						DEPAR	RTMEN	T OF F(DOD TE	CHNOL	OGY												
						DEIT	C	ourse o	utcomes		001												
ŝ	SEMESTER - 1 & 2														D								
Course	Course Name					Course	outcom	es				1	2	3	1 1 1	ograi	n Out	come:	8 (PO) 8	s) O	10	11	12
couc		CO 1	solve syst quadratic	tems of I c forms	linear eq	uations,	diagonali	ize matri	ices and c	haracteri	se	3	3	3	3	2	1	,	0	1	2		2
		CO 2	compute multivari	the parti able fun	al and to	otal deriv	atives and	d maxim	na and mi	nima of		3	3	3	3	2	1			1	2		2
MAT 101	LINEAR ALGEBRA AND CALCULUS	CO 3	compute geometric	multiple cal shape	e integral es, mass	s and app and cent	ply them tre of grav	to find a vity of p	areas and lane lami	volumes nas	of	3	3	3	3	2	1			1	2		2
		CO 4	perform v absolutely converge	various t y ent or co	ests to d	etermine lly conve	e whether ergent	a given	series is	converge	nt,	3	2	3	2	1	1			1	2		2
		CO 5	determine applicatio	e the Tayons.	ylor and	Fourier s	series exp	pansion of	of functio	ns and le	arn their	3	3	3	3	2	1			1	2		2
		CO 1	Compute systems.	the qua	ntitative	aspects of	of waves	and osci	illations i	n enginee	ering	3	2						1	2			1
		CO 2	Apply the identify instrument	e interac these ph nts	tion of li enomena	ight with a in diffe	matter th erent natu	rough ir ral optic	nterference al process	e, diffracter, diffracter, diffracter, diffracter, difference of the set of t	ction and ptical	3	2						1	2			1
PHT 110	ENGINEERING PHYSICS B (FOR NON-CIRCUIT BRANCHES)	CO 3	Analyze t principles electronic	the beha s of quar c devices	viour of ntum me s.	matter ir chanics t	n the aton to perceiv	nic and s ve the m	subatomic icroscopi	c level the process	rough the es in	3	2						1	2			1
		CO 4	Apply the principles design an	e knowle s of aco nd to pro	edge of u ustics to vide a sa	Iltrasonic explain afe and h	es in non- the nature ealthy en	destructi e and ch wironme	ive testing aracteriza ent	g and use ttion of a	the coustic	3							1	2			1
		CO 5	Apply the systems i	e compre in variou	ehended s engine	knowled ering app	lge about plications	laser and	d fibre op	tic comn	nunication	3	2						1	2			1
		CO 1	Apply the possible	e basic c applicat	oncepts ions in v	of electro various er	ochemisti ngineerin	ry and co	orrosion t	o explore	its	1	2	1									
		CO 2	Understa applicati	nd vario ions.	us specti	roscopic	technique	es like U	JV-Visibl	e, IR, NN	/IR and its	1	1		1	2							

			Apply the knowledge of analytical method for characterizing a chemical					r	1		
CYT 100	ENGINEERING CHEMISTRY	CO 3	mixture or a compound. Understand the basic concept of SEM for surface characterisation of nanomaterials	1	1	1	2				L
		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			
		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						
EST 100	ENGINEERING MECHANICS	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						
		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							
ECT 110	ENGINEERING	CO 3	Draw sectional views and develop surfaces of a given object	3	1						
ESI 110	GRAPHICS	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 1	Recall the role of civil engineer in society and to relate the various disciplines of Civil Engineering.	3				3	2	2			
		CO 2	Explain different types of buildings, building components, building materials and building construction	3	2					3			
		CO 3	Describe the importance, objectives and principles of surveying.	3	2			2	3		2		
		CO 4	Summarise the basic infrastructure services MEP, HVAC, elevators, escalators and ramps	3	2	1	3				2		
		CO 5	Discuss the Materials, energy systems, water management and environment for green buildings.	3	2		3				2		
EST 120	BASICS OF CIVIL & MECHANICAL ENGINEERING	CO 6	Analyse thermodynamic cycles and calculate its efficiency	3	2		3						
		CO 7	Illustrate the working and features of IC Engines	3	1		3						
		CO 8	Explain the basic principles of Refrigeration and Air Conditioning	3	1								
		CO 9	Describe the working of hydraulic machines	3	2								
		CO 10	Explain the working of power transmission elements	3	1								
		CO 11	Describe the basic manufacturing, metal joining and machining processes	3									
EST 130	BASICS OF ELECTRICAL AND ELECTRONICS	CO 1	Apply fundamental concepts and circuit laws to solve simple DC electric circuits	3	1								2
	ENGINEERING	CO 2	Develop and solve models of magnetic circuits	3	1								2
		CO 3	Apply the fundamental laws of electrical engineering to solve simple ac circuits in steady state	3	1								2

		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
		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
WIN 101		CO 3	Explain the basic mechanics of effective communication and demonstrate these through presentations.						1		1	3		
HUN IVI	LIFE SKILLS	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			
		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
MAT 102	VECTOR CALCULUS, DIFFERENTIAL EQUATIONS AND TRANSFORMS	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

		CO 1	Develop vocabulary and language skills relevant to engineering as a profession									3		2
		CO 2	Analyze, interpret and effectively summarize a variety of textual content									1		3
HUN 102	PROFESSIONAL	CO 3	Create effective technical presentations						1		1	3		
11010-102	COMMUNICATION	CO 4	Discuss a given technical/non-technical topic in a group setting and arrive at generalizations/consensus									3		1
		CO 5	Identify drawbacks in listening patterns and apply listening techniques for specific needs		1						2	3		
		CO 6	Create professional and technical documents that are clear and adhering to all the necessary conventions	1					1		1	3		
		CO 1	Analyze a computational problem and develop an algorithm/flowchart to find its solution	*	*	*		*				*	*	*
		CO 2	Develop readable* C programs with branching and looping statements, which uses Arithmetic, Logical, Relational or Bitwise operators.	*	*	*	*					*		*
EST 102		CO 3	Write readable C programs with arrays, structure or union for storing the data to be processed	*	*	*	*					*		*
EST 102	PROORAMING IN C	CO 4	Divide a given computational problem into a number of modules and develop a readable multi-function C program by using recursion if required, to find the solution to the computational problem	*	*	*	*					*	*	*
		CO 5	Write readable C programs which use pointers for array processing and parameter passing	*	*		*					*		*
		CO 6	Develop readable C programs with files for reading input and storing output	*	*		*					*		*
		CO 1	Develop analytical/experimental skills and impart prerequisite hands on experience for engineering laboratories	3				3		1	2			1
		CO 2	Understand the need for precise measurement practices for data recording	3				3		1	2			1

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
		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
CVI 120	ENGINEERING	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
C 1L 120	CHEMISTRY LAB	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						3
		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	
FSI 120	CIVIL & MECHANICAL	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	1
150 120	WORKSHOP	CO 5	Compare different techniques and devices used in civil engineering measurements	1		1	1		2	2		1

		CO 6	Identify and obje	Basic M ects	echanica	al worksh	op operations in a	ccordanc	e with th	e material	1											
		CO 7	Apply a worksho	ppropriat	e Tools	and Instr	uments with respe	ect to the	mechani	cal	2											
		CO 8	Apply a trades	ppropriat	e safety	measure	s with respect to t	he mecha	nical wo	rkshop	2											
		CO 1	Demons	strate safe	ety meas	sures agai	nst electric shock	8								3						1
		CO 2	Identify batteries	the tools and sta	used fo ndard sy	r electrica mbols	al wiring, electrica	ll accesso	ries, wir	es, cables,	2									1		
		CO 3	Develop necessa	the coni ry for win	nection of	liagram, i ple lightii	identify the suitab ng circuits for don	le access nestic bui	ories and ldings	materials	2			1		1		1	2	2		2
ESL 130	ELECTRICAL & ELECTRONICS WORKSHOP	CO 4	Identify	and test	various	electronic	e components				3											2
		CO 5	Draw ci	rcuit sch	ematics	with EDA	A tools				3				2							2
		CO 6	Assemb	le and te	st electro	onic circu	its on boards				3				2							1
		CO 7	Work in	a team v	with goo	d interpe	rsonal skills												3	2		2
	SEMESTED 2																					
Course	SEMILSIEK - J			<u> </u>	I		<u> </u>					1		Pı	rograi	n Out	tcome	s (PO	s)			
code	Course Name			Course outcomes							1	2	3	4	5	6	7	8	9	10	11	12
		CO 1	Underst	and the c	oncept a	and the so	blution of partial d	ifferentia	l equatio	n.	3	3	3	3	2	1				2		2
		CO 2	Analyse	and solv	e one di	mensiona	al wave equation a	and heat e	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
		CO 1	To apply the fundamental concepts of stochiometry in foodindustries.	3	1									
ETT 201	PRINCIPLES OF	C0 2	To study the material and energy balance in unit operation and unitprocesses.	2		1								
111 201	ENGINEERING	CO 3	To develop basic ideas of fluid flow characteristics.	2										1
		CO 4	To understand the various flow measuring devices.		2									
		CO 1	Learn the history of food microbiology, basics of Microscopy, major microorganisms in food; their isolation, growth, quantification and culture.	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
FTT 203	FOOD MICROBIOLOGY	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					2
		CO 1	Explain the different concepts and principles involved in design engineering.	2	1					1			1	

EST 200	DESIGN AND ENGINEERING	CO 2	Apply design thinking while learning and practicing engineering.		2			1		1				2
		CO 3	Develop innovative, reliable, sustainable and economically viable designs incorporating knowledge in engineering.			2		1	1		2	2		1
		CO 1	Understand the core values that shape the ethical behaviour of a professional.							2			2	
		CO 2	Adopt a good character and follow an ethical life.							2			2	
HUT 200	PROFESSIONAL ETHICS	CO 3	Explain the role and responsibility in technological development by keeping personal ethics and legal ethics.							3			2	
		CO 4	Solve moral and ethical problems through exploration and assessment by established experiments.							3			2	
		CO 5	Apply the knowledge of human values and social values to contemporary ethical values and global issues.							3			2	
		CO 1	Understand the relevance and the concept of sustainability and the global initiatives in this direction					2	3					2
		CO 2	Explain the different types of environmental pollution problems and their sustainable solutions					2	3					2
MCN201	SUSTAINABLE ENGINEERING	CO 3	Discuss the environmental regulations and standards					2	3					2
		CO 4	Outline the concepts related to conventional and non-conventional energy					2	3					2
		CO 5	Demonstrate the broad perspective of sustainable practices by utilizing engineering knowledge and principles					2	3					2
		CO 1	Understand the fundamentals of biomolecules and describe the foodsources	3										

		CO 2	Explain the principal components of food, their chemical and nutritional properties	3									2
ETT 205	EOOD CHEMISTRY	CO 3	Analyze the relationship between the composition of the individual foodcomponents and their chemical and physicalproperties	2	2								2
111 205	TOOD CHEMISTRY	CO 4	Recognize realexamples underlyingphysicochemicalmechanismsresponsiblefor food functionality and be able to use their knowledge of foodchemistry	2	2	2	3						
		CO 5	Analyze the qualitychanges in food componentsduringprocessingandpreservation	2	2	2	2						2
		CO 6	Apply basicknowledge food components for producing various foodproducts fordifferent age groups	3	2			2	1	1			
		CO 1	Demonstrate safety practices inside a microbiologylaboratory			3	2				1		3
		CO 2	Identify, explain function and preparation of common culture mediain microbiology lab and sterilization	2		2	2						3
FTL 201	FOOD MICROBIOLOGY LAB I	CO 3	Demonstrate proficiency in a septic transfer of livingmicrobes using different techniques; staining techniques,proper culture handling and enumeration of microorganisms	2		2	3						3
		CO 4	Demonstrate proper usage, identify the parts/functions of the microscopes and viewing microorganisms using with/without staining techniques	2		1	3						3
		CO 5	Understand and explain bacterial growth and environmental/physical/chemicalfactorsthat influence microbial growth	2		1	3						3
		CO 1	Explain various chemicalmethods for the detection and estimation of chemical constituents infood	2									
		CO 2	Analyze different chemicalcompounds in foodsample		2								

FIEL 202		CO 3	Demons	strate var	ious chei	nicalmet	hods to f	ind the cl	hemicalp	roperties	of foods		2										
F1L 203	FOOD CHEMISTRY LAB	CO 4	Design, precisel	carryout, y	record ar	nd analyz	the res	ults of ch	emicalex	perimen	S		1										
		CO 5	Function learning	n as a me	ember of	a team,c	ommunio	cate effec	tively and	d engage	in further	2											
		CO 6	Apply th FoodRe	nis as a b search In	ase for fa stitute	acing an	issue in I	Food Pro	cessing I	ndustry o	r in a			1									
	SEMESTER - 4																						
Course															Pı	ograi	n Out	come	5 (PO	s)			
code	Course Name					Course	outcom	es				1	2	3	4	5	6	7	8	9	10	11	12
		CO 1	Underst variable and,usi	and the c s ng them,	concept, j analyse	propertie suitable	s and imj random p	portant m bhenomer	odels of na.	discrete	random	3	2	2	2	2					2		1
		CO 2	Underst variable	and the c es and,us	concept, j ing them	propertie , analyse	s and imp suitable	portant m random j	odels of phenome	continuo na	us random	3	2	2	2	2					2		1
MAT 206	PROBABILITY STATISTICS AND NUMERICAL METHODS	CO 3	Perform on attribut	statistic	al inferer ples dra	nces conc wn from	cerning cl	haracteris	stics of a	populatio	on based	3	2	2	2	2					2		1
		CO 4	Comput interpola	e roots o ation on	f equatio given nui	ns, evalu merical c	ate defin lata using	ite integr g standaro	als and p 1 numerio	erform cal techn	ques	3	2	2	2	2					2		1
		CO 5	Apply st curves c	tandard r on given :	dard numerical data and solving ordinary differential equations, fitting						s, fitting tions.	3	2	2	2	2					2		1
		CO 1	Apply b heattran equipme	asic prin sfer ent.	ciples an	d mecha	nism of I	neattransf	er in th e	design o	ŕ	1				3							
		CO 2	Recogni geometr	ze proble ics.	ems and	develop	solutions	for stead	ystatecoi	ductioni	nsimple	3	2										

FTT 202	FUNDAMENTALS OF HEAT AND MASS TRANSFER	CO 3	Applymasstransfer through molecular diffusion,gas-liquidandvapor- liquidoperations.	3	2								
		CO 4	Analyze unit operations and type of equipments used in food allied industries	3	2								
		CO 5	Understand the application of absorbers in food industry	3									
		CO 1	Understand the physical, aero and hydrodynamic properties of foodmaterials and their methods of measurement.	3	2								1
		CO 2	Apply the theoretical knowledge of frictional properties of food materials in calculating pressure distribution in storage structures.	3	2	2							1
FTT 204	ENGINEERING PROPERTIES OF FOOD MATERIALS	CO 3	Recognize thermal, electrical and electromagnetic properties food and their measurement techniques.	2	2	3							1
		CO 4	Apply the knowledge of rheological properties to improve the qualitative and quantitative attributes of food.	2	2								1
		CO 5	Understand methods for the measurement of texture of foodmaterial.	2	3								1
		CO 1	Explain the different concepts and principles involved in design engineering.	2	1				1			1	
EST 200	DESIGN AND ENGINEERING	CO 2	Apply design thinking while learning and practicing engineering		2			1		1			2
		CO 3	Develop innovative, reliable, sustainable and economically viable designs incorporating knowledge in engineering.			2		1	1		2	2	1
		CO 1	Identify the unique vocabulary associated with thermodynamics and the basic concepts of thermodynamics	2	3	1							
		CO 2	State and prove the equivalence of two statements of second law of thermodynamic	1	2	3							

ETT 206	FOOD ENGINEERING	CO 3	Explain the thermodynamic properties of pure fluids	3					1			
F11 200	REACTION KINETICS	CO 4	Understand the concept of reaction rates how to express the rate of reactions	3								1
		CO 5	Explain the use intergrated first-order, second-order rate laws and the concept o	3								
		CO 6	Understand the application of reactors and explain how enzymes acts as biologic	2		3						1
		CO 1	Explain the background of the present constitution of India and features					2	2	2	2	
		CO 2	Utilize the fundamental rights and duties.					3	3	2	3	
MCN202	CONSTITUTION OF INDIA	CO 3	Understand the working of the union executive, parliament and judiciary.					3	2	2	3	
WCIV202	CONSTITUTION OF INDIA	CO 4	Understand the working of the state executive, legislature and judiciary.					3	2	2	3	
		CO 5	Utilize the special provisions and statutory institutions.					3	2	2	3	
		CO 6	Show national and patriotic spirit as responsible citizens of the country					3	3	2	2	
FTL 204	ENGINEERING PROPERTIES OF FOOD MATERIALS LAB	CO 1	Understand and practice different techniques for determining the physical properties of food such as density, volume, porosity, surface area, shape and size	3			2					1
		CO 2	Understand and practice different techniques for determining the thermal properties of food such as thermal conductivity, specific heat etc	3			2					1
		CO 3	Understand and practice different techniques for determining the frictional properties of food such as coefficient of friction, angle of repose etc	3			2					1

		CO 4	Unders velocity ohmic h	tand, exp and leating	olain and	use equi	pments f	or burs	ting streng	th, terminal	3				2							1
		CO 5	Unders velocity ohmic h	tand, exp and leating	blain and	use equi	pments f	or burs	ting streng	th, terminal	3				1							1
		CO 6	Learn t record a analyse	o design ind the resul	and carry	y out scie n experir	entific ex ments	perime	nts as well	as accurately	3				1							1
		CO 1	Evaluate	e the tota	l microbi	ial load i	n the foo	d or in	the enviror	nment	1		3	2								2
		CO 2	Identify	suitable	methods	for qual	itative ev	aluatio	n of food		2		3	2								2
FTL202	FOOD MICROBIOLOGY LAB-II	CO 3	Identify	suitable	methods	for quar	ntitative e	valuati	on of food		2		3	2								3
		CO 4	Demons	state the j	procedure	e for ide	ntificatio	n of spe	ecific micro	oorganism in food	2		3	3								3
		CO 5	Demons	state the	usage of	beneficia	al microo	rganisn	n for produ	action of food	2		3	3								3
	SEMESTER - 5																					
Course code	Course Name					Course	outcom	es			1	2	3	P1 4	rograi 5	n Out 6	come 7	s (PO 8	s) 9	10	11	12
		CO 1	Gain kn processi	owledge ing	on prepa	ring raw	material	for pro	ocessing an	d high temperature	2	2	3	-	-	-	-	-	-	-	-	-
		CO 2	2Be fai	niliarized	arized with size reduction principles and equipment for solid food					ent for solid foods	3	3	3	3	-	-	-	-	-	-	-	-
FTT 301	FOOD PROCESS ENGINEERING	CO 3	Analyse	the imp	zed with size reduction principles and equipment for solid for				during processing	3	3	3	2	-	-	-	-	-	-	-	-	

		CO 4	Gain knowledge on principle, kinetics and equipment for baking and frying process.	3	3	3	3	2	-	-	-	-	-	-	-
		CO 5	Be familiarized with the concepts of extrusion and minimal processing techniques in food technology sector.	3	3	3	3	2	-	-	-	-	-	-	-
		CO 1	Characterize different unit operations in food processing	3	2	1									
		CO 2	Identify and evaluate different types of evaporators		3	1									
ETT 202	UNIT OPERATIONS IN	CO 3	Describe the working of filtration equipments used in food industry	1	2	1									
F11 303	FOOD PROCESSING	CO 4	Estimate the energy requirement for the different size reduction operations		3	2	1								
		CO 5	Explain mechanism of expression and extraction operations	1	3										
		CO 6	Describe crystallization and distillation process and its applications	1	2	2									
		CO 1	To be familiar with the Government Regulations pertaining to Food Analysis	2	3										
		CO 2	Identify the different methodologies employed in proper Sampling of food	3	2	2		3							
FTT 305	FOOD ANALYSIS	CO 3	Review the principles behind the analysis of various food components	2	3										
		CO 4	To recognise the different techniques employed for analysis of components in fo	1	1	3									
		CO 5	To gain knowledge of the instrumentation and Working of equipment used for Food Analysis	2	2										

		CO 1	Define and use various terminologies in use in disaster management parlance and organise each of these terms in relation to the disaster management cycle (Cognitive knowledge level		2				2				2		2
		CO 2	Distinguish between different hazard types and vulnerability types and do vulnerability assessment (Cognitive knowledge level	2	3	2		2	2	3			3		2
MCN 201	DISASTER	CO 3	Identify the components and describe the process of risk assessment, and apply appropriate methodologies to assess risk (Cognitive knowledge level	2	3	2	2	2	2	3			3		2
MCN 501	MANAGEMENT	CO 4	Explain the core elements and phases of Disaster Risk Management and develop possible measures to reduce disaster risks across sector and community (Cognitive knowledge level	3	3	3		2	2	3					2
		CO 5	Identify factors that determine the nature of disaster response and discuss the various disaster response actions (Cognitive knowledge level:	3	3			2	2	3					2
		CO 6	Explain the various legislations and best practices for disaster management and risk reduction at national and international level (Cognitive knowledge level	3					2	3	3				2
		CO 1	Explain the characteristics of management in the contemporary context	2				1	2	2	2		2	1	1
		CO 2	Describe the functions of management	2				1	1		2	1	2	1	1
HUT 310	MANAGEMENT OF	CO 3	Demonstrate ability in decision making process and productivity analysis	2	2	2	2	1							
1101 510	LINGINEERS	CO 4	Illustrate project management technique and develop a project schedule	2	2	2	2	1						2	1
		CO 5	Summarize the functional areas of management	2					1	1		1	2	1	
		CO 6	Comprehend the concept of entrepreneurship and create business plans		2	2	2	1	1	1	1	1	1	1	1
		CO 1	Understand the processing of rice and utilization of by products.	3	2										1

		CO 2	Understand the processing of barley and wheat	3	2	2							1
FTT 307	CEREAL AND LEGUME TECHNOLOGY	CO 3	Understand the processing of corn, oat and millets	2	2	3							1
		CO 4	Recognizes the value added products and their processing	2	2								1
		CO 5	Understand the processing of various legumes and their products	2	3								1
		CO 1	Understand and practice different techniques for determining different fluid properties	3			2						3
		CO 2	Understand and practice different techniques for determining the thermal properties of food such as thermal conductivity, specific heat etc.	3			2						3
ETI 221	UNIT OPERATIONS IN	CO 3	Understand and practice different techniques for determining heat transfer properties	3			2						3
112 331	FOOD LAB	CO 4	Acquire the ability to understand, explain and use equipment for mass transfer operations	3			2						3
		CO 5	Acquire the ability to understand, explain and use equipment for unit operations like adsorption, drying etc.	3			1						3
		CO 6	Learn to design and carry out scientific experiments as well as accurately record and Analyse the results of such experiments	3			1						3
		CO1	To understand the principles behind food analysis										
		CO 2	To gain Knowledge of basic equipments for food sample analysis	3	2			2	2	2	2		3
FTL 333	FOOD ANALYSIS AND QUALITY EVALUATION LAB	CO 3	Calculate and interpret nutrient composition of foods	3	2	3							3

		CO 4	Evaluate sample	aluate data generated by experimental methods for quality evaluation of the second sec							3	2				2	2	2	2			3
		CO 5	Interpre regulation	t the qual on	ity paran	neters of	food san	nple in re	elation to	food standards and	3	2	2						2			3
	SEMESTER - 6																					
Course code	Course Name					Course	outcom	es			1	2	3	Pı 4	ograi	n Out	tcome	s (PO	s)	10	11	12
		CO 1	Gain a t dairy ine	horough dustries.	storage of milk in	2	2	3	-	-			0		10		12					
		CO 2	Get fam steriliza	iliarized tion and j	with the pasteuriz	principle ation fol	e, importa lowed in	ance and dairy ind	various r lustry.	nethods of	3	3	3	3	-							
FTT302	DAIRY TECHNOLOGY FO	CO 3	Study th	ne effect o	of homog	genizatio	n of milk	and its e	efficiency		3	3	3	2	-							
		CO 4	Compre dairy ine	hend the dustry	importar	nce of ce	ntrifugati	ion and n	nembrane	e separation in	3	3	3	3	2							
		CO 5	Impart t	he ideas	of the ma	anufactu	re of dair	y produc	ts		3	3	3	3	2							
		CO 1	Familia equipmo	rize the b ent design	asic cons 1	ideratio	ns in proc	cess			1	2	2									
		CO 2	Design	niliarize the basic considerations in process ipment design sign pulper and storage structures							1	3	1									
ETT 204	FOOD PROCESS	CO 3	Design dryers	sign and Analyze heat exchangers, evaporators and ers							2	2	3									
F11 304	DESIGN	CO 4	Design	extruders	, freezers	s and col	d storage	,			2	2	3									

		CO 5	Design Material handling devices	2	2	3								
		C0 6	Explain the working of Cleaning and Separation devices	2	1	1								
		CO 1	Explain the problem of scarcity of resources and consumer behaviour, and to evaluate the impact of government policies on the general economic welfare	2									3	
		CO 2	Take appropriate decisions regarding volume of output and to evaluate the social cost of production.	2	2			2	2	3			3	
HUT 300	INDUSTRIAL ECONOMICS & FOREIGN TRADE	CO 3	Determine the functional requirement of a firm under various competitive conditions.	2	2	1							3	
		CO 4	Examine the overall performance of the economy, and the regulation of economic fluctuations and its impact on various sections in the society.	2	2	1			1				3	
		CO 5	Determine the impact of changes in global economic policies on the business opportunities of a firm	2	2	1							3	
		CO1	Apply the fundamentals of food Technology in various Competitive examinations	2	1				2					
ETT308	COMPREHENSIVE	CO2	Comprehend the questions of Food technology field for research applications	3	2		1		2			2		1
111508	COURSE WORK 1	CO3	Evaluate the Principles of engineering aspects for the application of food engineering Problems	2	1				2			3		
		CO4	Analyze the comprehensive knowledge gained in basic courses in the field of Food Technology.											
FTT 306	FOOD ADDITIVES AND FLAVOURINGS	CO 1	Understand diverse food additives used in the food industries and its technological function	3		3			3	2	3			3
		CO 2	Knowledge on the rules and regulations prevailing for the use of food additives	3			2		2		2			

		CO 3	Applica	tion of fla	avouring	agents a	nd flavour produc	ts in foo	d industr	у	3		2	2								
		CO 4	Learn di	fferent n	nethods of	of isolatio	on of flavours fror	n food			3						3					
		CO 1	Apply the foods	ne princip	oles and i	methods	involved in the pr	ocessing	of differ	ent	2								3	3		
		CO 2	Analyse	various _j	preservat	tion tech	niques of foods				2								3	3		
FTL 332	FOOD PROCESSING LAB	CO 3	Develop	skills to	analyze	food qua	lity				2								3	3		
		CO 4	Formula	te variou	s nutritiv	ve produc	cts and work in te	am			2								3	3		
		CO 5	Experim	ient and o	evaluate	different	food products				2								3	3		
		CO 1	Make us technolo	se of acqu ogy for pr	uired kno oject dev	wledge v velopmer	within the selected nt.	l area of			3	3	3	3	3	3	3	3	-	-	-	3
		CO 2	Identify aspects	discuss of the pro	and justi oject with	fy the tec n a syster	chnical aspects an natic approach.	d design			3	3	3	3	3	-	2	3	-	3	2	3
FTD334	MINIPROJECT	CO 3	Interpretengineer	t, improv ring proje	e and ref ects.	fine techi	nical aspects for				3	3	3	3	3	2	3	3	-	2	3	3
		CO 4	Associat develop	te with a ment of t	team as a	an effect projects.	ive team player fo	or the			3	3	2	2	-	-	-	3	3	3	3	3
		CO 5	Report e	ffectivel	y the pro	ject relat	ed activities and f	indings.			3	-	-	-	2	-	-	3	2	3	2	3

	SEMESTER - 7																						
Course	Course Name					Course	outcom	es					-	-	P	rograi	m Out	tcome	s (PO	s)			
code			1									1	2	3	4	5	6	7	8	9	10	11	12
		CO 1	To unde	erstand th	e basicco	oncepts a	and princ	iples of	food pres	ervation.		1	2	1									
		CO 2	To Choo food pro	ose suital	ble high a industry	and low	temperat	ure prese	ervation n	ethods f	or various	1	1		1	2							
FTT401	FOODPROCESSING AND PRESERVATION	CO 3	To unde food pro	erstand th oduct dev	e suitabi elopmen	lity of co t and pro	oncentrat	ion and o n.	evaporatio	n technio	ques for	1	1		1	2							1
		CO 4	Mechan	isms inv	olved in	processii	ng and pi	eservati	on of diff	erent foo	dgroups.	2	1										
		CO 5	Concept	t and safe	etyconcer	ms of Ge	enetically	modifie	edfoods.			1			1								1
		CO1	Explain foods to	the impo thecons	ortance o umer	f packag	ing syste	m to pro	duce safe	and conv	venient	3		2									
		CO2	Apply th	ne knowl	edge of f	oodpack	aging in	various	foodproce	ssing sec	etor.	3	3	2									2
FTT	FOODPACKAGING	CO3	Student material	ts can un s	derstand	the adva	intages a	nd limita	ations of v	arious pa	ackaging	2	2	3									2
415	TECHNOLOGY	CO4	Develop industrie	o skills in es	the area	of food	oackagin	g require	ed in vario	us foodp	rocessing	3	3	2	3								
		CO5	Choose of food	new typ products	e ofpack	aging ma	aterial to	improve	the shelf	ife & aco	ceptability	2	2	2	2								2
		CO6	Explain conveni tothecor	the imp entfoods sumer	ortance o	of packag	gingsyste	m to pro	duce safe	and		3	2			2	1	1					
		CO1	Worket	fectively	inteamsa	indpracti	cedocum	entation	ofexperin	ients con	ducted	3						2		3			

		CO2	Applytheprinciplesoffoodprocessingto developqualityandsafevalue-added food products			2			3						
FTL 411	FOOD PRESERVATIONLAB	CO3	Summarizeprinciplesoffoodpreservationtoenhancetheshelflifeofprocessed products	3											
		CO4	Explaintheworkingofvariousfoodprocessingequipment and other devices in laboratory level			2									
		CO5	Demonstratethepreservationoffruitsusingheattreatment	3								3	3	3	
		C01	Identify the physiological and biochemical changes in horticultural produce after	3											
		CO2	Harvest and apply suitable control methods			3					3				
FTT 463	POST- HARVESTPHYSIOLOGY ANDSPOILAGEINFOOD	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											
		C0O5	Identify various storage methods for the shelf-life extension of horticulturalproduce	3											
		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 areasofinterest(Cognitiveknowledge level:Analyze).	3	3	2	3		2	1					3
FTQ413	SEMINAR	CO3	Prepare a presentation about an academic document(Cognitiveknowledge level:Create).	3	2			3			1		2		3
		CO4	Give a presentation about an academic documen t(Cognitiveknowledgelevel: Apply).	3				2			1		3		3

															_
		CO5	Prepare a technical report (Cognitiveknowledgelevel:Create).	3	3	3	3	2	2		2		3		3
		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
FTD415	PROJECT PHASE I	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
SEMESTI	E R 8														
SEMESTI Course	ER 8 Course Name		Course outcomes				Pı	ograr	n Out	tcome	s (PO	s)			
SEMESTI Course code	ER 8 Course Name		Course outcomes	1	2	3	Pı 4	<mark>ograr</mark> 5	<mark>n Out</mark> 6	t <mark>come</mark> 7	s (PO) 8	<mark>s)</mark> 9	10	11	12
SEMESTI Course code	ER 8 Course Name	C01	Course outcomes Apply the design considerations and foodsafety standards in development of plant Design and layout for food processingindustry.	1 3	2	3	Pı 4	ograr 5	n Out 6 2	<mark>come</mark> 7	<mark>s (PO</mark> 8	<mark>s)</mark> 9	10	11	12
SEMESTI Course code	ER 8 Course Name	C01 C02	Course outcomes Apply the design considerations and foodsafety standards in development of plant Design and layout for food processingindustry. Choose the plant location and plant layout for the new or existing food industry.	1 3 2	2 2 2	3	Pr 4	ograr 5	n Out 6 2	7	<mark>s (PO</mark> 8	s) 9	10	11	12
SEMESTI Course code	ER 8 Course Name FOODPLANTLAYOUTAN D DESIGN	CO1 CO2 CO3	Course outcomes Apply the design considerations and foodsafety standards in development of plant Design and layout for food processingindustry. Choose the plant location and plant layout for the new or existing food industry. Apply the systematic layout planning in development of plantlayout.	1 3 2 3	2 2 2 2	3 2 2	Pr 4	2	n Out 6 2	7	s (PO:	s) 9	10	2	12
SEMESTI Course code	ER 8 Course Name FOODPLANTLAYOUTAN D DESIGN	CO1 CO2 CO3 CO4	Course outcomes Apply the design considerations and foodsafety standards in development of plant Design and layout for food processingindustry. Choose the plant location and plant layout for the new or existing food industry. Apply the systematic layout planning in development of plantlayout. Prepare flowsheet for the material movement and utility consumption in foodindustry.	1 3 2 3 3	2 2 2 2 2 2 2	3 2 2	P 1 4	2	n Out 6 2	7 7	8 8	s) 9	10	2	12
SEMESTI Course code	ER 8 Course Name FOODPLANTLAYOUTAN D DESIGN	CO1 CO2 CO3 CO4 CO5	Course outcomes Apply the design considerations and foodsafety standards in development of plant Design and layout for food processingindustry. Choose the plant location and plant layout for the new or existing food industry. Apply the systematic layout planning in development of plantlayout. Prepare flowsheet for the material movement and utility consumption in foodindustry. Design and develop plantlayout and plant design for foodprocessing industries.	1 3 2 3 3 2	2 2 2 2 2 2 3	3 2 2 3	P r 4	2	n Out 6 2	7	8 8	9 9	2	11 2 2	12

		CO2	To Familiarize about natural and derived foodtoxicants and their mode ofaction.	2					2					
FTT 464	FOOD TOXICOLOGY	CO3	Develop knowledge about Foodallergens, toxicity of additives and differencebetween safety, hazard and toxicity.	2					2					
		CO4	Understand the methods for the Determination of toxins and their riskassessment	2				2						
		CO5	Gain knowledge of toxicsubstances in food andtheir toxic effects in people.	2					2					
		CO 1	Describe the theories of accident causation and preventive measures of industrial accidents.	2	2				2	2	2			1
		CO 2	Explain about personal protective equipment, its selection, safety performance & indicators and importance of housekeeping.	2	1	2		1	1	1	1			1
MCN401	INDUSTRIAL SAFETY ENGINEERING	CO 3	Explain different issues in construction industries.	2	2	2		1	1	1	1	1	1	1
		CO 4	Describe various hazards associated with different machines and mechanical material handling.	2	2	2		1	1	1	1	1	1	1
		CO 5	Utilise different hazard identification tools in different industries with the knowledge of different types of chemical hazards.	2	2	2	1	1	1	1	1	1	1	1
		CO1	Recall the principles that make a foodproduct safe for consumption	3	3									
ETT/16	FOOD QUALITY, SAFETY AND	CO2	Analyse hazard and formulate hazardanalysis criticalcontrol point as partof foodsafety andquality management	3	2	2								
111410	REGULATIONS	CO3	Apply the principles of foodScience and foodanalysis in ensuring qualitycontrol	2	3		3		2	2				

		CO4	andregulations infood industry	2	2	3			2	2					
FTT 426	ENTREPRENEURSHIP DEVELOPMENT IN FOOD TECHNOLOGY	CO1	Motivation for entrepreneuria lcareer	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 businessplan	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						
		CO1	Modelandsolverealworldproblemsbyapplying knowledgeacrossdomains (Cognitive knowledge level: Apply).	2	2	2	1	2	2	2	1	1	1	1	2
		CO2	Developproducts,processesortechnologiesforsustainableandsociallyrelevant applications (Cognitive knowledge level: Apply).	2	2	2		1	3	3	1	1		1	1
FTD416	PROJECT PHASE II	CO3	Function effectively as an individual and as a leader in diverse teams and to comprehendandexecutedesignatedtasks(Cognitiveknowledgelevel: Apply).									3	2	2	1
		CO4	Planandexecutetasksutilizingavailableresourceswithintimelines, followingethical 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	Organizeandcommunicatetechnicalandscientificfindingseffectivelyinwrittenand oral forms (Cognitive knowledge level: Apply).					2		2	2	3	1	1