

**VFP3G08TB – Technology of Fish, Meat and Egg Processing
(GENERAL COURSE - 08)
Semester III**

Total Credits: 4

Total Lecture Hours: 60 (4 Hours/ Week)

Aim of the course: To understand the technology for handling, processing, preservation of meat, poultry and fish products.

Course Overview and Context

- ☐ To understand need and importance of livestock, egg and poultry industry
- ☐ To study structure, composition and nutritional quality of animal products.
- ☐ To study processing and preservation of animal foods.
- ☐ To understand technology behind preparation of various animal food products and by product utilization

Content

MODULE	CONTENT	LECTURE
1	<p>Compositional and Nutritional aspect of Animal foods- Fish - Classification of fish (fresh water and marine), composition, spoilage of fish -microbiological, physiological, biochemical.</p> <p>Meat - Definition of carcass, concept of red meat and white meat, composition of meat, marbling in meat, post mortem changes in meat - rigor mortis, tenderization of meat, ageing of meat.</p> <p>Egg- Composition and nutritive value, egg proteins, characteristics of fresh egg, deterioration of egg quality.</p>	15
2	<p>Fish Processing- Preservation of fish-Chilling, Freezing, curing, drying, salting - salting methods:</p> <p>brining, pickling, curing and canning of fish. Smoking - smoke production, smoke components, quality, safety and nutritive value of smoked fish.</p>	08

3	Meat processing- Meat Quality - colour, flavour, texture, Water Holding Capacity (WHC), Emulsification capacity of meat. Preservation of meat -Refrigeration and freezing, thermal processing - canning of meat, dehydration, meat curing.	15
4	Products from fish, meat and egg- Fishery products: Surimi - Process, traditional and modern production lines, quality of surimi products. Fish protein concentrates (FPC), fish protein extracts (FPE). Meat products: Sausages - processing, RTE meat products. Egg products– Egg powder, frozen egg pulp, designer eggs.	10
5	Products from fish, meat and egg- Fishery products: Surimi - Process, traditional and modern production lines, quality of surimi products. Fish protein concentrates (FPC), fish protein extracts (FPE). Meat products: Sausages - processing, RTE meat products. Egg products– Egg powder, frozen egg pulp, designer eggs.	12

Learning Resources

Reference

1. George M. Hall (2012), “Fish Processing Technology”, Springer Science & Business Media Publication.
2. Fidel Toldra (2010), “Handbook of Meat Processing”, John Wiley & Sons Publication.
3. Rao D.G. (2010), “Fundamentals of food engineering”. PHI Learning Pvt. Ltd.
4. Isabel Guerrero-Legarreta (2010), “Handbook of Poultry Science and Technology, Secondary Processing”, John Wiley and Sons Publication.
5. Casey M. Owens. (2010), “Poultry Meat Processing”, Second Edition, CRC Press.
6. Leo M.L. Nollet and Fidel Toldra (2006), “Advanced Technologies For Meat Processing”, CRC Press.

**VFP3G09TB – Technology of Spices and Plantation Crops
(GENERAL COURSE - 09)
Semester III**

Total Credits: 4

Total Lecture Hours: 60 (4 Hours/ Week)

Aim of the course: To impart basic knowledge about the importance and production technology of spices and plantation crops.

Course Overview and Context

- ☐ To know about the importance of various types of spices which are used in the food industry and their applications
- ☐ To understand the processing steps involved in spice processing
- ☐ To know about value added products from spices
- ☐ To know various processing steps involved in plantation crop processing

Content

MODULE	CONTENT	LECTURE
1	Spice processing- Introduction, classification, composition and functions. Major international quality specifications of spices. Spice processing, spice grinding, postprocessing treatments. Introduction to Gas chromatography, Spectrophotometer.	15
2	Processing of Major Spices- Major spices: Pepper, cardamom, ginger, clove, cinnamon, chilli and turmeric – method of manufacture; chemistry of the volatiles.	15

3	Spice extractives- Value added spice products: Spice volatile oils, spice oleoresins, Use of spice extractives, alternative products, Ground spices, processed spices, organic spices, curry powders.	10
4	Plantation crops- cashew processing-Composition, Structure and characteristics of cashew nut, uses, Traditional method of cashew processing, General processing,	10
5	Sugarcane and Cocoa processing- Production and processing of sugarcane, Cocoa: varieties, Processing of cocoa – Fermentation and Drying, storage. Manufacture of chocolate- conching, milk chocolate, dark chocolate, cocoa butter, wafer coated chocolate,	10

Learning Resources

References

1. J.S.Purthi, (2003) (2001), “Minor Spices and Condiments: Crop Management and Post Harvest Technology”, ICAR publication, 1st Edition,
2. Handbook of Fruit Science and Technology: Production, Composition, Storage, and Processing. D. K. Salunkhe, S. S. Kadam, CRC Press, 1st Edition, 1995.
3. N.K.Jain,(1989), “Global Advances in Tea Science”, Aravali Books International, 1st Edition.

VFP3S07PB – Chemical and Microbial Analysis of Foods (Practical)
(SKILL COURSE - 07)
Semester III

Total Credits: 6

Total Laboratory Hours: 90 (6 Hours/ Week)

Aim of the course: To analyse the chemical constituents in food and to understand the basic concepts of food microbiology.

Course Overview and Context

- ☐ To analyze the spices its oleoresin and oil extraction
- ☐ To gain knowledge in the preparation of fermented foods
- ☐ To introduce basics of food microbiology.

Content

MODULE	CONTENT	LECTURE
1	Demonstrations of process of essential oil extraction and oleoresin of different spice	10
2	Detection of papaya seeds in black pepper.	10
3	Preparation of fermented foods	10
4	Introduction to the Basic Microbiology Laboratory Practices and Equipments	10
5	Functioning and use of compound microscope	10
6	Cleaning and sterilization of glassware	10
7	Preparation of slant, stab and plates using nutrient agar.	10
8	Standard Plate Count Method.	10
9	Visit to oil refining industry	10

**VFP3G10TB – Food Microbiology
(GENERAL COURSE - 10)
Semester III**

Total Credits: 4

Total Lecture Hours: 60 (4 Hours/ Week)

Aim of the Course: To make students understand the food and industrial microbiology and to make them aware about the importance of food quality control by avoiding pathogenic microbial attack.

Course Overview and Context

- ☐ Recognize and describe the characteristics of important pathogens and spoilage microorganisms in foods.
- ☐ Understand the role and significance of intrinsic and extrinsic factors on growth and response of microorganisms in foods.
- ☐ Identify ways to control microorganisms in foods.
- ☐ Describe the beneficial role of microorganisms

Content

MODULE	CONTENT	LECTURE
1	Introduction to food microbiology- Discovery, current status, role of food microbiology, sources of micro organisms in food, changes caused by microorganisms - food fermentation. Growth and survival of microorganisms in foods, biological, chemical and physical changes caused by microorganisms, physical and chemical methods to control microorganisms.	9

2	Characteristics of microorganisms- Classification of microorganisms, nomenclature, morphology – yeast and moulds, bacterial cells, viruses. Important microbes in food, microbial growth characteristics – Microbial reproduction, nature of growth in food. Food hygiene and sanitation: Contamination during handling and processing and its control.	11
3	Food preservation-Factors influencing microbial growth in food: Intrinsic and extrinsic factor - Hydrogen ion concentration, Moisture requirement, concept of water activity, temperature, oxidation reduction potential, Principles of different food preservation methods.	10
4	Spoilage in different food groups-Food spoilage – Introduction, spoilage in cereals, vegetables and fruits, meat, poultry, fish, milk and milk products, canned foods, nuts and oil seeds, fats and oil seeds.	16
5	Beneficial uses of microorganisms- Microorganisms used in food fermentation, mechanisms of nutrient transport, intestinal bacteria and probiotics, food bio preservatives of bacterial origin, food ingredients and enzymes of microbial origin. Economic importance of microorganisms.	14

References

1. Ray , Bibek; Arun Bhunia,(2013), “Fundamental Food Microbiology”, CRC Press.
2. Adams ,Martin R, Maurice O Moss, Peter McClure (2015), “Food Microbiology”, Royal Society of Chemistry, Cambridge.
3. Jay, James M.(2012), “Modern Food Microbiology”, Springer Science & Business Media., Maryland.

**VFP3S08PB - Business Management
(SKILL COURSE - 08)
Semester III**

Total Credits: 6

Total Lecture Hours: 90 (6 Hours/ Week)

Course Overview and Context

□ To familiarise the students with concepts and principles of Management

Content

MODULE	CONTENT	LECTURE
1	Management- Introduction, Meaning, nature and characteristics of Management - Scope and functional areas of management - Management as a science art or profession - Management & Administration – Principles of management - Social responsibility of Management	15
2	Planning- Nature, importance and purpose of planning - Planning process, objectives - Types of Plans.	15
3	Organising and Staffing- Nature and purpose of organisation, Principles of organisation - Types of organization, Organisation Chart- Organisation manual-Departmentation, Committees Authority-Deligation of Authority- Responsibility and accountability- Centralisation Vs decentralisation of authority - Nature and importance of staffing - Process of selection & recruitment.	20

4	Directing- Meaning and nature of directing - Motivation- meaning - importance-Theories of Motivation (Maslow s, Herzberg, McGregor s, X & Y theory) Leadership- Meaning- Styles Managerial Grid by Blake and Moun-ton - Likert s Four level model- Coordination-Meaning and importance.	20
5	Controlling- Meaning and steps in controlling - Essentials of a sound control system - Methods of establishing control-Control by Exception.	20

Learning Resources

References

1. Koontz & O Donnell, Management.
2. Appaniah & Reddy, Essentials of Management.
3. L M Prasad, Principles of management.
4. Rustum & Davan, Principles and practice of Management.

VFP3S09PB – Technology of Fish, Meat and Egg Processing (Practical)
(SKILL COURSE - 09)
Semester III

Total Credits: 6

Total Laboratory Hours: 90 (6 Hours/ Week)

Aim of the course: To analyse the chemical constituents in food and to understand the basic concepts of food microbiology.

Course Overview and Context

- ☐ To analyze the spices its oleoresin and oil extraction
- ☐ To gain knowledge in the preparation of fermented foods
- ☐ To introduce basics of food microbiology.

Content

MODULE	CONTENT	LECTURE
1	Slaughtering and dressing of poultry bird	10
2	Determination of water holding capacity of meat	10
3	Determination of meat pH	10
4	Preparation of meat products	15
5	Tenderization of meat	15
6	Composition and structure of egg	10
7	Preservation of shell egg	10
8	Visit to slaughter house	10