importance of food safety, food quality, food laws and regulations in food industry	2	2	3			2	2							
FTT 426	ENTREPRENEURSHIP DEVELOPMENT IN FOOD TECHNOLOGY	CO1	Motivation for entrepreneurial career	2					2	2	2						
		CO2	Have the ability to discern distinct entrepreneurial traits	2													
		CO3	Conducting feasibility analysis	2	2	2	2			2	2		2	2	2		
		CO4	Preparation of business plan	3	2					2	2	2	2	2			
FTT404	COMPREHENSIVE COURSE VIVA	CO1	Examine the knowledge acquired in the core courses in Biotechnology Engineering/Biotechnology & Biochemical Engineering degree.	3													
		CO2	Develop confidence to appear for any competitive and/or other examinations and to face interviews.	3									3				
		CO3	Communicate the views clearly and precisely with anyone in scholarly environments	3										3			
		CO4	Apply the comprehensive knowledge gained in core courses in understanding engineering problems relevant to the society"	3	2				3								
FTD416	PROJECT PHASE II	CO1	Model and solve real world problems by applying knowledge across domains (Cognitive knowledge level: Apply).	2	2	2	1	2	2	2	1	1	1	1	2		
		CO2	Develop products, processes or technologies for sustainable and socially relevant applications (Cognitive knowledge level: Apply).	2	2	2		1	3	3	1	1		1	1		
		CO3	Function effectively as an individual and as a leader in diverse teams and to comprehend and execute designated tasks (Cognitive knowledge level: Apply).										3	2	2	1	
		CO4	Plan and execute tasks utilizing available resources within timelines, following ethical and professional norms (Cognitive knowledge level: Apply).					2			3	2	2	3	2		

		CO5	Identify technology/research gaps and propose innovative/creative solutions (Cognitive knowledge level: Analyze).	2	3	3	1	2								1
		CO6	Organize and communicate technical and scientific findings effectively in written and oral forms (Cognitive knowledge level: Apply).					2			2	2	3	1	1	