

Skills learned through different UG course Practical's and Hands-on-Training

Sr. No.	Course No.	Course Title	Skills learned through conduct of practical and hands-on-training
Department of Food Process Technology			
1	FPT-111	Principles of Food Processing	<ol style="list-style-type: none"> 1. Demonstration of various machineries used in processing 2. Preservation by using salt (pickling) 3. Preparation of fermented product, etc
2	FPT-112	Postharvest Management of Fruits and Vegetables	<ol style="list-style-type: none"> 1. Morphological features of some selected fruits and vegetables 2. Determination of fruit firmness and its correlation with ripening 3. Studies on effect of different storage temperatures on quality of fruits, etc
3	FPT-123	Cereal Processing	<ol style="list-style-type: none"> 1. Determination of physical properties of cereal grains 2. Determination of starch content of cereal 3. Determination of sedimentation value, etc
4	FPT-124	Food Packaging Technology	<ol style="list-style-type: none"> 1. Identification of packaging materials 2. Measurement of tensile strength of paper of paper boards 3. Tests for identification of plastic films, etc
5	FPT-235	Legumes and Oilseeds Technology	<ol style="list-style-type: none"> 1. Determination of anti-nutritional factors in legumes 2. Preparation of protein isolate 3. Preparation of peanut butter, etc

6	FPT-236	Meat, Poultry and Fish Technology	<ol style="list-style-type: none"> 1. Slaughtering and dressing of poultry bird 2. Determination of metmyoglobin content of meat, etc 3. Preparation of fish protein concentrate (FPC) , etc
7	FPT-237	Processing Technology of Beverages	<ol style="list-style-type: none"> 1. Quality analysis of water from different sources and treatments, etc 2. Measurement of CO₂ content of carbonated beverage, etc 3. Preparation of carbonated beverage, etc
8	FPT-238	Processing of Milk and Milk Products	<ol style="list-style-type: none"> 1. Sampling of milk and milk production 2. Standardization of milk 3. Preparation of <i>channa</i>, etc.
9	FPT-249	Wheat Milling and Baking Technology	<ol style="list-style-type: none"> 1. Classification of wheat based on physico-chemical properties 2. Determination of falling number 3. Rheological Testing (farinograph, mixograph, extensiograph, alveograph, amylograph) , etc
10	FPT-2410	Fruits and Vegetables Processing	<ol style="list-style-type: none"> 1. Primary processing of selected fruits and vegetables 2. Preparation of fruit leather 3. Preparation of dehydrated tomato powder, etc
11	FPT-2411	Processing of Spices and Plantation Crops	<ol style="list-style-type: none"> 1. Physicochemical properties of different spices 2. Test for presence of chromate

			3. Preparation of Indian <i>Masala</i> for different foods, etc
12	FPT-3512	Confectionary and Snacks Technology	1. Production of invert sugar 2. Preparation of traditional Indian confection 3. Preparation of fruit candy, etc
13	FPT-3513	Food Extrusion Technology	1. Physical properties of extruded foods (expansion, density, water absorption index, etc) 2. Preparation of weaning foods 3. Studies on Textural Profile Analysis of extruded products, etc
14	FPT-3614	Food Quality and Sensory Evaluation	1. Quality attributes of various food products 2. Testing of supertaster for sensory evaluation 3. Evaluation of food products as per standards, etc
Department of Food Chemistry and Nutrition			
1	FCN-111	Environmental Science and Disaster Management	1. Environment and its analysis 2. Determination of conductivity of water sample 3. Determination of minerals in water, etc
2	FCN-112	Biochemistry	1. Safety measures in the Laboratory 2. Determination of reducing sugar by Nelson-Somogyi method 3. Determination of crude fat by Soxhlet Method, etc

3	FCN-123	Human Nutrition	<ol style="list-style-type: none"> 1. Role of various national and international agencies in field of human nutrition 2. Preparation of balance diet and RDA of nutrients 3. Diet for specific health condition (Obesity) , etc
4	FCN-124	Food Chemistry of Macronutrients	<ol style="list-style-type: none"> 1. Determination of moisture content of liquid foods by Karl Fischer method 2. Studies on different properties of starches 3. Determination of acid value of oil, etc
5	FCN-235	Food Chemistry and Micronutrients	<ol style="list-style-type: none"> 1. Preparation of mineral solution by using ash and tri acid method (dry and wet oxidations) 2. Estimation of oxalic acid in tomatoes 3. Determination of food colors, etc
6	FCN-246	Food Additives and Preservatives	<ol style="list-style-type: none"> 1. Evaluation of GRAS aspects of Food Additives 2. Identification of colors in food by TLC 3. Role of emulsifiers in foods, etc
7	FCN-357	Instrumental Techniques in Food Analysis	<ol style="list-style-type: none"> 1. Sampling plan; Sample collection and preparation for analysis 2. Quantitative determination of sugars and fatty acid profile by GLC 3. Analysis of minor constituents of foods, etc
8	FCN-368	Enzymes in Food Industry	<ol style="list-style-type: none"> 1. Isolation and purification of enzymes 2. Inactivation of phosphatase enzyme

			3. Effect of cellulose on fruit juice yield, etc
Department of Food Microbiology and Safety			
1	FMS-111	General Microbiology	<ol style="list-style-type: none"> 1. Guidelines for safety in food microbiology laboratory work 2. Preparation of culture media 3. Microorganisms examination of water, etc
2	FMS-122	Food Microbiology	<ol style="list-style-type: none"> 1. Isolation of bacteria and molds from foods 2. Microbial examination of sugar, salts and spices 3. Detection of <i>Salmonella</i> from food sample, etc
3	FMS-233	Industrial Microbiology	<ol style="list-style-type: none"> 1. Study of fermentor accessories 2. Production of alcoholic beverage by fermentation 3. Production of polysaccharides, etc
4	FMS-244	Food Safety and Microbial Standards	<ol style="list-style-type: none"> 1. Detection of Lead 2. Detection of <i>Listeria</i> 3. Study of National and International microbial quality standards, etc
5	FMS-355	Food Biotechnology	<ol style="list-style-type: none"> 1. Chemical mutagenesis using chemical mutagens (Ethidium bromide) 2. Production of biomass from fruit and vegetable waste 3. Pesticide degradation by pseudomonas species, etc
6	FMS-366	Food Plant Sanitation	<ol style="list-style-type: none"> 1. Estimation of BOD (Biological Oxygen Demand)

			<ul style="list-style-type: none"> 2. Study of CIP plant 3. Biodegradation of phenol compounds, etc
7	FMS-367	Quality Assurance and Certification	<ul style="list-style-type: none"> 1. Activities of Quality Department 2. Writing Standard Operating Procedures 3. Preparation of documentation and records, etc
Department of Food Engineering			
1	FE-111	Engineering Drawing and Graphics	<ul style="list-style-type: none"> 1. Study of drawing scales 2. Drawing of projection of section of solid 3. Study of three dimensional drawing command in AutoCAD, etc
2	FE-112	Fluid Mechanics	<ul style="list-style-type: none"> 1. Study of different tools and fittings 2. Numericals for pressure measurement by U tube manometer 3. Numericals on C.D. for venturimeter and orifice meter, etc
3	FE-124	Heat and Mass Transfer	<ul style="list-style-type: none"> 1. Heat transfer analysis during conduction 2. Determination of thermal conductivity of liquid food 3. Determination of OHTC in shell and tube and plate heat exchanger, etc
4	FE-125	Statistical Methods and Numerical Analysis	<ul style="list-style-type: none"> 1. Problems on one sample, two sample Z-tests when population S.D. is known and unknown 2. Calculation of correlation coefficient and its testing 3. Problems on Simpson's 1/3 and 3/8 rules; Problems on Laplace transforms; Problems on inverse transformations, etc

5	FE-236	Energy Generation and Conservation	<ol style="list-style-type: none"> 1. Determination of calorific value of fuel 2. Determination of dryness fraction of steam by separating calorimeter 3. To study the principle and working of wind mill, etc
6	FE-237	Unit Operations in Food Processing – I	<ol style="list-style-type: none"> 1. Study of Principle, working and demonstration of hammer mill and crushing roll 2. Determination of reduction ratio of different size reduction machineries 3. Study of plate and frame filter press, etc
7	FE-248	Unit Operations in Food Processing – II	<ol style="list-style-type: none"> 1. Study of cleaners for grains (Screening, aspiration, abrasion and magnetic cleaning) 2. Study of freeze drying process and freeze dryer 3. Design of CAS and MAP for particular capacity and commodity, etc
8	FE-249	Post Harvest and Storage Engineering	<ol style="list-style-type: none"> 1. Study of cleaners for grains 2. Design of cold storage for particular capacity and commodity 3. Design of CA storage for particular capacity and commodity, etc
9	FE-3510	Biochemical Engineering	<ol style="list-style-type: none"> 1. Instrumentation and their control in fermentation industry -physical parameter 2. Comparative study of laboratory and commercial fermentor 3. Study of alcohol production from molasses, etc
10	FE-3511	Food Refrigeration and Cold Storage	<ol style="list-style-type: none"> 1. Study of vapour compression refrigeration system

			<p>2. Estimation of refrigeration load for meat and poultry producer</p> <p>3. Study of cooling system for bakery and estimation of refrigeration loads, etc</p>
11	FE-3612	Food Processing Equipment Design	<p>1. Study of design of pressure vessel</p> <p>2. Design of multiple effect evaporator</p> <p>3. Design of bucket elevator, etc</p>
12	FE-3613	Food Plant Design and Layout	<p>1. Preparation of project report</p> <p>2. Layout of milk and milk product plant</p> <p>3. Layout and design of fruit processing plant, etc</p>
13	FE-3614	Instrumentation and Process Control	<p>1. To study instrumentation symbols</p> <p>2. Measurement of liquid level in the tank with the help of Bob and tape</p> <p>3. Measurement of intensity of sun shine by sunshine recorders, etc</p>
Department of Food Business and Management			
1	FBM-111	Computer Programming and Data Structure	<p>1. Write a first programme to print “Welcome to C-programming”.</p> <p>2. Write a program to find the right most digit of a given number.</p> <p>3. Write a program to find the sum of first fifty even numbers, etc</p>
2	FBM-122	Information and Communication Technology	<p>1. Study of computer components, accessories</p> <p>2. Querying/Retrieving data , relation</p> <p>3. Hands on Decision Support System, etc</p>

3	FBM-243	ICT Application in Food Industry	<ol style="list-style-type: none"> 1. Introduction to GAMBIT software; Creation of geometry for laminar flow through pipe using GAMBIT 2. Introduction to LabVIEW and NI-DAQ, etc
4	FBM-354	Entrepreneurship Development	<ol style="list-style-type: none"> 1. Data collection from market on various projects on food processing and analysis 2. Different schemes for food entrepreneurs 3. Presentation of project proposals in the class, etc
5	FBM-356	Food Laws and Regulations	<ol style="list-style-type: none"> 1. Licensing and registration process 2. Examination of Oil and Oil products as per specifications 3. Examination of fruits and vegetable products as per regulations, etc
6	FBM-367	Project Preparation and Management	<ol style="list-style-type: none"> 1. Studies on Market Survey based on enterprise 2. Methods of monitoring and feasibility of projects 3. Project monitoring and Control – PERT Modeling, etc
8	FBM-369	Communication Skills and Personality Development	<ol style="list-style-type: none"> 1. Activities for personality development 2. Interview skills, etc
Department of Food Plant Operation			
1	FPO-231	Student READY – Industrial Tour (I)	1. Educational Tour Report and For Its Evaluation, etc
2	FPO-232	Student READY – Industrial Tour (II)	1. Tour Diary Evaluation, etc
3	FPO-473	Student READY –	1. To conduct hands-on training and entrepreneurship skills among outgoing UG

		Experiential Learning Programme – I	students interested in the field of Agriculture & allied branches. 2. Preparation of techno-economics feasibility reports, etc
4	FPO-474	Student READY – Experiential Learning Programme – II	1. Technical and commercial counselling 2. Marketing and distribution of processed products, etc
5	FPO-475	Student READY – Research Project	1. Project Report 2. Evaluation Criteria, etc
6	FPO-476	Student READY – Seminar	1. Understanding of Topic and Preparation of Script 2. Presentation Skills, etc
7	FPO-487	Student READY – In-plant Training	1. In-plant Training Procedure 2. General orientation and on-campus training by faculty, etc