



**KARNATAKA STATE AKKAMAHADEVI WOMEN'S UNIVERSITY,
VIJAYAPURA
DEPARTMENT OF FOOD PROCESSING AND NUTRITION
CHOICE BASED CREDIT SYSTEM (CBCS) FOR M.Sc. FOOD PROCESSING AND
NUTRITION
(COMMENCING FROM THE ACADEMIC YEAR 2019-20)**

COURSE	TITLE OF THE PAPER	LTP	Hrs. of teaching / Week	Credits	Max. Marks	I.A.		Final Exam	
						C ₁	C ₂	Duration	Max. Marks
1ST SEMESTER									
Hard Core Programmes (Theory and Practical)									
FPN-HCT 1.1	Food Biochemistry	4 0 0	04	04	100	15	15	3 Hrs	70
FPN-HCT 1.2	Fundamentals of Human Physiology	4 0 0	04	04	100	15	15	3 Hrs	70
FPN-HCT 1.3	Principles of Human Nutrition	4 0 0	04	04	100	15	15	3 Hrs	70
FPN-HCP 1.4	Practical based on FPN-HCT 1.1 and FPN-HCT 1.2	0 1 3	08	04	100	15	15	4 Hrs	70
FPN-HCP 1.5	Practical based on FPN – HCT 1.3 and FPN - SCT 1.6.1	0 1 3	08	04	100	15	15	4 Hrs	70
Soft Core Programmes (Theory) Elective(Any one)									
FPN-SCT 1.6.1	Technical Writing Skills	4 0 0	04	04	100	15	15	3 Hrs	70
FPN-SCT 1.6.2	Nutrition and Physical Fitness	4 0 0	04	04	100	15	15	3 Hrs	70
FPN-SCT 1.6.3	Unit Operations in Food Industries	4 0 0	04	04	100	15	15	3 Hrs	70
Open Elective Programmes (For Other Dept.)									
FPN-OET:1.7	Subject should be opted from Women's studies dept.	---	04	04	100	15	15	3 Hrs	70
Total			36	28	700				

IIND SEMESTER

Hard Core Programmes (Theory and Practical)

FPN-HCT 2.1	Food Processing	4 0 0	04	04	100	15	15	3 Hrs	70
FPN-HCT 2.2	Food Analysis	4 0 0	04	04	100	15	15	3 Hrs	70
FPN-HCT 2.3	Food and Industrial Microbiology	4 0 0	04	04	100	15	15	3 Hrs	70
FPN-HCP 2.4	Practical based on FPN-HCT 2.1 and FPN-HCT 2.2	0 1 3	08	04	100	15	15	4 Hrs	70
FPN-HCP 2.5	Practical based on FPN-HCT 2.3 and FPN-SCT 2.6.1/2.6.2	0 1 3	08	04	100	15	15	4 Hrs	70

Soft Core Programmes (Theory)- Elective(Any one)

FPN-SCT 2.6.1	Food Product Development	2 2 0	04	04	100	15	15	3 Hrs	70
FPN-SCT 2.6.2	Maternal and Child Nutrition	2 2 0	04	04	100	15	15	3 Hrs	70
FPN-SCT 2.6.3	Food Packaging Technology	2 2 0	04	04	100	15	15	3 Hrs	70

Open Elective Programmes (For Other Dept.)

FPN-OET:2.7	Subject should be opted from Women's studies dept.	---	04	04	100	15	15	3 Hrs	70
Total			36	28	700				

IIIRD SEMESTER

Hard Core Programmes (Theory and Practical)

FPN-HCT 3.1	Clinical Nutrition	4 0 0	04	04	100	15	15	3 Hrs	70
FPN-HCT 3.2	Public Health Nutrition	4 0 0	04	04	100	15	15	3 Hrs	70
FPN-HCT 3.3	Nutraceuticals and Functional Foods	4 0 0	04	04	100	15	15	3 Hrs	70
FPN-HCP 3.4	Practical based on FPN-HCT 3.1 and FPN-HCT 3.2	0 1 3	08	04	100	15	15	4 Hrs	70

Soft Core Programmes Elective(Any one)

FPN-SCP 3.5.1	Food Service Management	0 1 3	08	04	100	15	15	4 Hrs	70
FPN-SCT 3.5.2	Food Fortification and Enzyme Processing	3 1 0	04	04	100	15	15	3 Hrs	70
FPN-SCT 3.5.3	Nutrition Education and Counseling	3 1 0	04	04	100	15	15	3 Hrs	70

Open Elective Programmes (For Other Dept.)

FPN-OET:3.6	Nutrition and Healthy Lifestyle	3 1 0	04	04	100	15	15	3 Hrs	70
Total			28	24	600				

IV TH SEMESTER									
Hard Core Programmes (Theory, Practical and Dissertation)									
FPN-HCT 4.1	Diet Designing in Diseases	4 0 0	04	04	100	15	15	3 Hrs	70
FPN-HCP 4.2	Practical based on FPN-HCT 4.1 and FPN-SCT 4.4.1	0 1 3	08	04	100	15	15	4 Hrs	70
FPN-HCP 4.3	Dissertation	0 0 4	08	04	100	15	15	3 Hrs	70
Soft Core Programmes (Theory) Elective(Any one)									
FPN-SCT 4.4.1	Food Quality, Safety and Certification	2 2 0	04	04	100	15	15	3 Hrs	70
FPN-SCT 4.4.2	Food Additives	2 2 0	04	04	100	15	15	3 Hrs	70
FPN-SCT 4.4.3	Food Toxicology	2 2 0	04	04	100	15	15	3 Hrs	70
Open Elective Programmes (For Other Dept.)									
FPN-OET:4.5	Indian Traditional Foods	3 1 0	04	04	100	15	15	3 Hrs	70
	Total		28	20	500				
Grand Total (I+II+III+IV Semester)				100	2500				

Note:

- FPN – SCP 3.5.1, Food Service Management is evaluated entirely as practical component.
- Total number of credits for M.Sc. course (4 Semesters) is 100 and maximum marks are 2500.

Karnataka State Akkamahadevi Women's University, Vijayapura

DEPARTMENT OF FOOD PROCESSING AND NUTRITION

M.Sc. Food Processing And Nutrition Program under Choice Based Credit System (CBCS) w.e.f. 2018-19

1.1. Duration: Two years with four semesters, each of 16 weeks duration.

1.2. Eligibility for admission: Candidates with Bachelor degree in Home Science, Botany, Zoology, Life Science, Chemistry, Microbiology, Bio- technology, Bio- informatics, Bio- chemistry, Genetics form Karnataka State Women's University as equivalent there to with 50% marks in arrogate (40% for SC/ST/Cat I and 45% OBC category Candidates) shall be eligible.

1.3. Intake: 20 students for the first semester that excludes seats under enhanced fee (10).

other rules for admission for intake of students may change from time to time as per university notification.

2. Attendance: Every student must have at least 75% attendance in each semester for eligibility to appear for semester end examination.

3. Medium of Instruction: English

4. Course structure:

The student desirous for a degree M.Sc. in Food Processing and Nutrition shall complete 100 credits in Food Processing and Nutrition . Department also offers 16 credits each for open elective papers in I, II, III and IV semester for students from other science subjects. Given below are the details about credits for each theory paper/practical/project work/Study tour and number of teaching hours for the four semesters along with marks allocation for students studying M. Sc. in Food Processing and Nutrition or open elective paper in Food Processing and Nutrition.

Programme outcome:

- To train young minds from rural background and impart skills in food processing technology.
- To implement research for developing locally acceptable food products using locally produced fruits, vegetables and cereals.
- To collaborate with food industries in developing healthy balanced food products as well as marketing of the same.
- To transfer the technology developed in laboratory to field through training and other means.

I SEMESTER

FPN-HCT 1.1- FOOD BIOCHEMISTRY

Objectives:

1. Understand the concept of intermediary metabolism of major nutrients
2. Learn the roles of major and minor nutrients, their requirements and deficiency disorders.

LEARNING OUTCOMES:

Students will learn particularly:

- Recognize, distinguish and describe the molecular structures and properties of major food components.
- Relate molecular structure to properties of compounds found in food.
- Analyze and predict how the composition and conditions within a food influence the functional properties of food molecules.
- Describe major food chemical reactions and their mechanisms.
- Relate key chemical groups on food molecules to their role in common reaction mechanisms of importance in foods.
- Analyze and predict how the composition of foods with regard to carbohydrates, lipids, protein and water influence their stability.
- Examine and assess implications for food formulations for achieving objectives of food quality and palatability, cost and healthfulness.
- Analyze and interpret the role of food chemistry in practical food situations.

FPN – HCT 1.2: FUNDAMENTALS OF HUMAN PHYSIOLOGY

52 Hours

Objectives

- To build the knowledge of basic physiological processes of body system
- To provide the foundation for the clinical topics covered in the upcoming courses

Learning outcomes

After completion of the course, the students will able to

1. Explain physiological processes of all body systems in detail
2. Explain the role of body systems and mechanisms in maintaining homeostasis
3. Recognize and to apply the basic concepts that govern integrated body function in the body's organ systems.

FPN – HCT 1.3: PRINCIPLES OF HUMAN NUTRITION

Objectives

- To understand the methods of measuring body composition and computation of nutrient requirement
- To provide an in-depth understanding and conceptual basis to nutrition and nutritional requirements throughout the human life cycle

Learning outcomes

After completion of the course, the students will able to

- Demonstrate an informed and in-depth understanding of the role of nutrients in the maintenance of health and in the prevention or causation of disease or dysfunction throughout the human lifecycle.
- Critically discuss body composition measurement techniques and analytically appraise the validity and applicability of methods in human nutrition.

FPN – SCT 1.6.1: TECHNICAL WRITING SKILLS

Theory

Course Objectives

- This course enables to identify and model effective scientific and technical writing which are frequently required in a variety of careers.
- To develop effective communication strategies for a variety of audiences/ target groups such as professional peer audience and public audiences.
- To demonstrate the effective writing skills for scientific journal or dissertation and the communication principles encouraged by professional writers.
- To improve the ability of reading and understanding of scientific research papers and review articles together with research design and analytical measures taken in a research.

Learning Outcomes

- Participate actively in writing activities that model effective scientific and technical writings that use appropriate formats and conventions derived from individual disciplines.
- Understand how to apply scientific information and knowledge in practical documents related to nutrition research
- Design and produce a scientifically sound research project appropriate to the student's major and/or career interests.
- Write scientific papers according to professional guidelines.
- To know the different types of technical writing communications, data collection and research designs and measures.
- To be familiar with writing chapters/ parts of a thesis and dissertation where they can collect, analyze, document and report research clearly

FPN – SCT 1.6.2: NUTRITION AND PHYSICAL FITNESS

Theory

52 Hours

OBJECTIVES

Integration and application of principles of sound nutrition and physical activities to optimize the physiological, psychological, and social lifelong development of the individual and use of scientific principles and current technological advances to help assess and evaluate physical fitness, body composition, dietary patterns, energy expenditure, and their interrelationships.

LEARNING OUTCOMES:

Upon successful completion of the course students shall be able to:

1. Explain how the principles of fitness and nutrition (such as body composition, energy intake, energy expenditure, and the acute and chronic physical changes related to exercise and nutrition) complement each other in helping to develop physiological well-being and overall health.
2. Explain how the principles of fitness and nutrition (such as setting realistic short-term behavior change goals and the relationship of exercise and diet to stress reduction) complement each other in helping to develop psychological well-being and overall health.
3. Identify some of the social and cultural influences on food habits and exercise/activity patterns.

FPN – SCT 1.6.3: UNIT OPERATIONS FOOD INDUSTRIES

Theory

52 Hours

Course objectives:

1. To study the principles and laws governing the physical, chemical or biochemical stages of different processes and the apparatus or equipment by which such stages are industrially carried out.
2. The studies should be focused on the transformation processes of agricultural raw materials in to final products or on conservation of materials and products

Learning outcome: Students shall

1. Familiar with basic unit operation principles of several food processing methods including thermal pasteurization, retorting, blanching, freezing, dehydration, advanced thermal preservation (aseptic processing, ohmic heating, microwave heating), nonthermal processing (high pressure processing, pulsed electric field processing, irradiation), separation and concentration, and extrusion.
2. Learn basic components of different process equipment and unit operation associated with them. Role of packaging material in food preservation.
3. Identify key food processing and product parameters that can influence microbiological safety and quality of the processed product.
4. Appreciate the importance of integrating engineering, chemistry, microbiology and other disciplines for processing microbiologically safe, wholesome foods.

II SEMESTER

FPN – HCT 2.1: FOOD AND INDUSTRIAL MICROBIOLOGY

Theory

52 Hours

Objectives:

- Understand the interactions between microorganisms and food
- Understand the basics of causes and consequences of food contamination
- Understand the basics of methods of preservation and industrial production of certain fermented foods
- Develop skills in identification, testing and control of microorganisms in relation to food safety.

Learning Outcomes:

students are expected to be able to:

- Understand the beneficial role of microorganisms in fermented foods and in food processing and the microbiology of different types of fermented food products – dairy, pickles, Legume and cereal based food products
- Understand the significance and activities of microorganisms in food and role of intrinsic and extrinsic factors on growth and survival of microorganisms in foods
- Know the spoilage mechanisms in foods and thus identify methods to control deterioration and spoilage
- Recognize and describe the characteristics of important pathogens and spoilage microorganisms in foods.
- Learn various methods for their isolation, detection and identification of microorganisms in food and employ in industries
- Identify ways to control microorganisms in foods and thus know the principles involving various methods of food preservation
- Understand of the basis of food safety regulations and Discuss the rationale for the use of standard methods and procedures for the microbiological analysis of food.

FPN – HCT 2.2: FOOD ANALYSIS

Objectives

- To acquire knowledgeable of food components and characteristics and techniques available for their analysis
- To learn the basic principles of colorimetric, chromatographic and spectrometric analyses applied in the analysis of foods

- To choose appropriate methods for the analyte and/or food system of interest and interpret analytical data including use of common calculations, and resources relevant to food analysis
- To acquire laboratory skills required for performing a range of chemical and physicochemical analysis of food components

Learning outcomes

The students will be able to

- Describe and use principal analytical methods used for quantifying the composition of food
- Interpret and report data derived from chemical experiments/analysis in a meaningful way
- Learn handling of instruments in analysis of food components

FPN – HCT 2.3: FOOD PROCESSING

Theory

52 Hours

Objectives:

1. Gain knowledge of basic and applied aspects of food processing operations
2. Gain knowledge of basic principles of food processing methods.

LEARNING OUTCOMES:

Students will learn particularly:

- Describe the source and variability of raw food material and their impact on food processing operations.
- Explain the spoilage and deterioration mechanisms in foods and methods to control deterioration and spoilage.
- List the principles that make a food product safe for consumption.
- Describe the transport processes and unit operations in food processing as demonstrated both conceptually and in practical laboratory settings.
- Operate the mass and energy balances for a given food process.
- Describe the unit operations required to produce a given food product.
- Explain the principles and current practices of processing techniques and the effects of processing parameters on product quality.
- Explain the properties and uses of various packaging materials.
- Describe the basic principles and practices of cleaning and sanitation in food processing operations.
- Identify the requirements for water utilization and waste management in food and food processing.

FPN-SCT 2.6.1 - FOOD PRODUCT DEVELOPMENT

OBJECTIVES:

The overall goals are to provide the opportunity for students to integrate their training in food science and technology courses and related disciplines and to gain experience with the theory and practice of developing food products. Lectures and labs/discussion sessions will involve understanding and applying practices to develop food products with traditional and novel food ingredients and processes in the context of existing and projected national and international legal, regulatory, economic, environmental and social constraints. Nutritional and health implications relating to food products will be considered.

LEARNING OUTCOMES:

On successful completion of the course students will be able to:

- Review advances in flavour and ingredient science and technology;
- Apply a product development process to generate ideas, design, develop and evaluate new products and their markets;
- Apply principles of project management and work as a member of a team to bring a product development project to completion;
- Demonstrate skill in the application of standard methods for the measurement and evaluation of sensory differences;
- Evaluate models for the definition and assessment of quality in manufactured food products;

FPN – SCT 2.6.2: MATERNAL AND CHILD NUTRITION

Theory

52 Hours

Course Objectives

- Describe the role of maternal and child nutrition in the lifelong health of the population.
- To understand the physiological and metabolic adaptations of pregnancy and lactation. Access to the resources for assessment, assurance, and policy development for maternal and child nutrition
- This course provides a comprehensive introduction to the nutritional requirements and assessment of the nutritional needs during pregnancy, lactation, infancy, and childhood at the individual and community level.
- Evaluate the effectiveness of nutrition and other programs and interventions aimed at improving maternal and child nutrition in low-income countries.

Learning outcomes

- To know the importance of maternal nutrition, factors affecting the pregnancy outcome as well as the complications during pregnancy.
- To have knowledge of physiological and metabolic adaptations during pregnancy and lactation.
- Will know the growth and development and feeding practices of infant and childhood.
- To be scientifically knowledgeable about the nutritional requirements during pregnancy, lactation, infancy and childhood.

FPN – SCT 2.6.3: FOOD PACKAGING TECHNOLOGY

Theory

52 Hours

Course objectives:

1. To impart comprehensive overview of the scientific and technical aspects of food packaging.
2. To install knowledge on packaging machinery, systems, testing and regulations of packaging.

Learning outcome: Students shall

1. Comprehend the overview of the scientific and technical aspects of food packaging
2. Understand packaging machinery , systems, testing
3. An insight to food packaging laws and regulations
4. An understanding of packaging requirement and packaging designing of food.

III SEMESTER

FPN – HCT 3.1: CLINICAL NUTRITION

Theory

52 hours

Course Objectives

- To impart understanding of the pathophysiological processes of various organ systems in the body
- To acquaint with the knowledge of clinical parameters for the nutrition management of the diseases

- To provide technical acquaintance for comprehensive nutritional assessment in clinical settings

Learning outcomes

After completion of the course, the students will be able to

- Collect pertinent information for comprehensive nutrition assessment
- Interpret the clinical parameters for planning the nutritional therapy for medical conditions
- Determine medical nutrition therapy for various medical conditions
- Use the Nutrition Care Process to make decisions, identify nutrition-related problems and determine and evaluate nutrition interventions.

FPN – HCT 3.2: PUBLIC HEALTH NUTRITION

Objectives:

- To reduce the incidence of mortality, morbidity, malnutrition and school drop outs
- To enhance the capability of the mother to look after the normal health and nutritional needs of the child through proper nutrition and health education.\
- To improve overall nutritional status of the vulnerable group
- To overcome specific nutritional deficiencies among mothers and children
- To help to achieve better nutrition through indirect schemes

Learning outcomes:

- Students will be able to interpret and apply nutrition concepts to evaluate and improve the nutritional health of communities.
- Determine and translate nutrient needs into menus for individuals and groups across the lifespan, in diverse cultures and religions, and for different income levels.
- Plan a community intervention based upon a needs assessment
- Advocate for a public policy related to nutrition programs or health care

FPN – HCT 3.3: NUTRACEUTICALS AND FUNCTIONAL FOODS

Course objectives:

1. The relationship between diet and chronic disease prevention is one of the final frontiers in 21st century agriculture. In view of heightened interest in the foods as medicine on chronic disease prevention, the time and information is appropriate to offer a functional foods course for the purposes as follows:
2. Integrate the nutritional science, food science, regulatory principles, and nutrient metabolism to understand and explain functional foods, nutraceuticals, and dietary supplements.
3. Evaluate the biochemical basis, technologies, legal requirements, and clinical assessment in available or potentially available products.

Learning outcome: Students shall

1. Explain the regulatory basis of functional food products on India, EU and U.S. market
2. List the types of functional foods available for health benefits
3. Demonstrate the knowledge of the scientific basis and technologies available to suggest potential new functional food products

FPN – SCP 3.5.1: FOOD SERVICE MANAGEMENT

OBJECTIVES:

Enhance your entrepreneurial qualities and skills and learn to: develop menus and pricing, manage human and material resources and plan strategies for promoting restaurants.

LEARNING OUTCOMES

After successful completion of the program, you should be able to:

- Manage the human resources within a food services organization or department
- Communicate appropriately with clients, staff and management
- Apply food services technology and operate industry equipment
- Develop nutritional menus for food service production
- Manage food service production
- Demonstrate professional behaviours expected within the food service industry
- Manage food services budgets

FPN – SCT 3.5.2: FOOD FORTIFICATION AND FOOD ENZYMES

Theory

52 Hours

Course objectives:

1. To maintain the nutritional quality of foods
2. Keeping nutrients levels adequate to correct or prevent specific nutrient deficiencies in the population or in groups at risk of certain deficiencies
3. To increase the added nutritional value of product
4. To provide certain technological functions in food processing
5. To know about the role of enzymes and various processing treatments in food industry

Learning outcome: Students shall

1. Preventing or reducing the risk of or correcting a demonstrated deficiency of one or more essential nutrients in the population or specific population group
2. Reducing the risk of or correcting, inadequate nutritional status of one or more essential nutrients in the population or specific population group
3. Meeting requirements or recommended intake of one or more essential nutrients
4. Maintaining or improving health and nutritional quality of foods
5. Know the use of different enzymes in processing of different food products and their importance and ease of using enzymes

FPN – SCT 3.5.3: NUTRITION EDUCATION AND COUNSELING

Objectives:

1. To reinforce specific nutrition-related practices or behaviors to change habits that contributes to poor health.
2. Helps to learn new information about nutrition and to develop the attitudes, skills and confidence that they need to improve their nutrition practices.

Learning outcomes:

Students will be able to demonstrate a variety of communication strategies in nutrition and food education emphasizing information technology

- Produce oral and written communications for a group education session
- Interview individuals for diet histories
- Counsel individuals

FPN- OET - 3.6: NUTRITION AND HEALTHY LIFESTYLE

Theory

52 Hours

Course Objectives

- To interpret and apply nutrition concepts to evaluate and improve the nutritional health of communities and to understand the triad of health, hygiene and nutrition.
- To interpret and apply nutrition concepts of balance diet and modified diet which will focus on disease conditions to evaluate and improve the nutritional health of individuals.
- To assess the nutritional status of an individual and the community based on different indicators. To identify and apply food principles to food and nutrition systems.
- To integrate the knowledge and skills of food labeling in food safety and nutrition security with professional issues affecting the nutrition and/or dietetics.

Learning Outcomes: Students shall

- Determine and translate nutrient needs into menus for individuals and groups across the lifespan, in diverse cultures and religions, and for different income levels.
- Will develop the capacity to collect pertinent information for comprehensive nutrition assessments based on different indicators at individual and community level.
- Summarize health promotion and disease prevention theories and guidelines and explain the role of food and nutrition in promotion of a healthy lifestyle
- Will able to read and understand the concept of food labeling and can understand the flaws in effective nutrition labeling practiced in the food items.
- Will learn about the basics of food safety and safe handling of food to reduce the contamination of food at different production level from farm to the fork.

IV SEMESTER

FPN – HCT 4.1: DIET DESIGNING IN DISEASES

Theory

52 hours

Objectives:

To enable the students to:

1. Understand the role of nutrition in good health.
2. Obtain knowledge on different therapeutic diets and their preparation.
3. Develop capacity and aptitude for taking up dietetics as a profession.

LEARNING OUTCOMES

- Students able to understand principles of diet therapy, modification of normal diet for therapeutic purposes and the role of dietitian.
- Students able to demonstrate counseling techniques to facilitate behaviour change.
- Identify and describe the roles of others with whom the registered dietitian collaborates in the delivery of food and nutrition services.
- Students able to understand the causes, symptoms, risk factors and dietary management of different disease conditions like DM, gall bladder & pancreas, kidney and liver diseases.

FPN – HCP: 4.3: DISSERTATION

Objectives:

To enable the students:

1. To know the basic concepts in research
2. To gain practical knowledge in research design
3. To gain the experience in research methodology

FPN – SCT 4.4.1: FOOD QUALITY, SAFTY AND CERTIFICATION

Theory

52 hours

Course objectives:

1. To provide fundamental theoretical concepts on food safety systems; technical knowledge for identifying food safety problems and give solutions and to build confidence among the students to handle the food safety projects in food industries industries.
2. More exposure and awareness on food safety systems in Food industries
3. They can easily identify the sources for food standards, regulations and specifications prescribed by different certificate bodies
4. They can implement strong control systems through different techniques

Learning outcome: Students shall

1. Develop a HACCP plans for different food industries
2. Learn HACCP certification
3. Understand laws and regulations governing food safety principles (FSMA, HACCP)
4. Understand industry food safety requirements and certifications: organic, halal, kosher etc.

5. Understand auditing, and different auditing schemes, and be able to complete internal (first party) audits

FPN – SCT 4.4.2: FOOD ADDITIVES

Theory

52 hours

Course Objectives

- In this course, students will learn the diverse types of food additives, their functions and the chemical properties of these additives.
- How these properties of food additives will be put into the production lines and the unique processing that may be involved with the utilization of these additives.
- To provide the knowledge about use of food additives as nutraceuticals.
- To learn how the food additives are integrated into the food production chain and in the food processing technologies

Learning outcomes

- Students will acquire competence in the proper use of additives in safe food production
- Will be knowledgeable about the safety and use of diverse food additives in the food industries for various purposes
- Characteristics of food additives as linked to the physical and chemical properties of the additives as well as their functionality and mode of processing/utilization in the processing
- Food additives for various end purposes: nutritional additives, flavoring agents, flavor enhancers, sweeteners, antimicrobial agents, emulsifiers, commercial starches etc.
- Toxicity level of food additives together with the margin of safety of food additives use in the food industries

FPN – SCT 4.4.3: FOOD TOXICOLOGY

Theory

52 hours

Course Objectives

- This course is concerned and dealt with assessing the injurious effects of chemical present in foods that have effect on the living systems
- This course will give brief idea about the chemical agents in food that are man-made (e.g., pesticide residues, food additives, contaminants originating with processing machinery, or packaging materials) or of natural origin (e.g., microbial, animal or plant toxins).
- It is important that students of food science as well as environmental toxicology are familiar with and understand the basic chemical and biological aspects of the injurious substances present in foods.
- This course wishes to develop an understanding the principles that determine toxicity and, by presenting typical examples of the toxic substances found in foods.

Learning Outcomes

- To understand the basic concepts of food toxicology that exert injurious effects on human health when the toxic food is consumed
- To comprehend the impact and risk of different types of toxins, such as microbial and chemical toxins to human health
- To address and discuss the issues related to the chemical-induced toxicities
- To understand the effect of effective food packaging system and the packaging materials that might act to reduce the food toxicity level in the food chain.
- To know about the functions and policy and mode of actions of different national and international organizations who dealt with the food safety to reduce food toxicology.
- Overall, the goal of this course is to provide the students an intellectual platform to comprehend the potential adverse effects of foreign compounds into the biological system through the food.

1.

FPN – OET 4.5: INDIAN TRADITIONAL FOODS

Theory

52 hours

Objectives

- To create understanding on historical and cultural perspectives of Indian foods
- To enlighten on the traditional methods of food processing
- To acquire basic information on the traditional foods of different regions of India

Learning outcomes

After completion of the course, the students will able to

- Describe the significance of Indian foods in adding flavor to tradition and culture
- Able to list the foods of different regions of India