B. TECH. FOOD TECHNOLOGY
Regulation 2017

Semester-I

Sl. No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
THEORY								
1.	HS8151	Communicative English	HS	4	4	0	0	4
2.	MA8151	Engineering Mathematics - I	BS	4	4	0	0	4
3.	PH8151	Engineering Physics	BS	3	3	0	0	3
4.	CY8151	Engineering Chemistry	BS	3	3	0	0	3
5.	GE8151	Problem Solving and Python Programming	ES	3	3	0	0	3
6.	GE8152	Engineering Graphics	ES	6	2	0	4	4
PRACTICALS								
7.	GE8161	Problem Solving and Python Programming Laboratory	ES	4	0	0	4	2
8.	BS8161	Physics and Chemistry Laboratory	BS	4	0	0	4	2
			TOTAL	**31**	**19**	**0**	**12**	**25**

HS8151 COMMUNICATIVE ENGLISH	
CO1	Read articles of a general kind in magazines and newspapers
CO2	Participate effectively in informal conversations; introduce themselves and their friends and express opinions in English.
CO3	Comprehend conversations and short talks delivered in English
CO4	Write short essays of a general kind and personal letters and emails in English.
CO5	Communicate with one or many listeners using appropriate communicative strategies

MA8151 ENGINEERING MATHEMATICS I	
CO1	Use both the limit definition and rules of differentiation to differentiate functions.
CO2	Apply differentiation to solve maxima and minima problems.
CO3	Evaluate integrals both by using Riemann sums and by using the Fundamental Theorem of Calculus.
CO4	Apply integration to compute multiple integrals, area, volume, integrals in polar coordinates, in addition to change of order and change of variables..
CO5	Evaluate integrals using techniques of integration, such as substitution, partial fractions and integration by parts

PH8151 ENGINEERING PHYSICS	
CO1	The students will gain knowledge on the basics of properties of matter and its applications,
CO2	The students will acquire knowledge on the concepts of waves and optical devices and their applications in fibre optics,
CO3	The students will have adequate knowledge on the concepts of thermal properties of materials and their applications in expansion joints and heat exchangers,
CO4	The students will get knowledge on advanced physics concepts of quantum theory and its applications in tunneling microscopes,
CO5	The students will understand the basics of crystals, their structures and different crystal growth techniques.

CY8151 ENGINEERING CHEMISTRY	
CO1	The knowledge gained on engineering materials, fuels, energy sources and water treatment techniques will facilitate better understanding of engineering processes and applications for further learning.
CO2	To make the student acquire sound knowledge of second law of thermodynamics and second law based derivations of importance in engineering applications in all disciplines.
CO3	To acquaint the student with concepts of important photophysical and photochemical processes and spectroscopy.
CO4	To develop an understanding of the basic concepts of phase rule and its applications to single and two component system and appreciate the purpose and significance of alloys.
CO5	To acquaint the students with the basics of nano materials, their properties and applications

GE8151 PROBLEM SOLVING AND PYTHON PROGRAMMING	
CO1	Develop algorithmic solutions to simple computational problems
CO2	Read, write, execute by hand simple Python programs..
CO3	Decompose a Python program into functions.
CO4	Represent compound data using Python lists, tuples, dictionaries.
CO5	Read and write data from/to files in Python Programs

GE8152 ENGINEERING GRAPHICS	
CO1	Familiarize with the fundamentals and standards of Engineering graphics
CO2	Perform freehand sketching of basic geometrical constructions and multiple views of objects.
CO3	Project orthographic projections of lines and plane surfaces.
CO4	Draw projections and solids and development of surfaces.
CO5	Visualize and to project isometric and perspective sections of simple solids.

GE8161 PROBLEM SOLVING AND PYTHON PROGRAMMING LABORATORY	
CO1	Write, test, and debug simple Python programs.
CO2	Implement Python programs with conditionals and loops
CO3	Develop Python programs step-wise by defining functions and calling them.
CO4	Use Python lists, tuples, dictionaries for representing compound data.
CO5	Read and write data from/to files in Python

SEMESTER II

S. No.	COURSE CODE	COURSE TITLE	CATE GORY	CONTACT PERIODS	L	T	P	C
THEORY								
1	HS8251	Technical English	HS	4	4	0	0	4
2	MA8251	Engineering Mathematics – II	BS	4	4	0	0	4
3	PH8254	Physics of Materials	BS	3	3	0	0	3
4	BE8252	Basic Civil and Mechanical Engineering	ES	4	4	0	0	4
5	BT8291	Microbiology	PC	3	3	0	0	3
6	FD8201	Biochemistry	PC	3	3	0	0	3
PRACTICALS								
7	GE8261	Engineering Practices Laboratory	ES	4	0	0	4	2
8	BT8261	Biochemistry Laboratory	PC	4	0	0	4	2
			TOTAL	**29**	**21**	**0**	**8**	**25**

HS8251 TECHNICAL ENGLISH	
CO1	Read technical texts and write area- specific texts effortlessly.
CO2	Listen and comprehend lectures and talks in their area of specialisation successfully.
CO3	Speak appropriately and effectively in varied formal and informal contexts..
CO4	Write reports and winning job applications.
CO5	Initiate a discussion, negotiate, argue using appropriate communicative strategies

MA8251 ENGINEERING MATHEMATICS II	
CO1	Eigen values and eigenvectors, diagonalization of a matrix, Symmetric matrices, Positive definite matrices and similar matrices.
CO2	Gradient, divergence and curl of a vector point function and related identities.
CO3	Evaluation of line, surface and volume integrals using Gauss, Stokes and Green's theorems and their verification.
CO4	Analytic functions, conformal mapping and complex integration.
CO5	Laplace transform and inverse transform of simple functions, properties, various related theorems and application to differential equations with constant coefficients

BE8252 BASIC CIVIL AND MECHANICAL ENGINEERING	
CO1	Appreciate the Civil and Mechanical Engineering components of Projects.
CO2	Explain the usage of construction material and proper selection of construction materials.
CO3	Measure distances and area by surveying
CO4	Identify the components used in power plant cycle.
CO5	Demonstrate working principles of petrol and diesel engine

PH8254 PHYSICS OF MATERIALS	
CO1	Gain knowledge on phase diagrams and various material processing methods
CO2	Acquire knowledge on basics of conducting materials, superconductors and theirapplications
CO3	Get knowledge on the functioning of semiconducting materials and their applications inLED and solar cells
CO4	Understand the functioning of various dielectric and magnetic materials.
CO5	Have the necessary understanding on various advanced materials.

BT8291 MICROBIOLOGY	
CO1	To introduce students to the principles of Microbiology
CO2	To emphasize structure and biochemical aspects of various microbes.
CO3	To solve the problems in microbial infection.
CO4	To solve the microbial control.
CO5	Carry out industrial application.

FD8201 BIOCHEMISTRY	
CO1	To ensure students have a strong foundation in the structure and reactions of Bio molecules
CO2	To introduce them to metabolic pathways of the major bio molecules and relevance to clinical conditions.
CO3	To correlate Biochemical processes with Biotechnology applications.
CO4	To enable students, learn the fundamentals of Biochemical Processes.
CO5	To introduce case study on overproduction of primary and secondary metabolites

GE8261 ENGINEERING PRACTICES LABORATORY	
CO1	Fabricate carpentry components and pipe connections including plumbing works.
CO2	Use welding equipments to join the structures.
CO3	Carry out the basic machining operations
CO4	Make the models using sheet metal works
CO5	Illustrate on centrifugal pump, Air conditioner, operations of smithy, foundary and fittings

FD8261 BIOCHEMISTRY LABORATORY	
CO1	To learn and understand the principles of Biochemistry.
CO2	To learn behind the qualitative and quantitative estimation of bio molecules (proteins, carbohydrates, lipids, metabolites etc.)
CO3	To carryout laboratory analysis of the same in the body fluids.
CO4	To estimation of bio molecules in fluids.
CO5	To Carryout extraction of bio molecules.

SEMESTER III

S. No.	COURSE CODE	COURSE TITLE	CATE GORY	CONTACT PERIODS	L	T	P	C
THEORY								
1	MA8353	Transforms and Partial Differential Equations	BS	4	4	0	0	4
2	FD8301	Introduction to Food Processing	PC	3	3	0	0	3
3	FD8302	Food Process Calculations	PC	5	3	2	0	4
4	FD8303	Food Microbiology	PC	3	3	0	0	3
5	FD8304	Principles of Fluid Mechanics	PC	5	3	2	0	4
6	FD8305	Food Chemistry and Nutrition	PC	3	3	0	0	3
PRACTICALS								
7	FD8311	Food Microbiology Laboratory	PC	4	0	0	4	2
8	FD8312	Food Chemistry and Nutrition Laboratory	PC	4	0	0	4	2
9	HS8381	Interpersonal Skills/Listening and Speaking	EEC	2	0	0	2	1
			TOTAL	**33**	**19**	**4**	**10**	**26**

MA8353	**TRANSFORMS AND PARTIAL DIFFERENTIAL EQUATIONS**
CO1	Understand how to solve the given standard partial differential equations.
CO2	Solve differential equations using Fourier series analysis which plays a vital role in engineering applications.
CO3	Appreciate the physical significance of Fourier series techniques in solving one- and two-dimensional heat flow problems and one dimensional wave equations.
CO4	Understand the mathematical principles on transforms and partial differential equations would provide them the ability to formulate and solve some of the physical problems of engineering.
CO5	Use the effective mathematical tools for the solutions of partial differential equations by using Z transform techniques for discrete time systems.

FD8301 INTRODUCTION TO FOOD PROCESSING	
CO1	Be aware of the different methods applied to processing foods.
CO2	Be able to understand the significance of food processing and the role of food and beverage industries in the supply of foods.

CO3	To carryout Large-Scale Food Processing
CO4	Be Aware of The Food Wastes In Various Processes
CO5	Be able to understand the Food Hygiene

FD8302	**FOOD PROCESS CALCULATIONS**
CO1	Be able to understand the Units and Dimensions
CO2	To carryout Basic and derived units, use of model units in calculations, Methods of expression, compositions of mixture and solutions.
CO3	Understand the Ideal and real gas laws
CO4	Be able to understand Gas constant - calculations of pressure, volume and temperature.
CO5	Be able to understand ideal gas law.

FD8303	**FOOD MICROBIOLOGY**
CO1	Be able to understand and identify the various microbes associated with foods and food groups.
CO2	Be able to understand and identify the role of these microbes in food spoilage, food preservation.
CO3	Understand the role of pathogens in food borne infections.
CO4	Understand the methods used to detect pathogens in foods.
CO5	Understand the microbial examinations methods.

FD8304	**PRINCIPLES OF FLUID MECHANICS**
CO1	The students will be able to get a basic knowledge of fluids in static, kinematic and dynamic equilibrium.
CO2	They will also gain the knowledge of the applicability of physical laws in addressing problems in hydraulics.

CO3	To introduce the students to the mechanics of fluids through a thorough understanding of the properties of the fluids, behavior of fluids under static conditions.
CO4	The dynamics of fluids is introduced through the control volume approach which gives an integrated understanding of the transport of mass, momentum and energy.
CO5	To expose to the applications of the conservation laws to a) flow measurements b) flow through pipes (both laminar and turbulent) and c) forces on vanes.

FD8305 FOOD CHEMISTRYAND NUTRITION	
CO1	Be able to understand and identify the various food groups; the nutrient components (macro and micro), proximate composition.
CO2	Be able to understand and identify the non-nutritive components in food, naturally present.
CO3	Understand and use effectively, food composition tables and databases.
CO4	Grasp the functional role of food components.
CO5	Understand their interaction in food products in terms of colour, flavour, texture and nutrient composition

FD8311 FOOD MICROBIOLOGY LABORATORY	
CO1	Complete understanding of isolation of microbes.
CO2	To understand characterization of various microbes associated with foods.
CO3	To able to understand various food groups.
CO4	Familiarize with microbiological techniques for the study of foods.
CO5	Better understanding of methods to detect pathogens in foods.

FD8312 FOOD CHEMISTRY AND NUTRITION LABORATORY	
CO1	Better understanding the physical and chemical properties of food. Familiarize in precipitation of casein and gellation of starch.
CO2	Understanding the food groups, constituents of food, energy from food Exposing to nutritional assessment, food constituents and their daily dietary allowances
CO3	To study and understand the physical and chemical properties of foods
CO4	This course will enable the students to – be familiar with nutrient composition of foods
CO5	To gain knowledge in quantitative methods in assessing nutritional status of individuals and groups.

HS8381 INTERPERSONAL SKILLS/LISTENING AND SPEAKING	
CO1	Listen and respond appropriately.
CO2	Participate in group discussions.
CO3	Make effective presentations.
CO4	Participate confidently and appropriately in conversations.
CO5	To able to speak both formal and informal sentences.

SEMESTER IV

S. No.	COURSE CODE	COURSE TITLE	CATE GORY	CONTACT PERIODS	L	T	P	C
THEORY								
1	MA8391	Probability and Statistics	BS	4	4	0	0	4
2	FD8401	Food Analysis	PC	3	3	0	0	3
3	FD8491	Fundamentals of Heat and Mass Transfer	PC	5	3	2	0	4
4	GE8291	Environmental Science and Engineering	HS	3	3	0	0	3
5	FD8402	Thermodynamics	PC	3	3	0	0	3
6	FD8403	Unit Operations for Food Industries	PC	3	3	0	0	3
PRACTICALS								
7	FD8411	Food Analysis Laboratory	PC	4	0	0	4	2
8	FD8412	Unit Operations Laboratory	PC	4	0	0	4	2
9	HS8461	Advanced Reading and Writing	EEC	2	0	0	2	1
			TOTAL	**31**	**19**	**2**	**10**	**25**

MA8391	**PROBABILITY AND STATISTICS**
CO1	Understand the fundamental knowledge of the concepts of probability and have knowledge of standard distributions which can describe real life phenomenon.
CO2	Understand the basic concepts of one- and two-dimensional random variables and apply in engineering applications.
CO3	Apply the concept of testing of hypothesis for small and large samples in real life problems.
CO4	Apply the basic concepts of classifications of design of experiments in the field of agriculture and statistical quality control.
CO5	Have the notion of sampling distributions and statistical techniques used in engineering and management problems.

FD8401 FOOD ANALYSIS	
CO1	To understand the principles behind analytical techniques in food analysis.
CO2	To know the methods of selecting appropriate techniques in the analysis of food products.
CO3	Appreciate the role of food analysis in food standards.
CO4	To familiarize with the current state of knowledge in food analysis.
CO5	To know the regulations for the manufacture and the sale of food

	products and food quality control in food industries.

FD8491 FUNDAMENTALS OF HEAT AND MASS TRANSFER	
CO1	To understand and apply the principles in heat transfer phenomena.
CO2	To understand andapply the principles in mass transfer phenomena.
CO3	To design heat and mass transfer equipment.
CO4	To able to understand the heat exchanger.
CO5	To able to understand radiation transfer.

GE8291 ENVIRONMENTAL SCIENCE AND ENGINEERING	
CO1	Environmental Pollution or problems cannot be solved by mere laws.
CO2	Public participation is an important aspect which serves the environmental Protection.
CO3	One will obtain knowledge on the following after completing the course.
CO4	Public awareness of environmental is at infant stage. Ignorance and incomplete knowledge hassled to misconceptions
CO5	Development and improvement in std. of living has led to serious environmental disasters

FD8402 THERMODYNAMICS	
CO1	Students will learn laws of thermodynamics
CO2	To understand thermodynamic property relations and their application to fluid flow, power generation and refrigeration processes.
CO3	To understand application to fluid flow, power generation and refrigeration processes.
CO4	To understand application to power generation and refrigeration processes.
CO5	To understand application to power refrigeration processes.

FD8403 UNIT OPERATIONS FOR FOOD INDUSTRIES	
CO1	To understand Principles of separation methods used in the process industry.
CO2	To appreciate different equipment developed for separation
CO3	To understand the principles involved in separation methods.
CO4	To understand crystallization methods.
CO5	To understand evaporation methods.

FD8412 UNIT OPERATIONS LABORATORY	
CO1	Better understanding in analysis of foods.
CO2	Obtain knowledge of adulterants in foods.
CO3	Knowing standards for food products.
CO4	Better understanding in food products for chemical components.
CO5	To know about preservation methods.

FD8411 FOOD ANALYSIS LABORATORY	
CO1	Have knowledge on the basic principles of chemical engineering.
CO2	Be able to apply the skill of material balance.
CO3	Have knowledge on the application of chemical engineering.
CO4	Be able to apply the skill of energy balance in unit operations unit process
CO5	Have knowledge on the process of equipment functions.

HS8461 ADVANCED READING AND WRITING	
CO1	Write different types of essays.
CO2	Write winning job applications.
CO3	Read and evaluate texts critically
CO4	Write different types of essays.
CO5	Write better writting

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SEMESTER V

S. No.	COURSE CODE	COURSE TITLE	CATE GORY	CONTACT PERIODS	L	T	P	C
THEORY								
1.	FD8501	Food Additives	PC	3	3	0	0	3
2.	FD8502	Biochemical Engineering for Food Technologists	PC	4	4	0	0	4
3.	FD8503	Refrigeration and Cold Chain Management	PC	3	3	0	0	3
4.	FD8504	Food Processing and Preservation	PC	3	3	0	0	3
5.		Professional Elective I	PE	3	3	0	0	3
6.		Open Elective I*	PE	3	3	0	0	3
PRACTICALS								
7.	FD8511	Food Processing and Preservation Laboratory	PC	4	0	0	4	2
8.	FD8512	Biochemical Engineering Laboratory	PC	4	0	0	4	2
9.	HS8581	Professional Communication	EEC	2	0	0	2	1
			TOTAL	**29**	**19**	**0**	**10**	**24**

FD8501 FOOD ADDITIVES	
CO1	To understand the principles of chemical preservation of foods.
CO2	To understand the role of different food additives in the processing of different foods.
CO3	To know specific functions in improving the shelf life, quality, texture and other physical and sensory characteristics of foods.
CO4	To know the regulations and the monitoring agencies involved in controlling the safer.

CO5	To know specific functions in improving the sensory characteristics of foods.

FD8502 BIOCHEMICAL ENGINEERING FOR FOOD TECHNOLOGISTS	
CO1	Understand the fundamentals of Enzyme kinetics.
CO2	Understand the Inhibition kinetics.
CO3	Understand the Immobilization
CO4	To able to understand the concept of basic fermentation processes.
CO5	To able to application during scale up operations.

FD8503 REFRIGERATION AND COLD CHAIN MANAGEMENT	
CO1	To able to demonstrate the operations indifferent Refrigeration.
CO2	To able to demonstrate the cold storage systems.
CO3	To able to design Refrigeration systems.
CO4	To able to design cold storage systems.
CO5	To able to know various cold chain management.

FD8504 FOOD PROCESSING AND PRESERVATION	
CO1	To understand the role of different methods the processing of different foods
CO2	To familiarize with the recent methods of minimal processing of foods.
CO3	To know impact on the shelf life, quality, and other physical methods.
CO4	To understand the materials and types of packaging for foods
CO5	To understand the sensory characteristics of foods.

GE8071 DISASTER MANAGEMENT	
CO1	Differentiate the types of disasters, causes and their impact on environment and society
CO2	Disaster damage assessment and management.
CO3	Assess vulnerability and various methods of risk reduction measures as well as mitigation.
CO4	Draw the hazard and vulnerability profile of India.
CO5	Draw the hazard and vulnerability Scenarios in the Indian context.

FD8511 FOOD PROCESSING AND PRESERVATION LABORATORY	
CO1	Ability to select the specific preservation technology suitable for a specific food
CO2	Ability to Process the different categories of food.
CO3	Knowing standards for food products.
CO4	Better understanding in food products for chemical components.
CO5	To know about preservation methods.

FD8512 BIOCHEMICAL ENGINEERING LABORATORY	
CO1	To sterilize a bioreactor
CO2	To operate a bioreactor
CO3	To design experiments to evaluate the performance of the bioreactor.
CO4	To develop enzyme immobilized processes.
CO5	To sterilize a bioreactor

HS8581	PROFESSIONAL COMMUNICATION
CO1	Make effective presentations
CO2	Participate confidently in Group Discussions.
CO3	Attend job interviews and be successful in them.
CO4	Develop adequate Soft Skills required for the workplace
CO5	Improve confident communication

SEMESTER VI

S. No.	COURSE CODE	COURSE TITLE	CATE GORY	CONTACT PERIODS	L	T	P	C
THEORY								
1	FD8601	Food Process Engineering and Economics	PC	3	3	0	0	3
2	FD8602	Baking and Confectionary Technology	PC	3	3	0	0	3
3	FD8603	Fruits and Vegetable Processing Technology	PC	3	3	0	0	3
4		Professional Elective II	PE	3	3	0	0	3
5		Professional Electives III	PE	3	3	0	0	3
6		Professional Electives IV	PE	3	3	0	0	3
PRACTICALS								
7	FD8611	Fruits and Vegetable Processing Technology Laboratory	PC	4	0	0	4	2
8	FD8612	Baking and Confectionary Technology Laboratory	PC	4	0	0	4	2
			TOTAL	**26**	**18**	**0**	**8**	**22**

FD8601 FOOD PROCESS ENGINEERING AND ECONOMICS	
CO1	Students will understand the importance of quality control.
CO2	Understand thermal processing of food
CO3	To know food packaging in shelf life of foods.
CO4	Understand hygiene practices in food industry
CO5	To know various food packaging ideas.

FD8602 BAKING AND CONFECTIONERY TECHNOLOGY	
CO1	Better understanding of process technology of bakery products
CO2	Complete learning - use of sanitation practices in bakery and confectionery
CO3	Better understanding of process technology of confectionery products
CO4	Complete learning - use of safety practices in bakery and confectionery products
CO5	Complete learning - packaging practices in bakery and confectionery products.

8603 FRUITS AND VEGETABLE PROCESSING TECHNOLOGY	
CO1	Better understanding of the concepts of physiological characteristics of fruits.
CO2	Thorough Knowledge and understandings of the specific processing technologies used for different foods
CO3	Better understanding of vegetables and fruit losses during storage and ways to prevent it.
CO4	Know the various products derived from different foods.
CO5	Better understanding of process technology.

FD8004 PROCESS ECONOMICS AND INDUSTRIAL MANAGEMENT	
CO1	The objective of this course is to teach principles of cost estimation management
CO2	To able to feasibility analysis management.
CO3	To able to organization and quality control that will enable the students to perform as efficient managers.
CO4	To able to economic balance and quality and quality control
CO5	To able to economic quality and quality control

FD8009 CEREAL TECHNOLOGY	
CO1	Be able to understand and identify the specific processing technologies used for cereals.
CO2	Understand the application of scientific principles.
CO3	To know the production, structure and composition
CO4	To know the processing technologies specific materials.
CO5	Understand the baked and extruded products

GE8073 FUNDAMENTALS OF NANOSCIENCE	
CO1	Will familiarize about the science of nanomaterials
CO2	Will demonstrate the preparation of nanomaterials
CO3	Will develop knowledge in characteristic nanomaterials
CO4	Will know about the types of nanomaterials
CO5	Will demonstrate the application of nanomaterials

OCE551 AIR POLLUTION AND CONTROL ENGINEERING	
CO1	An understanding of the nature and characteristics of air pollutants, noise pollution and basic concepts of air quality management
CO2	Ability to select control equipment.
CO3	Ability to identify, formulate and solve air and noise pollution problems
CO4	Ability to design stacks and particulate air pollution control devices to meet applicable standards.
CO5	Ability to ensure quality, control and preventive measures.

FD8611 FRUITS AND VEGETABLE PROCESSING TECHNOLOGY LABORATORY	
CO1	To able get experience on fruit and vegetable process technology.

CO2	Preparation of squash and cordial
CO3	To able to osmotic concentration/dehydration of certain fruits and vegetables.
CO4	To able get experience on preparation of Ready to serve beverages.
CO5	To able get experience on fermented fruit and vegetable preparation

FD8612 BAKING AND CONFECTIONERY TECHNOLOGY LABORATORY	
CO1	To acquaint with the preparation of various bakery Products and perform quality analysis for the same.
CO2	To know preparation of biscuits
CO3	To Estimation of water absorption power
CO4	To studies of dough characteristics far isographic and extensographic
CO5	To determination sedimentation value of flour.

SEMESTER VII

S. No.	COURSE CODE	COURSE TITLE	CATE GORY	CONTACT PERIODS	L	T	P	C
THEORY								
1	FD8701	Dairy Process Technology	PC	3	3	0	0	3
2	FD8702	Food Safety, Quality and Regulation	PC	3	3	0	0	3
3	FD8703	Food Packaging Technology	PC	3	3	0	0	3
4		Professional Elective V	PE	3	3	0	0	3
5		Professional Elective VI	PE	3	3	0	0	3
6		Open Elective II*	OE	3	3	0	0	3
PRACTICALS								
7	FD8711	Testing of Packaging Materials Laboratory	PC	4	0	0	4	2
8	FD8712	Dairy Process Technology Laboratory	PC	4	0	0	4	2
			TOTAL	**26**	**18**	**0**	**8**	**22**

FD8701 DAIRY PROCESS TECHNOLOGY	
CO1	The students will gain knowledge about dairy processing.

CO2	The students will gain knowledge about the manufacturing processes of various dairy products
CO3	To know sanitation and effluent treatment in dairy industry
CO4	To introduce the students to dairy industry, properties and processing of milk, manufacture of dairy products.
CO5	To know the value-added dairy products.

FD8702 FOOD SAFETY, QUALITY AND REGULATION	
CO1	Thorough Knowledge of food hazards.
CO2	Thorough Knowledge of food physical hazards components in the industry
CO3	Thorough Knowledge of food chemical hazards in the industry and food service establishments
CO4	Thorough Knowledge of food biological hazards in the industry.
CO5	Awareness on regulatory and statutory bodies in India and the world.

FD8703 FOOD PACKAGING TECHNOLOGY	
CO1	The different types of materials and media used for packaging foods.
CO2	Hazards and toxicity associated with packaging materials and laws and regulations
CO3	To know the monitoring agencies involved food safety, labeling of foods
CO4	Methods of packaging and shelf life.
CO5	Methods of packaging food factors affecting packaging

FD8015 POST HARVEST TECHNOLOGY	
CO1	Better understanding of the concepts of physiological characteristics of fruits and vegetables
CO2	Better insight about fruit losses during storage and ways to prevent it.
CO3	Thorough Knowledge and understandings of the specific processing technologies

CO4	Thorough Knowledge different foods and the various products derived from these materials.
CO5	Understand the application of scientific principles.

FD8018 MANAGEMENT OF FOOD WASTE	
CO1	Importance of treating waste product from food industry.
CO2	Treatment methods and recycling of waste product from food industry.
CO3	Knowledge of Treatment methods
CO4	Awareness of Importance in treating waste product from food industry.
CO5	Knowledge of recycling of waste product from food industry

OCY751 WASTE WATER TREATMENT	
CO1	Will have knowledge about adsorption process.
CO2	Will gain idea about various methods available for water treatment.
CO3	Will appreciate the necessity of water.
CO4	Will have knowledge about oxidation process.
CO5	Will acquire knowledge of preliminary treatment

FD8711 TESTING OF PACKAGING MATERIALS LABORATORY	
CO1	To assure quality of products.
CO2	Use of various techniques to check the barrier properties of packaging materials
CO3	To know avoid contamination procedures
CO4	To able to get experience on testing food packaging materials.
CO5	To know various packing methods.

FD8712 DAIRY PROCESS TECHNOLOGY LABORATORY	
CO1	To know Preservation techniques in milk and milk products
CO2	To know various techniques and additives for milk product processing and quality analysis.
CO3	To know analytical techniques in milk and milk products
CO4	To get experience on dairy process technology.
CO5	To get experience on value added dairy products.

SEMESTER VIII

S. No.	COURSE CODE	COURSE TITLE	CATE GORY	CONTACT PERIODS	L	T	P	C
PRACTICALS								
1	FD8811	Project Work	EEC	20	0	0	20	10
			TOTAL	**20**	**0**	**0**	**20**	**10**

FD8811 PROJECT WORK	
CO1	Understand the basics of Food Quality
CO2	Understand the basics of Food Quality Control
CO3	Understand the basics of Food Quality Assurance
CO4	Understand the basics of Food Safety
CO5	Understand the basic principles of Sensory Evaluation applicable to foods.