

**Format for syllabus development of
Skill development course**

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Title of course	Food Processing
Nodal Department of HEI to run course	
Broad Area /Sector	Nutrition and Health care
Sub Sector	Food Processing
Nature of course – Independent / progressive	Independent
Name of suggestive sector Skill Council	
Aliened NSQF Level	3
Expected fees of the course – Free /paid	
Stipend to student expected from industry	
Number of Seats	
Course Code	Credits- 03 (1 Theory, 2 Practical)
Max Marks-100 Minimum marks ,...	
Name of proposed skill Partner (please specify, Name of Industry, Company etc for Practical /Training /Internship /OJT	
Job prospects - Expected fields of occupation where student will be able to get job after completing this course in (Please specify name /type of industry, company etc.)	<p>Types of Job prospects</p> <p>Food Processor in hotel industry</p> <p>Preservation and Processing of different food products</p> <p>Canning</p> <p>Packaging</p> <p>Top Recruiting Organizations for a Vermicompost producer</p> <p>Hotel Industry</p> <p>Food Technologist</p> <p>Self-Employment</p>

Title of course: Food Processing

Duration of course: One Semester

Course structure: 1. Paper I: Theory
2. Paper II: Practical

Aims &Objective:

Making food safe for consumption

Preserving of food reduce the spoilage of raw agri- products until it can be consumed..

to understand what is food processing and technology, its history, development and present status

be aware of the skills required to be a professional food technologist

know the scope for self- employment as small, medium or large scale entrepreneurs.

CURRICULUM LAYOUT FOR FOOD PROCESSING PROGRAMME 1 Credit (Th) - 15**Hours and 2 Credits (Pr) – 60 Hours = (75 Hours)**

S.No.	Area	General/Skill Component	Theory /Practical/OJT/ Internship/Training	No of Theory hours	No of Practical hours
01	Fundamentals Of Food Science and Nutrition <ul style="list-style-type: none">➤ Concept of food & food science<ul style="list-style-type: none">● Objective of food science● Classification and function of food● Methods of cooking➤ Introduction to Nutrition<ul style="list-style-type: none">● Definition of nutrition, nutrients, RDA● Classification of nutrients (Macro, Micro) Macro nutrients (Carbohydrates, Proteins, fats)Classification, Sources -Functions, RDA - Deficiency, excess● Micro nutrients (Vitamins, Minerals),Classification, Sources -Functions, RDA - Deficiency, excess● Water and Fibre - Composition, Sources, Classification, Functions, RDA -Deficiency, excess.	Skill Component	Theory	02 hrs	-/-
02	Food preservation <ul style="list-style-type: none">➤ Fundamentals of Food Preservation, Concept, Importance of food preservation -Principles of food preservation, Techniques of food preservation.➤ Microorganisms in food Introduction -Types of Microorganisms, Conditions for growth. Food spoilage & their control➤ Preservation by preservatives - Concept and definition, Types -Natural preservatives -Synthetic preservatives➤ Irradiation. Concept, definition,	Skill Component	Theory & Practical	02 hrs	08 hrs

	<p>Principles of irradiation. - Types - Application.</p> <ul style="list-style-type: none"> ➤ Preservation by drying, high temperature, low temperature ➤ Modern techniques in food preservation. -Concept, Definition - High Hydrostatic pressure -Hurdle technology -Pulse electric field. ➤ Practical: <ol style="list-style-type: none"> 1) Identification of lab equipment 2) Identification of class I & class II Preservatives. 3) Identification of spoiled food. 4) Preparation of product by using Salt as preservative 5) Preparation of product by using Sugar as a preservative 6) Preparation of product by using Oil as preservative 7) Preparation of product by using Chemical Preservative 8) Visit to the food preservation unit 9) Visit to the irradiation unit. 10) Introduction to drying equipment. 11) Drying of fruits 12) Drying of Vegetable 13) Drying of seeds 14) Blanching of Vegetables. 15) Steaming of Vegetables. 16) Preservation of fruits by Syruping. 17) Introduction of freezing equipment 18) Freezing of fruits 19) Visit to cold storage unit. 20) Visit to observe modern techniques of food preservation / drying unit. 				
03	<p>Food Quality Control And Waste Management</p> <ul style="list-style-type: none"> ➤ Introduction to quality Control in food industry, concepts of quality, quality Control, Sampling of food and Sample. Standard tests for quality assessment: Physical, Chemical, Microbiological tests. ➤ Waste Management in Food Industry Types of waste generated: Non-Degradable, Biodegradable wastes. 	Skill Component	Theory & Practical	02 hrs	08 hrs

	<p>Waste storage and disposal of liquid and gaseous waste-land- filling, burial incineration, recycling biological treatment of food industry Waste</p> <ul style="list-style-type: none"> ➤ Food laws and standards -Existing food laws and standards in India - Concept and application of ISO and HACCP. ➤ Practical <ol style="list-style-type: none"> 1) Determination of Moisture of food 2) Microbial sampling of an air 3) Determination of ash content of food 4) Determination of protein content of food 5) Determination of fat content from food sample 6) Sensory analysis of food products 7) Determination of acidity 8) Determination of hardness of water. 				
04	<p>Selection of raw material and Quality analysis</p> <ul style="list-style-type: none"> ➤ Cereals – <ul style="list-style-type: none"> ● Structure composition and importance of cereal grains ● Types of cereals used in cooking ● Processed cereals, millets and Ready –To- Eat cereals used in cooking. ➤ Pulses and legumes – <ul style="list-style-type: none"> ● Definition, composition and structure of pulses ● Cooking of legumes and Factors affecting cooking time of pulses and legumes ➤ Fruits and vegetables cookery <ul style="list-style-type: none"> ● Classification of fruit and vegetables ● Color pigments in fruit and vegetables ➤ Practical: <ol style="list-style-type: none"> 1) Weights and Measures of raw and cooked food 2) Preparation and product by Gelatinization 3) Preparation of product by milled pulses 	Skill Component	Theory & Practical	02 hrs	08 hrs

	<p>4) Preparation of product by green leafy vegetable</p> <p>5) Preparation of product by roots and tuber</p> <p>6) Preparation of product by fruits</p>				
05	<p>Agro Processing</p> <ul style="list-style-type: none"> ➤ Introduction to Agro processing industry. Scope and importance of Agro processed products. - Processing equipment's. ➤ Cereal grain processing -Different grains suitable for agro processing. Primary processing of major cereals. Milling of cereals-Dry and Wet milling ➤ Pulses and Legumes processing. Principles of pulse milling. Different methods of Dhal milling. Milling of major legumes. ➤ Oil seeds processing. Properties and suitability of oil seeds for processing. Methods of oil seed processing. Terminologies in oil processing industry. ➤ Practical: <ol style="list-style-type: none"> 1) Physical analysis of grains 2) Flour Analysis 3) Gluten Estimation of Wheat flour 4) Preparation of Cereal flour 5) Preparation of cereal flakes 6) Preparation of puffed cereals 	Skill Component	Theory & Practical	02 hrs	10 hrs
06	<p>Milk And Milk Product processing</p> <ul style="list-style-type: none"> ➤ Introduction to Milk and Milk Products. Definition, Production and Processing status of Milk, chemical Properties, composition and nutritive Value. ➤ Processing of milk. <ul style="list-style-type: none"> Pasteurization Sterilization Dehydration ➤ Special Milks <ul style="list-style-type: none"> Re-constituents or Re-hydrated milk, Condensed milk, Toned milk and Flavoured milk, UHT Milk ➤ Milk Products -Curd, Hang curd, Shrikhand, Butter, Butter Milk, Lassi, Chenna, Paneer, Rasogulla, Khoa, Basundi -Ice-cream and Cheese ➤ Practical: <ol style="list-style-type: none"> 1) Physical Examination of milk 2) Platform tests of milk 3) Chemical examination of Milk – PH, acidity 4) Adulteration test of milk 	Skill Component	Theory & Practical	02 hrs	10 hrs

	<p>5) Preparation of Curd 6) Preparation of Shrikhand 7) Preparation of Gulabjamun 8) Preparation of Paneer</p>				
07	<p>Bakery & Confectionary</p> <ul style="list-style-type: none"> ➤ Introduction to bakery and confectionery industry, Importance of bakery and confectionery in food industry, Primary processing equipment's used in Bakery and confectionery Flour Mill mixer, moulding machine, balance, packing machines, Measuring glass, moulds, Knifes, extruder, oven. ➤ Bakery Products, ingredients used in Bakery products, Types and quality of flour. Principles involved in bakery Products. Procedures of Preparation Different types of bakery products. ➤ Introduction to confectionary products. Types of confectionary Products. Characteristics of confectionary Products. Ingredients used in confectionary Products. ➤ Confectionary Products: Chocolate Processing Boiled sweets Gelatine sweet Crystallized confectionery ➤ Practical: <ol style="list-style-type: none"> 1) Introduction to Bakery and Confectionery Equipment's 2) Determination of gluten content 3) Preparation of Bread 4) Preparation of Biscuit 5) Preparation of Cookies 6) Preparation of Cake 	Skill Compone nt	Theory & Practical	03 hrs	16 hrs

On job Training/Industrial exposure as per availability