DEPARTMENT OF NUTRITION AND DIETETICS

COURSE STRUCTURE & SYLLABI
(For the students admitted from year 2023-2024 onwards)

Programme: B.Voc. FOOD PROCESSING AND SAFETY

SHOW US THE RIGHT PATH
Since 1951

JAMAL MOHAMED COLLEGE (AUTONOMOUS)
Accredited with A++ Grade by NAAC (4th Cycle) with CGPA 3.69 out of 4.0
(Affiliated to Bharathidasan University)
TIRUCHIRAPPALLI – 620 020

B.Voc. FOOD PROCESSING AND SAFETY

Sem	Part	Course	Course Code	Course Title	Ins. Hrs/ Week	Total Hours	Credits	Marks		
								CIA	ESE	Total
I	I	General	23B1LT1/ 23B1LBT1	Language - I - Tamil / Basic Tamil - I	2	30	2	25	75	100
	II	General	23BCN1LE1	Communicative Grammar	2	30	2	25	75	100
	III	General	23BFP1G1	Food Science	3	45	3	25	75	100
		General	23BFP1G2	Bakery and Confectionery - I	3	45	3	25	75	100
		Skill	23BFP1S3P	Food Science - Practical	9	135	6	20	80	100
		Skill	23BFP1S4P	Bakery and Confectionery - I - Practical	9	135	6	20	80	100
		Skill	23BFP1S5I	Bakery and Confectionery - I Internship	-	180	6	20	80	100
	IV	General	23BCN1AE1	Value Education	2	30	2	-	100	100
				Total	**30**	**630**	**30**	**160**	**640**	**800**
II	I	General	23B2LT2/ 23B2LBT2	Language - II - Tamil / Basic Tamil - II	2	30	2	25	75	100
	II	General	23BCN2LE2	English	2	30	2	25	75	100
	III	General	23BFP2G6	Principles of Nutrition	3	45	3	25	75	100
		General	23BFP2G7	Bakery and Confectionery - II	3	45	3	25	75	100
		Skill	23BFP2S8P	Principles of Nutrition - Practical	9	135	6	20	80	100
		Skill	23BFP2S9P	Bakery and Confectionery - II - Practical	9	135	6	20	80	100
		Skill	23BFP2S10I	Bakery and Confectionery - II Internship	-	180	6	20	80	100
	IV	General	23BCN2SS	Soft Skills Development	2	30	2	-	100	100
				Total	**30**	**630**	**30**	**160**	**640**	**800**
III	III	General	23BFP3G11	Principles of Food Preservation	2	30	2	25	75	100
		General	23BFP3G12	Food Processing - I	4	60	4	25	75	100
		General	23BFP3G13	Food Chemistry	2	30	2	25	75	100
		General	23BFP3G14	Food Microbiology	2	30	2	25	75	100
		Skill	23BFP3S15P	Food Processing - I - Practical	9	135	6	20	80	100
		Skill	23BFP3S16P	Food Chemistry and Food Microbiology - Practicals	9	135	6	20	80	100
		Skill	23BFP3S17I	Food Processing - I Internship	-	180	6	20	80	100
	IV	General	23BCN3AE2	Environmental Studies	2	30	2	-	100	100
				Total	**30**	**630**	**30**	**160**	**640**	**800**
IV	III	General	23BFP4G18	Food Processing - II	4	45	4	25	75	100
		General	23BFP4G19	General Biochemistry	3	45	3	25	75	100
		General	23BFP4G20	Food Service Management	3	45	3	25	75	100
		General	23BFP4G21	Entrepreneurship Skill in Food Industry	2	30	2	25	75	100
		Skill	23BFP4S22P	Food Processing - II - Practical	9	135	6	20	80	100
		Skill	23BFP4S23P	General Biochemistry and Food service Management - Practicals	9	135	6	20	80	100
		Skill	23BFP4S24I	Food Processing - II Internship	-	180	6	20	80	100
				Total	**30**	**630**	**30**	**160**	**540**	**700**
V	III	General	23BFP5G25	Food Processing - III	4	60	4	25	75	100
		General	23BFP5G26	Food Product Development	3	45	3	25	75	100
		General	23BFP5G27	Nutrition through life cycle	3	45	3	25	75	100
		General	23BFP5G28	Marketing Management	2	30	2	25	75	100
		Skill	23BFP5S29P	Food Processing - III - Practical	9	135	6	20	80	100
		Skill	23BFP5S30P	Food Product Development and Nutrition through life cycle - Practicals	9	135	6	20	80	100
		Skill	23BFP5S31I	Food Processing - III Internship	-	180	6	20	80	100
				Total	**30**	**630**	**30**	**160**	**540**	**700**
VI	III	General	23BFP6G32	Human Physiology	3	45	3	25	75	100
		General	23BFP6G33	Diet Therapy	3	45	3	25	75	100
		General	23BFP6G34	Food Packaging and Labelling	3	45	3	25	75	100
		General	23BFP6G35	Food standards and Safety	2	45	2	25	75	100
		Skill	23BFP6S36P	Diet Therapy and Application of computer - Practicals	9	135	6	20	80	100
		Skill	23BFP6S37P	Food Packaging and Labelling - Practical	9	135	6	20	80	100
		Skill	23BFP6S38I	Food Packaging and Labelling Internship	-	180	6	20	80	100
	IV	General	23BCN6AE3	Gender Studies	1	15	1	-	100	100
				Total	**30**	**630**	**30**	**160**	**640**	**800**
				Grand Total	**180**	**3780**	**180**	**960**	**3640**	**4600**

Semester	Course Code	Course Category	Hours/ Week	Credits	Marks for Evaluation		
					CIA	ESE	Total
I	23BFP1G1	General	3	3	25	75	100
Course Title	FOOD SCIENCE						

Unit	Content	Hours
I	**Introduction to Food science** **Food** - Definition: Food, Food Science, Functions of food. Basic Four food groups. **Cooking methods**: Moist, *Dry heat methods and its Merits and Demerits.*	9
II	**Cereals, Millets & Pulses:** **Wheat and Rice** - Structure, Composition and Nutritive value, malting process. Role of Cereals in cookery. **Millet**: Types, composition and Nutritive value and its *by-product*. **Pulses:** Composition and Nutritive value, Germination process. *Role of pulses in cookery*.	9
III	**Milk, Egg and Fleshy foods:** **Milk** - Types of milk and milk products, Proteins and enzymes in milk, *Role of milk in cookery*. **Egg:** Structure, quality of egg, factors affecting foam formation, factors affecting the Coagulation of egg. *Role of egg in cookery*. **Fleshy foods**: Meat- Classes of meat, post mortem changes, ageing and tenderness of meat, methods of cooking. **Poultry**- Classification and poultry cooking. Fish- Classification, selection and methods of Cooking	9
IV	**Vegetables and fruits** **Vegetables:** Classification, Pigments, organic acids, enzymes and selection, Effect of acid, alkali medium on the pigments, Role of Vegetables in cookery. **Fruits:** Classification, Pigments, Changes during ripening of fruits, **Browning reaction**: *types and its prevention*.	9
V	**Oil, Fats, Sugar and Nuts:** **Fats and oil:** Refining and processing of fats, rancidity and role of fat/oil in cookery. **Sugar:** Stages of sugar, sugar related products, Role of sugar in cookery. Nuts: Specific nuts and oil seeds-walnut, almonds, coconut, groundnut and sunflower seed. *Role of nuts and oilseeds in cookery*.	9
VI	Modernization of old processing technique. (For CIA only)	

*……*self study

Text Book(s):
1.Potter, N.Food science, The AVI Publishing Co.,Inc., West Port, Connecticut,1975. 2.Srilakshmi,"Food Science".5th edition, New Age International Pvt. Publishers, New Delhi, (2010). Second Edition,(2008)

Course Outcomes		
CO No.	**CO Statement**	**Cognitive Level (K-Level)**
CO1	Understanding the nutrient content stages of milling process	K2
CO2	Analyze techniques that can be used to monitor quality of raw ingredients and final products	K4
CO3	Focus the major chemical reactions that occur during food preparation and storage .	K4
CO4	Discuss the role of Vegetables and fruits in cookery	K2
CO5	Develop the skills in preparing the by productson cereals and millets	K3

Relationship Matrix:

Course Outcomes (COs)	**Programme Outcomes (POs)**					**Programme Specific Outcomes (PSOs)**					**Mean Score of COs**
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PSO1**	**PSO2**	**PSO3**	**PSO4**	**PSO5**	
CO1	1	2	3	1	1	1	2	1	2	3	1.7
CO2	2	1	1	2	2	1	3	2	1	1	1.6
CO3	2	1	1	2	1	2	2	2	2	3	1.8
CO4	1	2	2	2	2	1	1	2	3	1	1.7
CO5	2	3	3	2	1	2	1	2	1	2	1.6
										Mean Overall Score	**1.68**
										Correlation	Medium

Mean Overall Score	**Correlation**
< 1.5	Low
≥ 1.5 and < 2.5	Medium
≥ 2.5	High

Course Coordinator: Dr. A. Sangeetha

Semester	Course code	Course Category	Hours/ Week	Credits	Marks for Evaluation		
					CIA	ESE	Total
I	23BFP1G2	General	3	3	25	75	100
Course Title	BAKERY AND CONFECTIONERY - I						

Unit	Content	Hours
I	**Introduction to bakery** Introduction: Scope of bakery, Units of measurement, Bakery terms, Minor and major equipment, Baking temperatures for bread. Structure of wheat grain-Physical structure, Longitudinal section.	9
II	**Bakery ingredients** Role of raw materials in bread making- Flour, Salt, *Leavening Agents*, Water, Sugar, Egg, Milk, Fat, Oil. Bread improvers and additives- S.M.P, Soya flour, Glycerol Mono State, Potassium Bromate, Potassium Iodate.	9
III	**Bread making** Methods of bread making-Bread Making Process-Methods-Straight Dough Method, Ferment dough, salt delayed method, no dough time method-*types of bread*.	9
IV	**Quality of Bread** Characteristic of good bread- External- volume, symmetry, shape, colour-Internal-texture, aroma, elasticity. Bread faults and remedies-Basic reasons for faults, Common bread faults (internal and external), Remedies. *****Bread diseases-Rope and Mold-Causes and Prevention*.	9
V	**Setting up Bakery unit** Setting up a bakery unit-Location, *Layout*, Selection of equipment, Total space required, and Electricity, Government procedure.	9
VI	Fondant Icing Methods (For CIA only)	

*…….*self study

Text Book(s):

Text Books:

1. Potter, N. Food Science, The AVI Publishing Co., Inc., West Port, Connecticut, 1975.
2. Bakers Handbook on practical Baking. Wheat Associates, USA, New Delhi.

Reference Books:

1. Dubey, SC, Basic Baking Science and Craft, Jwalmukhi Job Press, Bangalore, 1979.
2. Modern Pastry Chab, Vol.I and II, A VI Publishing Co., Inc., West Port, Connecticut

Course Outcomes		
CO No.	**CO Statement**	**Cognitive Level (K-Level)**
CO1	Identify different dough making procedures	K1
CO2	Discuss the different types of oven	K2
CO3	Operate the major and minor baking equipments	K3
CO4	Analyze the sensory quality parameter in prepared bread	K4
CO5	Measure the raw materials	K5

Relationship Matrix:

Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)					Mean Score of COs
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PSO1**	**PSO2**	**PSO3**	**PSO4**	**PSO5**	
CO1	**2**	3	**3**	**3**	**2**	**3**	3	**3**	**3**	**2**	**2.7**
CO2	**3**	**2**	**3**	**3**	**3**	**3**	**3**	**3**	**2**	**3**	**2.8**
CO3	**2**	**3**	**2**	**3**	**3**	**2**	**3**	**2**	**3**	**2**	**2.5**
CO4	**1**	**2**	**2**	**2**	**3**	**1**	**2**	**2**	**2**	**3**	**2.0**
CO5	**1**	**1**	**3**	**2**	**3**	**1**	**1**	**3**	**2**	**3**	**2.0**
Mean Overall Score											**2.4**
Correlation											**Medium**

Mean Overall Score	**Correlation**
< 1.5	Low
≥ 1.5 and < 2.5	Medium
≥ 2.5	High

Course Coordinator: Asiffa Jabeen.N

Semester	Course code	Course Category	Hours /Week	Credits	Marks for Evaluation		
					CIA	ESE	Total
I	23BFP1S3P	Skill	9	6	20	80	100
Course Title	FOOD SCIENCE - PRACTICAL						

Unit	Content	Hours
	1. Introduction to laboratory: (a) Laboratory rules (b) familiarizing with laboratory equipment, procedure, and weighing methods	15
	2. Cereals: (a) Determination of Gluten content in wheat, maida and rice flour. (b) Cereal preparations of recipes using rice, wheat, ragi by various cooking methods - Boiling, pressure cooking, steaming.	15
	3. Pulses: (a) Factor affecting the quality of pulses- Use of hard water, soft water, sodium bi Carbonate, Vinegar. (b) Preparation of pulses based recipes by using different method of cooking.	15
	4. Vegetables and Fruits: (a) Effect of heat and pH on vegetable pigments like: chlorophyll, carotenoids, anthocyanin, anthoxanthin. (b) Browning reaction in vegetables and fruits and methods of its prevention. (c) Preparation of vegetables and fruits based recipes.	15
	5. Milk Cookery: (a) Effect of prolonged heat, acid and enzyme. (b) Preparation of Milk based recipes	
	6. Egg: (a) Boiled egg – Hard and Soft cooked egg. (b) Preparation of scrambled, poached egg, custards (steamed and baked), omelette, egg curry.	15
	7. Sugar: (a) Identify the stages of sugar cookery using food thermometer. (b) Sweet preparations - Fondant, Fudge, peanut brittle, mysore pak and Gulab jamun	15
	8. Fats and Oils: (a) Smoking temperature of different fats and oils - Safflower oil, groundnut oil & palm oil (b) Frying poori at different smoking temperature (c) Preparation of few deep fat fry snacks.	15 15
	9. Beverages: Preparation and evaluation of (a) Coffee - Filter and instant method (b) Tea (c) Soup (d) Beverages -fruit and milk based drinks	15

Course Outcomes		
CO No.	**CO Statement**	**Cognitive Level (K-Level)**
CO1	Understanding the cooking methods and implementing it on practical basis.	K2
CO2	Analyze techniques that can be used to monitor quality of raw ingredients and final products	K4
CO3	Focus the major chemical reactions that occur during food preparation and storage .	K4
CO4	Discuss the role of Vegetables and fruits in cookery and implement it on practical class room setup	K2
CO5	Develop the skills in preparing the by- products on cereals and millets	K3

Relationship Matrix:

Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)					Mean Score of COs
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PSO1**	**PSO2**	**PSO3**	**PSO4**	**PSO5**	
CO1	**2**	3	**3**	**3**	**2**	**3**	3	**3**	**3**	**2**	**2.7**
CO2	**3**	**2**	**3**	**3**	**3**	**3**	**3**	**3**	**2**	**3**	**2.8**
CO3	**2**	**3**	**2**	**3**	**3**	**2**	**3**	**2**	**3**	**2**	**2.5**
CO4	**1**	**2**	**2**	**2**	**3**	**1**	**2**	**2**	**2**	**3**	**2.0**
CO5	**1**	**1**	**3**	**2**	**3**	**1**	**1**	**3**	**2**	**3**	**2.0**
Mean Overall Score											**2.4**
Correlation											**Medium**

Mean Overall Score	**Correlation**
< 1.5	Low
≥ 1.5 and < 2.5	Medium
≥ 2.5	High

Course Coordinator: Ashma Banu.S

Semester	Course code	Course Category	Hours/ Week	Credits	Marks for Evaluation		
					CIA	ESE	Total
I	23BFP1S4P	Skill	9	6	20	80	100
Course Title	BAKERY AND CONFECTIONERY- 1 - PRACTICAL						

SYLLABUS		
Unit	Contents	Hours
	Preparation of 1. Bread roll 2. Bread sticks 3. Fancy rolls- Danish pastry, crescent, dough nut, 4. Buns 5. Milk bread 6. Whole wheat bread 7. Pizza 8. Garlic bread 9. Sweetish tea ring 10. Millet bread 11. Visit to the bakery industry	135

Reference Book(s):

Text Books:

1. Dubey, SC, Basic Baking Science and Craft, Jwalmukhi Job Press, Bangalore, 1979.
2. Bhuvaneswari.D and Kavitha.V, Easy to Bake, Dhivakar Publication, Musri, Trichy, 2017.

Course Outcomes		
At the end of the course, students will be able to		
CO No.	CO Statement	Cognitive Level (K-Level)
CO1	Classify various terms of bakery and confectionery	K1
CO2	Apply various methods and techniques of baking	K2
CO3	Experiment the various characteristics of bread and related products	K3
CO4	Distinguish and prepare various bread making process	K4
CO5	Estimating the methods of Setting up a bakery unit and facilitate other processes by visiting a bakery	K5

Relationship Matrix:

Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)					Mean Score of COs
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	
CO1	2	3	3	3	2	3	3	3	3	2	2.7
CO2	3	2	3	3	3	3	3	3	2	3	2.8
CO3	2	3	2	3	3	2	3	2	3	2	2.5
CO4	1	2	2	2	3	1	2	2	2	3	2.0
CO5	1	1	3	2	3	1	1	3	2	3	2.0
Mean Overall Score											2.4
Correlation											Medium

Mean Overall Score	Correlation
< 1.5	Low
≥ 1.5 and < 2.5	Medium
≥ 2.5	High

Course Coordinator: Nelofer.M

Semester	Course code	Course Category	Hours/ Week	Credits	Marks for Evaluation		
					CIA	ESE	Total
I	23BFP1S5I	Skill	-	6	20	80	100
Course Title	BAKERY AND CONFECTIONERY- I INTERNSHIP						

Unit	Content	Hours
	1. Know the different dough making procedures 2. Acquire skill in operating different types of oven 3. Handling of major and minor baking equipments 4. Analyze the sensory quality parameter in prepared bread 5. Handling the raw materials and baking supplies. 6. Design the layout of bakery unit	180

Course Outcomes

CO No.	CO Statement	Cognitive Level (K-Level)
CO1	Identify different dough making procedures	K1
CO2	Discuss the different types of oven	K2
CO3	Operate the major and minor baking equipments	K3
CO4	Analyze the sensory quality parameter in prepared bread	K4
CO5	Measure the raw materials	K5

Relationship Matrix:

Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)					Mean Score of COs
	PO1	PO2	PO3	PO4	PO 5	PSO1	PSO2	PSO3	PSO4	PSO5	
CO1	1	2	0	1	1	2	1	1	2	3	1.4
CO2	2	1	1	2	2	1	3	2	1	1	1.6
CO3	2	0	1	2	0	2	1	1	2	3	1.4
CO4	1	2	2	2	2	1	1	2	2	1	1.6
CO5	2	3	3	2	1	2	1	2	3	2	1.8
Mean Overall Score											1.56
Correlation											Medium

Mean Overall Score	Correlation
< 1.5	Low
≥ 1.5 and < 2.5	Medium
≥ 2.5	High

Course Coordinator: Asiffa Jabeen.N

Semester	Course Code	Course Category	Hours/ Week	Credits	Marks for Evaluation		
					CIA	ESE	Total
I	23BCN1AE1	AECC - I	2	2	-	100	100

Course Title	Value Education for Women

SYLLABUS		
Unit	**Contents**	**Hours**
I	**VALUES IN LIFE:** Purpose and philosophy of life – Need for values –five fold moral culture - Imbibing values: truth, loyalty, integrity, humility, trustworthy, considerate, not being greedy, clean habits, punctuality, kindness, gratitude, patience, respect and character building.	6
II	**FAMILY**: Nuclear – cluster – significance - social functions - changing trend - role of women in family - obedient daughter - purposeful youth- dedicated wife - caring mother.	6
III	**PUBERTY**: Need of knowledge of menstruation- menstrual symptoms – handling – menstrual disorder - maintaining good personal hygiene - motherhood- Stages of pregnancy- post pregnancy care.	6
IV	**MARRIAGE**: Types of marriage - purpose of marriage- love and infatuation – need for marital preparation - pre and post marital counselling - conflicts in marital life - divorce single parenthood.	6
V	**HARMONY WITH SPOUSE**: Husband and wife relationship - fidelity towards spouse-relationship among the family members. Tenets of bride for healthy family – kindness, respect, patience, care, love.	6

Hours of Teaching: 5 hours and Hours of Activity: 25 hours

Textbook(s):

1. Value Education for health, Happiness and harmony, the world community service centre, Vethathri Publications
2. N. Venkataiah, Value Education, APH Publishing Corporation, New Delhi, 1998
3. Betty, Carten and Meg Goldric, The Changing family life style - A Framework for Family Therapy, 2nd Edition, 2000.
4. Marie, Madearentas, Family Life Education, CREST-Centre for research education service training for family promotion, Bangalore, 1999.

Web References:

1. https://www.slideshare.net/humandakakayilongranger/values-education-35866000
2. https://www.ananda.org/blog/5-secrets-to-a-harmonious-marriage/
3. https://www.nap.edu/read/2225/chapter/14

Activity:

- Assignment on Values (not less than 20 Pages)
- Multiple Choice Questions and Quiz
- Elocution - (Manners and good Habits for 3 to 5 minutes)
- Field Visit
- Debating - Current issues
- Essay writing: Proper use of e-gadgets, Ethics, Cyber ethics, Social media, etc.,
- Case Study / Album Making / Poster Presentation / Documentary- Celebrating National Days, Drug abuse & illicit trafficking, Independence Day, Secularism, Teachers Day, National Youth Awakening Day, Father's Day / Mother's Day and etc.,

EVALUATION COMPONENT: TOTAL: 100 MARKS

Component I:

Documentary (or) Poster Presentation (or) Elocution - 25 marks

Component II:

Quiz (or) Multiple choice questions Test - 25 marks

Component III:

Album Making (or) Case Study on a topic (or) Field visit - 25 marks

Component IV:

Assignment (or) Essay Writing (or) Debating - 25 marks

Course Coordinator: Dr. M. Purushothaman

Semester	Course code	Course Category	Hours /Week	Credits	Marks for Evaluation		
					CIA	ESE	Total
II	23BFP2G6	General	3	3	25	75	100
Course Title	Principles of Nutrition						

Unit	Content	Hours
I	**Concept of Nutrition and Carbohydrates** Definition - Nutrition, health, nutritional status, optimum nutrition, malnutrition, undernutrition and over nutrition. RDA- Definition, RDA for Indians. Menu Planning – Definition of Menu Planning, Principle of Menu Planning. Carbohydrates- Definition, composition, functions, sources. Dietary fiber- Definition, classification, physiological effects and *sources*.	9
II	**Proteins and lipids** Proteins- Definition, composition, nutritional classification of proteins and amino acids, functions, sources, requirements. Evaluation of protein quality: PER, BV, NPU and Chemical score. Lipids- Definition, composition, functions, sources, requirements. Essential fatty acids – Definition, *functions, Sources*.	9
III	**Energy** Definition, units of measurement, Determination of energy value of Food-Bomb calorimeter, Total Energy requirement, Factors affecting physical activity. BMR-Definition, Factors affecting Basal Metabolic Rate, factors affecting *Thermic effect of food*.	9
IV	**Vitamins** Fat Soluble Vitamins – Vitamin A, D, E and K: Functions, requirements, sources and effects of deficiency. Water Soluble Vitamins – Thiamine, riboflavin, niacin, ascorbic acid, folic acid, vitamin B6 and vitamin B12: Functions, requirements, *sources*.	9
V	**Minerals** Macro Minerals- Calcium and Phosphorous: Functions, requirements, sources and effects of deficiency. Micro minerals- Iron, Iodine, Copper, Fluorine and Zinc: Functions, sources, requirements and effects of deficiency. Sodium and Potassium: Functions, *sources*, requirements	9
VI	**Auto Immune Disorders (For CIA only)**	
*……*self study		

Text Books:
1 Sumathi R. Mudambi, Rajagopal, M.V., Fundametals of Foods and Nutrition, New Age International (P) Ltd, Publishers, Third edition, 1997. 2. Srilakshmi B.,Nutrition Science, New Age International (P) Ltd, Publishers, Fifth multi colour edition,2016.
Reference Books:
1. Sue Rodwell Williams, Nutrition and Diet Therapy, C.V. Melskey Co., 6 th edition, 2000.

Course Outcomes		
CO No.	**CO Statement**	**Cognitive Level (K-Level)**
CO1	classify how key nutrients affect health, disease, energy balance, and weight control.	K2
CO2	Chart the nutrient requirements during physical activity	K3
CO3	Compare the nutrient needs change during pregnancy and lactation	K4
CO4	Consider the RDA for the different age group people	K5
CO5	Evaluate the total energy requirement	K5

Relationship Matrix:

Course Outcomes (COs)	**Programme Outcomes (POs)**					**Programme Specific Outcomes (PSOs)**					**Mean Score of COs**
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PSO1**	**PSO2**	**PSO3**	**PSO4**	**PSO5**	
CO1	1	2	3	1	3	1	2	2	2	3	2.0
CO2	2	1	1	2	2	1	3	2	2	1	1.7
CO3	2	1	1	2	1	2	2	2	2	3	1.8
CO4	1	2	2	2	2	1	1	2	3	1	1.7
CO5	2	3	3	2	1	2	1	2	1	2	1.6
									Mean Overall Score		**1.76**
									Correlation		Medium

Course Coordinator: Ashma Banu. S

Semester	Course code	Course Category	Hours/ Week	Credits	Marks for Evaluation		
					CIA	ESE	Total
II	23BFP2G7	General	3	3	25	75	100
Course Title	BAKERY AND CONFECTIONERY - II						

Unit	Content	Hours
I	**Introduction to confectionery** Introduction - Scope of confectionery, confectionery terms, small and large equipment used in bakery and confectionery. Role of raw materials-wheat flour, sugar, fat, eggs. Essential ingredients, flour sugar, shortening, egg. Optional ingredients baking powder, milk, milk products, dry fruits, baking soda, *dairy products*.	9
II	**Unit II: Confectionery Ingredients** Moistening agents-milk, egg, water. Leavening agents-chemical, natural, *water vapour*.	9
III	**Cake making methods** Cake making methods-rubbing in method, melting method, creaming method, whisking method, all in one method. *Cake faults and their remedies*.	9
IV	**Icing** Icing- types of icing. Preparation of cookies and biscuits- principles of cookies and biscuits making, *various types of cookies and biscuits*	9
V	**Pastry** Pastry making-principles of pastry making, *various types of pastries*. **Costing-** components of cost, behaviour of cost (fixed cost, semi fixed cost, variable cost).	9
VI	*Healthy alternatives of cakes and pastry flour *	
*……..*self study		

Text Book(s):

Text Books:

1. Potter, N. Food Science, The AVI Publishing Co., Inc., West Port, Connecticut, 1975.
2. Bhuvaneswari.D and Kavitha.V, Easy to Bake, Dhivakar Publication, Musri, Trichy, 2017.

Reference Books:

1. Bakers Handbook on practical Baking. Wheat Associates, USA, New Delhi.
2. Dubey, SC, Basic Baking Science and Craft, Jwalmukhi Job Press, Bangalore, 1979.Modern. Pastry Chab, Vol.I and II, A VI Publishing Co., Inc., West Port, Connecticut, 1977.

Course Outcomes		
At the end of the course, students will be able to		
CO No.	**CO Statement**	**Cognitive Level (K-Level)**
CO1	Describe various terms confectionery and the roles	K1
CO2	Apply various methods and techniques of baking confectionery products	K2
CO3	Describe the various characteristics of cookies and biscuits	K3
CO4	Connect and differentiate various principles of pastry cakes and icing	K4
CO5	Estimating the methods costing a confectionery product	K5

Relationship Matrix:

Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)					Mean Score of COs
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	
CO1	2	3	3	3	2	3	3	3	3	2	2.7
CO2	3	2	3	3	3	3	3	3	2	3	2.8
CO3	1	2	2	2	3	1	2	2	2	3	2.0
CO4	1	2	2	2	3	3	2	2	2	3	2.2
CO5	1	1	3	2	3	1	2	3	2	3	2.5
Mean Overall Score											2.4
Correlation											Medium

Mean Overall Score	Correlation
< 1.5	Low
≥ 1.5 and < 2.5	Medium
≥ 2.5	High

Course Cordinator: Asiffa Jabeen.N

Semester	Course code	Course Category	Hours/ Week	Credits	Marks for Evaluation		
					CIA	ESE	Total
II	23BFP2S8P	Skill	9	6	20	80	100
Course Title	Principles of Nutrition - Practical						

Unit	Content	Hours
	1. Qualitative tests for Carbohydrates, Proteins and Minerals. Qualitative analysis for Carbohydrates in gives food samples. a) Monosaccharide – Glucose (commercial Glucose), Fructose (fruit juice) b) Disaccharide - Lactose (milk), Sucrose (table sugar) c) Polysaccharide - Starch (rice)	**36**
	2. Qualitative analysis for protein in given food samples a) Albumin (egg) b) Casein (milk)	**18**
	3. Qualitative analysis for minerals in given food samples. a) Calcium (ragi) b) Iron (red rice flakes) c) Phosphorus (ragi) d) Magnesium (agathi)	**27**
	4. Estimation of Moisture content in the given sample. (Hot air oven method)	**9**
	5. Preparation of ash samples for mineral analysis.	**9**
	6. Estimation of glucose in grape juice.	**9**
	7. Estimation of ascorbic acid in raw or cooked cabbage.	**9**
	8. Demonstration of Iron in drumstick leaves.	**9**
	9.Planning, nutritive value calculation and preparation of recipes based on macro and micronutrients rich food.	**9**

Course Outcomes		
CO No.	**CO Statement**	**Cognitive Level (K-Level)**
CO1	Classify the carbohydrates according to their chemical structure .	K2
CO2	Qualitative analysis of the macronutrients	K3
CO3	Compare the components of various nutrients present in foods	K4
CO4	Consider the qualitative analysis of micronutrients	K5
CO5	Evaluate the nutrients of various food samples presented	K5

Relationship Matrix:

Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)					Mean Score of COs
	PO1	**PO2**	**PO3**	**PO4**	**PO 5**	**PSO1**	**PSO2**	**PSO3**	**PSO4**	**PSO5**	
CO1	1	2	3	1	3	1	2	2	2	3	2.0
CO2	2	1	1	2	2	1	3	2	2	1	1.7
CO3	2	1	1	2	1	2	2	2	2	3	1.8
CO4	1	2	2	2	2	1	1	2	3	1	1.7
CO5	2	3	3	2	1	2	1	2	1	2	1.6
Mean Overall Score											**1.76**
Correlation											Medium

Course Coordinator: Nelofer.M

Semester	Course code	Course Category	Hours/ Week	Credits	Marks for Evaluation		
					CIA	ESE	Total
II	23BFP2S9P	SKILL	9	6	20	80	100
Course Title	BAKERY AND CONFECTIONERY - II - PRACTICAL						

SYLLABUS		
Unit	Contents	Hours
	1. Vanilla sponge cake 2. Fruit cake 3. Swiss roll 4. Black forest cake 5. Icing cake B. Preparation of Biscuits and cookies 1. Melting moments 2. Choco chip cookies, 3. Nan khatai 4. Salted biscuits 5. Butter cookies 6. Pastry-puff pastry, 7. Apple pie, 8. Choux pastry, 9. Filo pastry.	135

Reference Book(s):

Text Books:

1. Dubey, SC, Basic Baking Science and Craft, Jwalmukhi Job Press, Bangalore, 1979.
2. Bhuvaneswari.D and Kavitha.V, Easy to Bake, Dhivakar Publication, Musri, Trichy, 2017.

Course Outcomes		
At the end of the course, students will be able to		
CO No.	**CO Statement**	**Cognitive Level (K-Level)**
CO1	Classify various types of cake	K1
CO2	Apply various methods and techniques of baking of cakes	K2
CO3	Experiment the various characteristics of cookies biscuits and pastries	K3
CO4	Distinguish and prepare various confectionery products around the world	K4
CO5	Estimate the costs considering various aspects	K5

Relationship Matrix:

Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)					Mean Score of COs
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	
CO1	**2**	**3**	**3**	**3**	**2**	**3**	**3**	**3**	**3**	**2**	**2.7**
CO2	**3**	**2**	**3**	**2**	**2**	**3**	**3**	**1**	**2**	**3**	**2.3**
CO3	**2**	**3**	**2**	**3**	**3**	**2**	**3**	**2**	**3**	**2**	**2.5**
CO4	**1**	**2**	**3**	**2**	**3**	**1**	**3**	**2**	**2**	**3**	**2.4**
CO5	**1**	**2**	**3**	**2**	**3**	**2**	**2**	**3**	**2**	**3**	**2.3**
Mean Overall Score											**2.4**
Correlation											**Medium**

Mean Overall Score	Correlation
< 1.5	Low
≥ 1.5 and < 2.5	Medium
≥ 2.5	High

Course Coordinator: Asiffa Jabeen.N

Semester	Course code	Course Category	Hours/ Week	Credits	Marks for Evaluation		
					CIA	ESE	Total
II	23BFP2S10I	SKILL	-	6	20	80	100
Course Title	BAKERY AND CONFECTIONERY - II INTERNSHIP						

SYLLABUS		
Unit	Contents	Hours
	1. Know about the fundamentals of confectionary science 2. Acquire skill in operating different types of oven 3. Handle and prepare the cake, cookies and pastry products 4. Update in knowing the methods for preparing pastries 5. Analyze the sensory quality parameter in prepared confectionary products 6. Know the different Icing techniques and to prepare the birthday cake and wedding cake 7. Design the layout of bakery unit	180

Reference Book(s):

Text Books:

1. Dubey, SC, Basic Baking Science and Craft, Jwalmukhi Job Press, Bangalore, 1979.
2. Bhuvaneswari.D and Kavitha.V, Easy to Bake, Dhivakar Publication, Musri, Trichy, 2017.

Course Outcomes		
CO No.	CO Statement	Cognitive Level (K-Level)
CO1	Identify different dough making procedures	K1
CO2	Discuss the different types of oven	K2
CO3	Operate the major and minor baking equipment	K3
CO4	Analyze the sensory quality parameter in prepared bread	K4
CO5	Measure the raw materials	K5

Relationship Matrix:

Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)					Mean Score of COs
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	
CO1	1	2	0	1	1	2	1	1	2	3	1.4
CO2	2	1	1	2	2	1	3	2	1	1	1.6
CO3	2	0	1	2	0	2	1	1	2	3	1.4
CO4	1	2	2	2	2	1	1	2	2	1	1.6
CO5	2	3	3	2	1	2	1	2	3	2	1.8
										Mean Overall Score	1.56
										Correlation	Medium

Mean Overall Score	Correlation
< 1.5	Low
≥ 1.5 and < 2.5	Medium
≥ 2.5	High

Course Coordinator: A.Sangeetha

Semester	Course Code	Course Category	Hours/ Week	Credits	Marks for Evaluation		
					CIA	ESE	Total
II	23UCN2SS / 23BCN2SS	General	2	2	-	100	100
Course Title	Soft Skills Development						

SYLLABUS		
Unit	**Contents**	**Hours**
I	**Communication Skills:** Verbal and Non - Verbal communication - The active vocabulary - Conversational Etiquette - KOPPACT syndrome	6
II	**Emotional Skills:** Emotional Intelligence - The five steps to Emotional Quotient - Self Awareness and Regulation - Empathy - Social Intelligence - stress management - coping with failures	6
III	**Functional Skills:** Using the tools of communicatory and emotional skills - Resume writing - Preparation of Curriculum Vitae - interview skills - Acing the interview - Group dynamics - Mock interviews and Group discussions	6
IV	**Interpersonal Skills:** Synergising relationships - SWOT analysis - SOAR analysis - The social skills - Time Management - Decision making - problem solving - prioritising and Implementation	6
V	**Personality Skills:** Leadership skills - Attributes and Attitudes - Social leader Vs The Boss - critical and creative thinking	6

Hours of Teaching : 5 hours and Hours of Activity: 25 hours

Textbook(s):

1. Social intelligence: The new science of human relationships - Daniel Goleman; 2006.
2. Body Language in the workplace - Allan and Barbara Pease; 2011.
3. Student's Hand Book: Skill Genie - Higher education department, Government of Andhra Pradesh.

Web References:

1. https://nptel.ac.in/courses/109105110

EVALUATION CRITERIA

Work Book (Each unit carries 10 marks) - 50 Marks
Examination - 50 Marks

1. Teacher who handles the subject will award 50 marks for work book based on the performance of the student.
2. On the day of examination the examiners (Internal & External) will jointly award the marks for the following categories:

    - Self-Introduction - 20 Marks
    - Resume - 10 Marks
    - Mock Interview - 20 Marks

To assess the self-introduction, Examiners are advised to watch the video presentation submitted by the students. If they failed to submit the video presentation, the Examiners may direct the student to introduce himself orally and a maximum 10 marks only will be awarded.

Mock Interview Marks Distribution (**20-Marks**)

Attitude (self interest, confidence etc.) (4 Marks)	Physical appearance including dress code (4 Marks)	Communication Skills (6 Marks)	Answering questions asked from the resume and work book (6 Marks)

Course Coordinator: Dr. M. Syed Ali Padusha

Semester	Course Code	Course Category	Hours/ Week	Credits	Marks for Evaluation		
					CIA	ESE	Total
III	23BFP3G11	General	2	2	25	75	100

Course Title	Principles of Food Preservation

SYLLABUS		
Unit	**Contents**	**Hours**
I	**Principles of Food preservation** **6 Hours** Definition, Basic principle and methods of Food Preservation	**6**
II	**Preservation by using Preservatives** Inorganic and Organic preservatives, antibiotics and other developed chemical Preservatives	**6**
III	**Preservation by use of high temperature** Pasteurization: Definition, types, Sterilization, Canning - Process, spoilage encountered in cannedfood. Food irradiation – Principles, merits and demerits, effects of irradiation on nutrients	**6**
IV	**Preservation by use of Low Temperature** Refrigeration – Principles, advantages and disadvantages. *Freezing: Types of freezing and meritsand demerits*	**6**
V	**Preservation by Removal of Moisture** Drying and dehydration - merits and demerits, factors affecting, different types of drying,Concentration: principles and types of concentrated foods	**6**
VI	**Current Trends * (For CIA only) –** Pulse Electric Field in Food Preservation	

* For Theory Core Course, wherever possible

Text Book(s):

1. V.A .Vaclavik & E.W. Christian, Essentials of food Science, Springer publication, 2nd Edition, New Delhi-1,2003.
2. S.R. Mudambi, S.M Rao & M.V. Rajagopal, "Food Science", New Age International Pvt.Ltd. Publishers, New Delhi. 2007
3. B. Sivasankar, Food Processing & Preservation, Prentice hall of India Pvt.Ltd, NewDelhi. 2002

Reference Book(s):

1. Giridhari Lal, S..Siddappa, and G.L.Tandon, . "Preservation of fruits and Vegetables" ICAR,New Delhi, 1960.
2. Norman W. Desrosier, Technology of food preservation The AVI Publishing Company, Inc., P. O. Box 388, Westport, Connecticut. rev. ed. 1963

Course Outcomes		
Upon successful completion of this course, the student will be able to:		
CO No.	**CO Statement**	**Cognitive Level (K-Level)**
CO1	Relate the market trends and consumer preferences related to processed fruits and vegetables, helping in decision-making for product development.	**K2**
CO2	Classify the composition and nutritional value of various fruits and vegetables	**K2**
CO3	Identify recent advances in processing technology and applications in fruits and vegetables	**K3**
CO4	Distinguish between processed foods from fruits and vegetables	**K4**
CO5	Assess sustainable practices in processing, waste reduction, and environmental impact.	**K5**

Relationship Matrix:

Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)					Mean Score of COs
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	
CO1	**3**	**3**	**2**	**2**	**1**	**2**	**3**	**2**	**3**	**2**	**2.3**
CO2	**2**	**3**	**2**	**3**	**2**	**2**	**1**	**2**	**2**	**3**	**2.2**
CO3	**2**	**1**	**3**	**2**	**3**	**2**	**1**	**2**	**2**	**2**	**2.0**
CO4	**3**	**3**	**2**	**3**	**2**	**3**	**2**	**1**	**2**	**3**	**2.4**
CO5	**2**	**2**	**2**	**1**	**2**	**2**	**1**	**2**	**3**	**2**	**1.9**
Mean Overall Score											**2.1**
Correlation											**Medium**

Mean Overall Score	Correlation
< 1.5	Low
≥ 1.5 and < 2.5	Medium
≥ 2.5	High

Course Coordinator
N. Asiffa Jabeen

Semester	Course Code	Course Category	Hours/ Week	Credits	Marks for Evaluation		
					CIA	ESE	Total
III	23BFP3G12	General	4	4	25	75	100

Course Title	Food Processing – I

SYLLABUS		
Unit	**Contents**	**Hours**
I	**Introduction to Food Grains 12 Hours** Food grains- Introduction, Production trends, structure and chemical composition of cereals, pulses and oilseeds. Supply chain of food grains, physicochemical properties of food grains.	**12**
II	**Processing of Wheat 12 Hours** Wheat-Wheat classification, *Structure of wheat grain * Wheat milling- basic concepts, products and by-products. Flour grades and their suitability for baking purposes. Storage and handling techniques of wheat and its by-products	**12**
III	**Processing of Rice and Corn 12 Hours** Rice- Rice milling- traditional and modern methods of milling, parboiling techniques. Corn milling- Dry and wet milling of corn, corn starch and its conversion products. Storage and handling techniquesof rice, corn and its by-products.	**12**
IV	**Processing of pulses 12 Hours** Pulses Processing-Pre-treatment of pulses for milling, Methods of milling of pulses, Factors affecting milling of pulses, Pulse based processed products. Storage and handling techniques of pulses.	**12**
V	**Processing of oilseeds 12 Hours** Oilseeds Processing for Oil Extraction: Preparation of oilseeds, Mechanical and Solvent extraction methods of oil extraction, Oil refining, hydrogenation, Utilization of deoiled cake.	**12**
VI	**Current Trends * (For CIA only) –** Cereal starch Production for food applications	

* For Theory Core Course, wherever possible

Text Book(s):

Chakraverty, A. (1995), "Post Harvest Technology of Cereals, Pulses and Oilseeds".Oxford and IBH Publishing Co, Calcutta

Reference Book(s):

1. Corn: Chemistry and Technology by Watson SA & Ramstad PE., AACC
2. Unit Operations of Agricultural Processing by K.M. Singh and K.K. Sahay
3. Manuals on Rice and its processing by CFTRI Mysore and IIT Kharagpur.
4. Cereal Technology by Potter NN. AVI Publication.
5. Bakery Science & Cereal Technology by Neelam Khatarpaul, Rajbala Grewal & Sudesh Jood (Dayapublishing house).
6. Post harvest technology of Cereals, Pulses and Oilseeds by Chakravarti A. Oxford Publishing
7. Bakery Technology and Engineering by Matz SA.CBS Publication

Course Outcomes		
Upon successful completion of this course, the student will be able to:		
CO No.	**CO Statement**	**Cognitive Level (K-Level)**
CO1	Recall the chemical composition of food, including the role of proteins, carbohydrates, fats, vitamins, and minerals in food processing	**K2**
CO2	Outlining the various food processing methods for processing of wheat , rice, corn , pulses and oilseeds	**K2**
CO3	Apply the science and technology behind processing of various food products	**K3**
CO4	Categorise on various methods involved in processing industries	**K4**
CO5	Prioritize the processing of oil seeds	**K5**

Relationship Matrix:

Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)					Mean Score of COs
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	
CO1	**3**	**2**	**2**	**2**	**2**	**1**	**3**	**3**	**2**	**1**	**2.1**
CO2	**2**	**2**	**2**	**2**	**1**	**2**	**1**	**2**	**1**	**2**	**1.7**
CO3	**2**	**1**	**3**	**3**	**2**	**3**	**3**	**2**	**1**	**1**	**2.1**
CO4	**2**	**2**	**2**	**2**	**1**	**2**	**2**	**1**	**1**	**2**	**1.7**
CO5	**1**	**2**	**1**	**2**	**2**	**1**	**2**	**2**	**2**	**3**	**1.8**
Mean Overall Score											**1.8**
Correlation											**Medium**

Mean Overall Score	Correlation
< 1.5	Low
≥ 1.5 and < 2.5	Medium
≥ 2.5	High

Course Coordinator
N. Asiffa Jabeen

Semester	Course Code	Course Category	Hours/ Week	Credits	Marks for Evaluation		
					CIA	ESE	Total
III	23BFP3G13	General	2	2	25	75	100

Course Title	Food Chemistry

SYLLABUS		
Unit	**Contents**	**Hours**
I	**Properties of food** **6 Hours** Properties of Foods: Physico-Chemical properties of foods – Organic food components, colloids,osmotic pressure, food dispersions (sols, gels, emulsion, foam), Hydrogen ion concentration	**6**
II	**Food Adulteration** **6 Hours** Adulteration- Definition, common food adulterants, contamination with toxic metals, pesticides and insecticides, effect of food adulteration and contamination, measure to control food adulteration	**6**
III	**Food Toxins and Food Additives** **6 Hours** Food Toxins: Mycotoxins - aflatoxins, aspergillus and pencillium species, mushroom poisoning,and sea food toxins. Other toxins naturally occurring in foods: – Lathyrogens, haemagglutinins,goitrogens, favism, cyanogenic glycoside, saponins, and tannins. Food additives: Food colors,flavours, antioxidants, emulsifiers and stabilizers.	**6**
IV	**Heat transfer operation in foods** Heat transfer operation in foods – conduction, convection, radiation, gelatinization, retro gradation,dextrinisation of starches, enzymatic and non enzymatic browning reaction in foods, rancidity –types and prevention. Heat transfer operation in foods – conduction, convection, radiation, gelatinization, retro gradation,dextrinisation of starches, enzymatic and non enzymatic browning reaction in foods, rancidity –types and prevention.	**6**
V	**Water6 Hours** Water – forms and types of water, hydrogen bonding in water, water and ice properties, functions of water in food, intermediate moisture foods, water activity – definition, measurement and controlof water activity, estimation of moisture in foods.	**6**
VI	**Current Trends * (For CIA only) –** Functional foods and nutraceuticals	

* For Theory Core Course, wherever possible

Text Book(s):

1.Lillian Hoagland Meyer , "Food chemistry", CBS publishers & distributors Pvt,Ltd. 2004
2.B.Srilakshmi, "Food Science", New age international (P) limited, publishers. 2015
3.Ion C. Baianu, "Physical Chemical of food process", Vol 1 fundamental aspects, CBS publishers & distributors Pvt, Ltd. 2004
4.H.K.Chopra, P.S.Panesar ," Food chemistry", Narosa Publishing House . 2010
5.Alex V Ramani ,"Food chemistry", mjp publishers.,Trichirappalli 2009

Reference Book(s):

1. Shakuntala Manay, Shadaksharaswamy. M (2000) Foods, Facts and Principles, New Age International Pvt Ltd Publishers, 2nd Edition
2. Chandrasekhar, U. Food Science and applications in Indian Cookery (2002) Phoenix PublishingHouse, New Delhi
3. Swaminathan, M. Food Science, (2005) Chemistry and Experimental Foods, Bappco Publishers,Bangalore.

Course Outcomes

Upon successful completion of this course, the student will be able to:

CO No.	CO Statement	Cognitive Level (K-Level)
CO1	Demonstrate a sound knowledge of the chemical properties of food components (water, carbohydrates, proteins, lipids, vitamins, minerals, flavours, pigments and additives).	**K2**
CO2	Apply the properties and structures of chemical components and ingredients to the functional and chemical properties of foods.	**K2**
CO3	Distinguish details of the physical and chemical interactions between food components and their impact on quality.	**K4**
CO4	Examine how to undertake basic analysis of major and trace food components.	**K4**
CO5	Evaluate and interpret food analysis data and communicate this in a scientific manner.	**K5**

Relationship Matrix:

Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)					Mean Score of COs
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	
CO1	2	1	2	2	2	1	3	3	2	2	2.0
CO2	2	2	2	2	3	2	2	1	2	3	2.1
CO3	1	2	1	2	3	3	2	2	1	2	1.9
CO4	2	2	2	1	1	2	1	2	2	3	1.8
CO5	1	3	2	2	1	3	3	2	2	2	2.1
Mean Overall Score											1.9
Correlation											Medium

Mean Overall Score	Correlation
< 1.5	Low
≥ 1.5 and < 2.5	Medium
≥ 2.5	High

Course Coordinator
N. Asiffa Jabeen

Semester	Course Code	Course Category	Hours/ Week	Credits	Marks for Evaluation		
					CIA	ESE	Total
III	23BFP3G14	General	2	2	25	75	100

Course Title	Food Microbiology

SYLLABUS		
Unit	**Contents**	**Hours**
I	**Introduction to food microbiology** Discovery, current status, role of food microbiology, sources of micro organisms in food, changes caused by microorganisms - food fermentation, putrefaction, lipolysis. Bacterial growth curve, methods to control microorganisms **6 Hours**Discovery, current status, role of food microbiology, sources of micro organisms in food, changes caused by microorganisms - food fermentation, putrefaction, lipolysis. Bacterial growth curve, methods to control	**6**
II	**Characteristics of microorganisms** **6 Hours** Classification of microorganisms, morphology – yeast and moulds, **bacterial cells, viruses. microbial growth characteristics – Microbial reproduction, nature of growth in food.** Classification of microorganisms, morphology – yeast and moulds, bacterial cells, viruses. microbial growth characteristics – Microbial reproduction, nature of growth in food.	**6**
III	**Spoilage in non perishable foods** **6 Hour** Food spoilage – Introduction, spoilage in cereals, pulses, nuts and oil seeds, fats and oil seeds.	**6**
IV	**Spoilage in perishable foods** Food spoilage – Introduction, spoilage in vegetables and fruits, meat, eggs, poultry, fish, milk andmilk products, canned foods, nuts and oil seeds, fats and oil seeds.	**6**
V	**Beneficial uses of microorganisms** Microorganisms used in food fermentation, prebiotics and probiotics, food bio preservatives of bacterial origin, food ingredients and enzymes of microbial origin. Economic importance ofmicroorganisms.	**6**
VI	**Current Trends * (For CIA only) –**	

* For Theory Core Course, wherever possible

Text Book(s):
1. Adams ,Martin R, Maurice O Moss, Peter McClure (2015), "Food Microbiology", RoyalSociety of Chemistry, Cambridge.
Reference Book(s):
1. Ray , Bibek; Arun Bhunia,(2013), "Fundamental Food Microbiology", CRC Press. **2.** Jay, James M.(2012), "Modern Food Microbiology", Springer Science & Business Media., Maryland

Course Outcomes		
Upon successful completion of this course, the student will be able to:		
CO No.	**CO Statement**	**Cognitive Level (K-Level)**
CO1	Apply the principles of food microbiology to evaluate food related cases in daily application	**K2**
CO2	Identify and classify types of microorganisms in food processing and compare their characteristics and behaviour.	**K2**
CO3	Determine food classification based on their perishability and level risk to public health considering their acidity and water activity	**K4**
CO4	Describe microbial growth kinetic and measurement	**K4**
CO5	summarize intrinsic and extrinsic factors affecting the growth of microbes in foods	**K5**

Relationship Matrix:

Course Outcomes (COs)	**Programme Outcomes (POs)**					**Programme Specific Outcomes (PSOs)**					**Mean Score of COs**
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PSO1**	**PSO2**	**PSO3**	**PSO4**	**PSO5**	
CO1	**2**	**3**	**1**	**2**	**2**	**1**	**1**	**2**	**1**	**2**	**1.7**
CO2	**1**	**2**	**2**	**1**	**1**	**2**	**3**	**2**	**2**	**1**	**1.7**
CO3	**3**	**3**	**1**	**2**	**2**	**1**	**1**	**1**	**2**	**1**	**1.7**
CO4	**1**	**1**	**2**	**1**	**1**	**2**	**1**	**2**	**2**	**2**	**1.5**
CO5	**2**	**1**	**1**	**2**	**2**	**1**	**2**	**1**	**1**	**1**	**1.4**
Mean Overall Score											**1.6**
Correlation											**Medium**

Mean Overall Score	**Correlation**
< 1.5	Low
≥ 1.5 and < 2.5	Medium
≥ 2.5	High

Course Coordinator: N. Asiffa Jabeen

Semester	Course Code	Course Category	Hours/ Week	Credits	Marks for Evaluation		
					CIA	ESE	Total
III	23BFP3G15P	Skill	9	6	20	80	100

Course Title	Food Processing – I - Practical

Exercise	Content for practical	Hours
I	**Food Microbiology** 1. Preparation of malt 2. Determination of gluten content in wheat flour 3. To study the cooking quality of rice using water up takes method. 4. To study the methods of extraction of oil from oilseeds 5. Determination of under milled grains from polished rice 6. Preparation of quick cooked rice 7. Determination of specific gravity of grains 8. Parboiling of rice **9.** Visit to working rice, pulse and oil mill	**90**

* For Theory Core Course, wherever possible

Practical manual

1. S.Ranganna, Hand Book of Analysis and Quality Control for Fruit and Vegetable Products,Tata McGraw-Hill Publishing Company Limited, New Delhi (2004).
2. S.Sadasivam, A. Manickam, biochemical methods, New Age International Publisher, NewDelhi (2004).

Course Outcomes		
Upon successful completion of this course, the student will be able to:		
CO No.	**CO Statement**	**Cognitive Level (K-Level)**
CO1	Relate the principles of food processing including proper handling, storage, and sanitation in processing industries	**K2**
CO2	Demonstrate the various methods involved in oil extraction	**K2**
CO3	Experiment with quick cooked rice , parboiling of rice	**K3**
CO4	Examine with the cooking quality and milling of rice	**K4**
CO5	Compare the gluten content in various proportions of flours	**K5**

Relationship Matrix:

Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)					Mean Score of COs
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PSO1**	**PSO2**	**PSO3**	**PSO4**	**PSO5**	
CO1	**2**	**3**	**1**	**1**	**2**	**1**	**2**	**2**	**1**	**1**	**1.6**
CO2	**2**	**1**	**1**	**2**	**1**	**2**	**1**	**2**	**2**	**3**	**1.7**
CO3	**1**	**3**	**1**	**2**	**2**	**2**	**3**	**1**	**2**	**1**	**1.8**
CO4	**3**	**2**	**1**	**1**	**-**	**2**	**1**	**1**	**1**	**2**	**1.4**
CO5	**1**	**2**	**2**	**3**	**1**	**3**	**1**	**2**	**2**	**1**	**1.8**
Mean Overall Score											**1.66**
Correlation											**Medium**

Mean Overall Score	Correlation
< 1.5	Low
≥ 1.5 and < 2.5	Medium
≥ 2.5	High

Course Coordinator: S. Ashma Banu

Semester	Course Code	Course Category	Hours/ Week	Credits	Marks for Evaluation		
					CIA	ESE	Total
III	23BFP3G16P	Skill	9	6	20	80	100
Course Title	**Food Chemistry and Food Microbiology – Practicals**						

Exercise	Content for practical	Hours
1.	**Food Chemistry Practical** 1. Determination of Acidity & pH 2. Determination of Chloride 3. Fat Analysis: Continuous solvent extraction method 4. Instrumental methods: Refractive index, melting point, Cold Test, Cloud point, Smoke point,Flash and Fire point, 5. Estimation of Iodine Value, 6. Estimation of Saponification Value 7. Estimation of Acid Value, 8. Estimation of Peroxide Value	**45**
2.	**Food Microbiology Practical** 1. Study of compound microscope 2. Working and handling of common microbiological laboratory equipments and Materials 3. Sterilization techniques: Dry heat and moist heat 4. Preparation of microscopic examination 5. Preparation of pure culture: streak plate, pour plate, spread plate 6. Staining techniques – simple staining, gram staining 7. Differential staining 8. Microscopic examination of living organisms- hanging drop mount method for theDemonstration of bacterial motility 9. Negative staining of bacteria	**45**

Practical manual

1.Chris bell,*et al*, Food microbiology and laboratory practice, Black well publishing professionals,2121 state avenue, ames, Iowa, UK. .,2006,

2.Bisen P.S, et al., Hand book of Microbiology, CBS publishers and distributors Private limited, New Delhi, .,2006,

3. S.Sadasivam, A. Manickam, Biochemical methods, New Age International Publisher, New Delhi, 2004.

Course Outcomes		
Upon successful completion of this course, the student will be able to:		
CO No.	**CO Statement**	**Cognitive Level (K-Level)**
CO1	Demonstrate the FFA content in given oil sample.	**K2**
CO2	Identify the pH and Acidity of given sample	**K3**
CO3	Analyse the fat content of the sample by solvent extraction method	**K4**
CO4	Examine the principle and importance of different staining methods used for bacteria.	**K4**
CO5		**K5**

Relationship Matrix:

Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)					Mean Score of COs
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PSO1**	**PSO2**	**PSO3**	**PSO4**	**PSO5**	
CO1	**3**	**1**	**1**	**2**	**2**	**1**	**3**	**2**	**1**	**1**	**1.7**
CO2	**2**	**2**	**1**	**1**	**1**	**2**	**2**	**1**	**2**	**2**	**1.6**
CO3	**2**	**2**	**1**	**3**	**1**	**3**	**2**	**1**	**3**	**1**	**1.9**
CO4	**1**	**1**	**2**	**1**	**2**	**1**	**1**	**-**	**1**	**2**	**1.2**
CO5	**2**	**3**	**1**	**1**	**2**	**1**	**1**	**2**	**1**	**2**	**1.6**
Mean Overall Score											**1.6**
Correlation											**Medium**

Mean Overall Score	Correlation
< 1.5	Low
≥ 1.5 and < 2.5	Medium
≥ 2.5	High

Course Coordinator: Dr. A. Sangeetha

Semester	Course Code	Course Category	Hours/ Week	Credits	Marks for Evaluation		
					CIA	ESE	Total
III	23BFP3S17I	Skill	-	6	20	80	100

Course Title	Food Processing - I Internship

SYLLABUS	
Content for Internship	**Hours**
1. Examine the processing of different food ingredients. 2. Explore extrusion processing and its working principles 3. Learn and understand whole grain cereals and legumes processing. 4. Handling the different food related equipment in operation210 5. Make different Cereals & pulses products with quality assurance.	**180**

Course Outcomes		
Upon successful completion of this course, the student will be able to:		
CO No.	**CO Statement**	**Cognitive Level (K-Level)**
CO1	Relate the processing of different food ingredients.	**K1**
CO2	Infer the extrusion process and its working principles.	**K2**
CO3	Experiment with whole grain and legume processing.	**K3**
CO4	Compare the different processing related equipment in operator.	**K4**
CO5	Make one of different cereals and pulse products with quality assurance.	**K5**

Relationship Matrix:

Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)					Mean Score of Cos
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	
CO1	3	1	1	2	2	1	3	2	1	1	1.7
CO2	2	2	1	1	1	2	2	1	2	2	1.6
CO3	2	2	1	3	1	3	2	1	3	1	1.9
CO4	1	1	2	1	2	1	1	1	1	2	1.3
CO5	2	3	1	1	2	1	1	2	1	2	1.6
Mean Overall Score											1.7
Correlation											Medium

Mean Overall Score	Correlation
< 1.5	Low
≥ 1.5 and < 2.5	Medium
≥ 2.5	High

Course Coordinator: Dr. A. Sangeetha

Semester	Course Code	Course Category	Hours / Week	Credits	Marks for Evaluation		
					CIA	ESE	Total
III	23BCN3AE2	AECC - II	2	2	-	100	100
Course Title	**Environmental Studies**						

Unit	Contents	Hours
I	The multidisciplinary nature of environmental studies Definition, scope, importance, awareness and its consequences on the planet.	6
II	**Ecosystems:** Definition, structure and function of ecosystem; Energy flow in an ecosystem: food chain, food web and ecological succession. Case studies of the following ecosystems: a) Forest ecosystem b) Grassland ecosystem c) Desert ecosystem d) Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries)	6
III	**Natural Resources:** Renewable and Non-renewable Resources: Land Resources and land use change; Land degradation, soil erosion and desertification. Deforestation: Causes and impacts due to mining, dam building on environment, forests, biodiversity and tribal populations. Water: Use and over-exploitation of surface and ground water, floods, droughts, conflicts over water (international & inter-state). Heating of earth and circulation of air; air mass formation and precipitation. Energy resources: Renewable and non-renewable energy sources, use of alternate energy sources, growing energy needs, case studies. renewable energy resources significance of wind, solar, hydal, tidal, waves, ocean thermal energy and geothermal energy.	6
IV	**Biodiversity and Conservation:** Levels of biological diversity: genetic, species and ecosystem diversity; Biogeography zones of India; Biodiversity patterns biodiversity hot spots. mega-biodiversity nation; Endangered and endemic species of India. Threats to biodiversity: habitat loss, poaching of wildlife, man-wildlife conflicts, biological invasions; Conservation of biodiversity: *In situ* and *Ex situ* conservation of biodiversity. Ecosystem and biodiversity services: Ecological, economic, social, ethical, aesthetic and Informational value.	6
V	**Environmental Pollution & Conservation:** Environmental pollution: types, causes, effects and controls; Air, water, soil, chemical and noise pollution Waste to wealth - Energy from waste, value added products from waste, fly ash utilization and disposal of garbage, solid waste management in urban and rural areas, Swachh Bharat Abhiyan, recent advances in solid waste management, modern techniques in rain water harvesting and utilization.	6

Text books:

1. Asthana DK and Meera A, Environmental studies, 2nd Edition, Chand and Company Pvt Ltd, New Delhi, India, 2012.
2. Arumugam N and Kumaresan V, Environmental studies, 4th Edition, Saras Publication, Nagercoil, Tamil Nadu, India, 2014.

Activity – I:

1. Assignments – Titles on Environmental awareness to be identified by teachers from the following (scripts not less than 20 pages)
2. Elocution – (Speech on "Environment beauty is the fundamental duty" of citizen of the country for 3 to 5 minutes)
3. Environment issues – TV, Newspaper, Radio and Medias messages – Discussion ϖ Case Studies/Field Visit/Highlighting Day today environmental issues seen or heard
4. Debating/Report Submission – Regarding environment issues in the study period Activity II
5. Environmental awareness through charts, displays, models and video documentation.

Celebrating Nationally Important Environmental Days National Science Day – 28th February World wild life Day – 3rd March International forest Day – 21st March World Water Day – 22nd March World Meteorological Day – 23rd March World Health Day – 7th April World Heritage Day – 18th April Earth / Planet Day – 22nd April Plants Day – 26th May Environment Day – 5th June Activity III Discipline specific activities
EVALUATION COMPONENT: Component I: (25 Marks) Document (or) Poster presentation or Elocution Component II: (25 Marks) Album making (or) case study on a topic (or) field visit Component III: (25 Marks) Essay writing (or) Assignment submission Component IV: (25 Marks) Quiz (or) multiple choice question test

Course Outcomes		
Course Outcomes: Upon successful completion of this course, the student will be able to:		
CO No.	**CO Statement**	**Cognitive Level (K-level)**
CO1	To understand the multi-disciplinary nature of environmental studies and its importance	K1
CO2	To obtain knowledge on different types of ecosystem	K2
CO3	To acquire knowledge on Renewable and non-renewable resources, energy conservation	K3
CO4	To understand biodiversity conservation	K4
CO5	To analysis impact of pollution and conversion waste to products	K5

Relationship Matrix:

Course Outcomes (COs)	**Programme Outcomes (POs)**					**Programme Specific Outcomes (PSOs)**					**Mean Score of COs**
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PSO1**	**PSO2**	**PSO3**	**PSO4**	**PSO5**	
CO1	02	02	02	02	02	03	03	03	03	03	2.5
CO2	02	03	03	02	03	03	03	03	03	03	2.8
CO3	02	03	03	03	03	03	03	03	03	03	2.9
CO4	02	02	03	03	03	03	03	03	03	03	2.8
CO5	02	03	03	03	03	03	03	02	03	03	2.8
									Mean Overall Score		2.7
									Correlation		High

Mean Overall Score	**Correlation**
< 1.5	Low
≥ 1.5 and < 2.5	Medium
≥ 2.5	High

Course Coordinator: Dr. B. Balaguru

Semester	Course Code	Course Category	Hours/ Week	Credits	Marks for Evaluation		
					CIA	ESE	Total
IV	23BFP4G18	General	4	4	25	75	100

Course Title	Food Processing – II

SYLLABUS		
Unit	**Contents**	**Hours**
I	**Current trends in fruits and vegetable processing 6 Hours** Current status of production and processing of fruits and vegetables- Structural, compositional and nutritional aspects. Quality requirements of raw materials for processing- preparation of raw material, primary processing-grading, sorting, cleaning, washing, peeling, slicing and blanching.	**12**
II	**Fruits and Vegetable of processing** Vegetables: Composition, nutritive value and functional properties. Freezing of vegetables - potato, cauliflower, carrot. Fruits: Composition, nutritive value and functional properties. Pre- processing of tomatoes –field processing, washing in lye, peeling, freeze peeling, peeling in calcium chloride solution. Preservation of fruits and vegetables - Canning, Freezing, Dehydration of Fruits and Vegetables in cabinet drier.	**12**
III	**Fruits and Vegetable processing** Recent advances in juice processing technology, application of membrane technology in processing of juices. Technology of Products: juices & pulps, concentrates & powders, squashes & cordials, nectars, fruit drinks & beverages carbonated and its quality control. Fermented products- Cider, wine, brandy	**12**
IV	**Dehydration of fruits and vegetable** Manufacturing process of juice, soup, puree, and paste. Jams, Jellies and marmalades: selection, preparation, production. Difference between jam and jelly. Theory of jell formation, failure and remedies in jam and jelly making. General principles and manufacturing processes of preserves, candied fruits, glazed fruits, crystallized fruits.	**12**
V	**Spices and condiments** Spices: Types, production, pre-harvest and post-harvest problems in processing, properties, drying, storage, health benefits; flavouring components- spice powder and paste- their processing, quality, storage. Spice based food additives; volatiles, essential oils and oleoresins-their characteristics, extraction procedure and utilization.	**12**
VI	**Current Trends * (For CIA only) –** Ohmic heating	

Text Book(s):

1. Lal, G., Siddappa, G.S. and Tandon, G.L. 1998. Preservation of Fruits and Vegetables. ICAR.
2.Salunkhe, D.K. and Kadam, S.S.1995. Handbook of Fruit Science &Technology: Production, Composition and Processing. Marcel Dekker.
3.Srivastava, R.P. and Kumar, S. 2003. Fruit and Vegetable Preservation - Principles and Practices. International Book Distributors.

Reference Book(s):

1. Verma, L.R. and Joshi, V.K. 2000. Post Harvest Technology of Fruits and Vegetables. Indus Publ.
2. Desrosier, N.W. and James, N. 2004. The Technology of Food Preservation. 4th Ed. CBS. Minor Spices and Condiments: Crop Management and Post Harvest Technology. J.S.Purthi, ICAR publication, 1st Edition, 2001.
3. Major Spices of India: Crop Management and Post Harvest Technology. J.S.Purthi, ICAR publication, 1st Edition, 2003.

Course Outcomes

Upon successful completion of this course, the student will be able to:

CO No.	CO Statement	Cognitive Level (K-Level)
CO1	Relate the market trends and consumer preferences related to processed fruits and vegetables, helping in decision-making for product development.	**K2**
CO2	Classify the composition and nutritional value of various fruits and vegetables	**K2**
CO3	Identify recent advances in processing technology and applications in fruits and vegetables	**K3**
CO4	Distinguish between processed foods from fruits and vegetables	**K4**
CO5	Assess sustainable practices in processing, waste reduction, and environmental impact.	**K5**

Relationship Matrix:

Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)					Mean Score of COs
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	
CO1	**3**	**3**	**2**	**2**	**1**	**2**	**3**	**2**	**3**	**2**	**2.3**
CO2	**2**	**3**	**2**	**3**	**2**	**2**	**1**	**2**	**2**	**3**	**2.2**
CO3	**2**	**1**	**3**	**2**	**3**	**2**	**1**	**2**	**2**	**2**	**2.0**
CO4	**3**	**3**	**2**	**3**	**2**	**3**	**2**	**1**	**2**	**3**	**2.4**
CO5	**2**	**2**	**2**	**1**	**2**	**2**	**1**	**2**	**3**	**2**	**1.9**
Mean Overall Score											**2.1**
Correlation											**Medium**

Mean Overall Score	Correlation
< 1.5	Low
≥ 1.5 and < 2.5	Medium
≥ 2.5	High

Course Coordinator: N. Asiffa Jabeen

Semester	Course Code	Course Category	Hours/ Week	Credits	Marks for Evaluation		
					CIA	ESE	Total
IV	23BFP4G19	General	3	3	25	75	100

Course Title	General Biochemistry

SYLLABUS		
Unit	**Contents**	**Hours**
I	**Carbohydrates** **6 Hours** Classification, function, digestion, absorption and deficiency (conditions only)	**9**
II	**Protein and amino acids** Classification, function, digestion, absorption, deficiency (conditions only). Amino acids: Classification , functions of amino acid, essential and non essential Aminoacids.	**9**
III	**Lipids** Classification, function, digestion, absorption, and deficiency (conditions only)**.**Essential fattyacid-functions and deficiency.	**9**
IV	**Enzymes** Classification and functions of enzymes, Mechanism of enzyme action, Factors affectingenzyme activity.	**9**
V	**Vitamins and Minerals** **Vitamins:** Biological functions and deficiency of fat and water soluble vitamins, vitamin interactionwith nutrients. Minerals: Biological functions of minerals, Minerals interaction with other nutrients.	**9**
VI	**Current Trends * (For CIA only) –** Enzyme immobilization	

Text Book(s):

1.Ambika Shanmugam, Fundamentals of Biochemistry for Medical Students, Seventh Edition, New Age Publishing Pvt.Ltd., New Delhi (1986).

Reference Book(s):

1. A.C. Deb, Fundamentals of Bio chemistry, Fifth Edition , New Central Book Agency(P)td.,(1992).
2. U. Sathyanarayana and U. Chakrapani, Textbook of Biochemistry, Third Edition, Books andAllied (P) Ltd, Kolkata (2010).

Course Outcomes		
Upon successful completion of this course, the student will be able to:		
CO No.	**CO Statement**	**Cognitive Level (K-Level)**
CO1	Understanding of chemical reactions and strategies to balance them.	**K1**
CO2	Relate the functions of protein and amino acids.	**K2**
CO3	Construct the digestion and absorption of lipids.	**K3**
CO4	Classify the enzymes and its mechanism of action.	**K4**
CO5	Defend biological functions of vitamins and minerals.	**K5**

Relationship Matrix:

Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)					Mean Score of COs
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	
CO1	**3**	**3**	**2**	**2**	**1**	**2**	**3**	**2**	**3**	**2**	**2.3**
CO2	**2**	**3**	**2**	**3**	**2**	**2**	**1**	**2**	**2**	**3**	**2.2**
CO3	**2**	**1**	**3**	**2**	**3**	**2**	**1**	**2**	**2**	**2**	**2.0**
CO4	**3**	**3**	**2**	**3**	**2**	**3**	**2**	**1**	**2**	**3**	**2.4**
CO5	**2**	**2**	**2**	**1**	**2**	**2**	**1**	**2**	**3**	**2**	**1.9**
Mean Overall Score											**2.1**
Correlation											**Medium**

Mean Overall Score	Correlation
< 1.5	Low
≥ 1.5 and < 2.5	Medium
≥ 2.5	High

Course Coordinator
N. Asiffa Jabeen

Semester	Course Code	Course Category	Hours/ Week	Credits	Marks for Evaluation		
					CIA	ESE	Total
IV	23BFP4G20	General	3	3	25	75	100

Course Title	Food Service Management

SYLLABUS		
Unit	**Contents**	**Hours**
I	**Introduction to Food Service Establishments** **6 Hours** Types of food service establishments. Planning for a food service unit- Planning, investment, Project report, Registration (License and Inspection).	**9**
II	**Menu Planning and table setting** Menu Planning- importance, types, steps in planning. Requisites in designing a menu card, Methods of purchase, delivery, receiving, storage types. Table Setting and Arrangement - Indian and Western Styles of Table Setting, Table Appointments, Napkin folding styles, Flower arrangement, Table Etiquettes.	**9**
III	**Food production and service** Food production- Standardization of recipes, portion control and left over foods. Food service system- Centralized and decentralized delivery systems, types of food service systems conventional, commissary, ready prepared, assembly, service styles - table, counter, tray, silver, plate, cafeteria, buffet. Specialized forms of food service - hospitals, airline, rail, homedelivery, catering and banquet, room and lounge service.	**9**
IV	**Food Service Management** Managing an organization, Process involved, Principles of management, Functions of management- planning, organizing, directing, co-ordinating, evaluating, and controlling. Total quality management, Management by objectives. Work design, job design, work study and simplification.	**9**
V	**Accounting** Book keeping, books of accounts, Journal, Ledger, trial balance, balance sheet. Profit analysis, food cost control.	**9**
VI	**Current Trends * (For CIA only) –** Technology such as automation, AI and Machine Learning in production efficiency and output.	

Text Book(s):

Malhotra, R. K.(2002), "Food Service and catering Management" ,Anmol Publication Pvt Ltd.

Reference Book(s):

1. Arora, (2007), "Food Service And Catering Management" APH Publishing. Wentz Bill, (2007), "Food Service Management", Atlantic Publishing Company.
2. Malhotra, R. K.(2002), "Food Service and catering Management" ,Anmol Publication Pvt Ltd.

Course Outcomes		
Upon successful completion of this course, the student will be able to:		
CO No.	**CO Statement**	**Cognitive Level (K-Level)**
CO1	Relate the market trends and consumer preferences related to processed fruits and vegetables, helping in decision-making for product development.	**K2**
CO2	Classify the composition and nutritional value of various fruits and vegetables	**K2**
CO3	Identify recent advances in processing technology and applications in fruits and vegetables	**K3**
CO4	Distinguish between processed foods from fruits and vegetables	**K4**
CO5	Assess sustainable practices in processing, waste reduction, and environmental impact.	**K5**

Relationship Matrix:

Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)					Mean Score of COs
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	
CO1	**3**	**3**	**2**	**2**	**1**	**2**	**3**	**2**	**3**	**2**	**2.3**
CO2	**2**	**3**	**2**	**3**	**2**	**2**	**1**	**2**	**2**	**3**	**2.2**
CO3	**2**	**1**	**3**	**2**	**3**	**2**	**1**	**2**	**2**	**2**	**2.0**
CO4	**3**	**3**	**2**	**3**	**2**	**3**	**2**	**1**	**2**	**3**	**2.4**
CO5	**2**	**2**	**2**	**1**	**2**	**2**	**1**	**2**	**3**	**2**	**1.9**
Mean Overall Score											**2.1**
Correlation											**Medium**

Mean Overall Score	Correlation
< 1.5	Low
≥ 1.5 and < 2.5	Medium
≥ 2.5	High

Course Coordinator
N. Asiffa Jabeen

Semester	Course Code	Course Category	Hours/ Week	Credits	Marks for Evaluation		
					CIA	ESE	Total
IV	23BFP4G21	General	2	2	25	75	100

Course Title	Entrepreneurship skill in Food Industry

SYLLABUS		
Unit	**Contents**	**Hours**
I	**Entrepreneurship** **6 Hours** Definitions, need, scope and characteristics of entrepreneurship. Entrepreneurial motivation and employment promotion.	**6**
II	**Business, Environment for Entrepreneurs for Food Enterprises** **6 Hours** Government of India's policy towards promotion of entrepreneurship.Exposure to demand based, resource based, service based, import substitute and export promotion industries.Opportunities forEntrepreneurs in India and abroad. Woman as Entrepreneur.	**6**
III	**Creating and Starting the Venture** Sources of new Ideas, Methods of generating ideas, creating problem solving, product planning and development process.	**6**
IV	**Steps for Staring a small Industry** Decision to become an entrepreneur. Steps to be taken, preparation of project, report guidelines. Procedures & formalities for registration.Agencies for promotion of food processing industries. Source of machine and equipment.	**6**
V	**Institutional support to Entrepreneurship** Role of Directorate of Industries, District Industries, Centers (DICs), Industrial Development Corporation (IDC), State Financial corporation (SFCs), Commercial banks Small Scale Industries Development Corporations (SSIDCs), Khadi and village Industries Commission (KVIC), National Small Industries Corporation (NSIC), Small Industries Development Bank of India (SIDBI)	**6**
VI	**Current Trends * (For CIA only) –** Current state and central government schemes for entrepreneurship.	

Text Book(s):

1. C.B. Gupta Srinivasan, N.P. Entrepreneurial Development,6th edition, Sulthan Chand and Sons,New Delhi (1992)
2. Net Reference : rccmindore.com/wp-content/uploads/2015/06/Entreprenership.pdf
3. Entrepreneurial Development by Sarwate (Everest publication)

Reference Book(s):

1. David H. Holt Entrepreneurship – Anew Venture Creation, Prentice Hall of India, New Delhi. 2002
2. Phillip Kottler Marketing Management, Prentice Hall of India Private Limited, NewDelhi. 1994
3. Vasant Desai The Dynamics of Entrepreneurial Development and Management, Himalya Publishing House Pvt. Ltd., Mumbai .2011

Course Outcomes		
Upon successful completion of this course, the student will be able to:		
CO No.	**CO Statement**	**Cognitive Level (K-Level)**
CO1	Define the entrepreneurship and scope.	**K2**
CO2	Develop entrepreneurship skills.	**K3**
CO3	Analyse the environment related to small scale industry and business.	**K4**
CO4	Understand the process and procedures of setting up small food enterprises.	**K2**
CO5	Prioritize institutional support to entrepreneurship.	**K5**

Relationship Matrix:

Course Outcomes (COs)	**Programme Outcomes (POs)**					**Programme Specific Outcomes (PSOs)**					**Mean Score of COs**
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PSO1**	**PSO2**	**PSO3**	**PSO4**	**PSO5**	
CO1	**3**	**3**	**2**	**2**	**1**	**2**	**3**	**2**	**3**	**2**	**2.3**
CO2	**2**	**3**	**2**	**3**	**2**	**2**	**1**	**2**	**2**	**3**	**2.2**
CO3	**2**	**1**	**3**	**2**	**3**	**2**	**1**	**2**	**2**	**2**	**2.0**
CO4	**3**	**3**	**2**	**3**	**2**	**3**	**2**	**1**	**2**	**3**	**2.4**
CO5	**2**	**2**	**2**	**1**	**2**	**2**	**1**	**2**	**3**	**2**	**1.9**
Mean Overall Score											**2.1**
Correlation											**Medium**

Mean Overall Score	**Correlation**
< 1.5	Low
≥ 1.5 and < 2.5	Medium
≥ 2.5	High

Course Coordinator
N. Asiffa Jabeen

Semester	Course Code	Course Category	Hours/ Week	Credits	Marks for Evaluation		
					CIA	ESE	Total
IV	23BFP4S22P	Skill	9	6	20	80	100

Course Title	Food Processing – II - Practical

Exercise	Content for practical	Hours
I	1. Preservation and processing of certain vegetables by drying. 2. Preparation of tomato ketchup and its preservation. 3. Preparation of tomato puree and its preservation. 4. Preparation of pickles. 5. Preparation of jam 6. Preparation of jelly 7. Preparation of marmalades 8. Preparation of squash and cordial 9. Processing and Preservation of peas by use of high temperatures (Bottling of Peas). 10. Blanching of a given sample (pea) and assessment of its adequacy. 11. Enzymatic browning of fruits and vegetables and its control. 12. Osmotic dehydration of given sample (Carrot/Grapes). 13. Preparation of amla preserve and dried fruit product (Aam papad, bars) 14. Quality analysis of spices. 15. Visit to Vegetables, Fruit and spice processing unit	**135**

Practical manual

1. S.Ranganna, HandBook of Analysis and Quality Control for Fruit and Vegetable Products, Tata McGraw-Hill Publishing Company Limited, New Delhi (2004).
2. S.Sadasivam, A. Manickam, biochemical methods, New Age International Publisher, New Delhi (2004)

Course Outcomes		
Upon successful completion of this course, the student will be able to:		
CO No.	**CO Statement**	**Cognitive Level (K-Level)**
CO1	Relate the principles of food processing including proper handling, storage, and sanitation in processing industries	**K2**
CO2	Demonstrate the various methods involved in oil extraction	**K2**
CO3	Experiment with quick cooked rice , parboiling of rice	**K3**
CO4	Examine with the cooking quality and milling of rice	**K4**
CO5	Compare the gluten content in various proportions of flours	**K5**

Relationship Matrix:

Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)					Mean Score of COs
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	
CO1	**2**	**3**	**1**	**1**	**2**	**1**	**2**	**2**	**1**	**1**	**1.6**
CO2	**2**	**1**	**1**	**2**	**1**	**2**	**1**	**2**	**2**	**3**	**1.7**
CO3	**1**	**3**	**1**	**2**	**2**	**2**	**3**	**1**	**2**	**1**	**1.8**
CO4	**3**	**2**	**1**	**1**	**-**	**2**	**1**	**1**	**1**	**2**	**1.4**
CO5	**1**	**2**	**2**	**3**	**1**	**3**	**1**	**2**	**2**	**1**	**1.8**
Mean Overall Score											**1.66**
Correlation											**Medium**

Mean Overall Score	Correlation
< 1.5	Low
≥ 1.5 and < 2.5	Medium
≥ 2.5	High

Course Coordinator: S. Ashma Banu

Semester	Course Code	Course Category	Hours/ Week	Credits	Marks for Evaluation		
					CIA	ESE	Total
IV	23BFP3S23P	Skill	9	6	20	80	100
Course Title	**General Biochemistry and Food Service Management - Practical**						

Exercise	Content for practical	Hours
I	**GENERAL BIOCHEMISTRY PRACTICAL** 1. Quantitative analysis of Urine for sugar, protein, Bile pigments, Bile Salts,lipids 2. Estimation of Urine Glucose (Benedict's Method) 3. Estimation of Urine Urea (DAM Method) 4. Estimation of Blood Glucose (Folin-WU Method) 5. Estimation of Blood Urea (DAM Method) 6.Estimation of serum cholesterol (Zak's Method) 7. Estimation of urinary phosphorus. 8. Estimation of urinary creatinine **FOOD SERVICE MANAGEMENT PRACTICAL** 1. Common ingredients for Indian – south and north Indian menu, western menu 2. Planning, compiling and preparation of menus for different regions a) Indian-south and north Indian - Thali meal and mini meal. **3. Quantity cookery:** a) Standardization of selected recipes and their preparation, calculation of cost and serving size per yield b) Quantity cookery: preparation of south Indian, north Indian menu for 10 members.c) Visits to any one of the well- organized food service units a) Hostel b) Hotel c) Hospital	**135**

Practical manual
1. West's and Woods 'Introduction to food service'2nd Edition, mac millan Publishing, New York, 1998.

Course Outcomes		
Upon successful completion of this course, the student will be able to:		
CO No.	**CO Statement**	**Cognitive Level (K-Level)**
CO1	Relate the principles of food processing including proper handling, storage, and sanitation in processing industries	**K2**
CO2	Demonstrate the various methods involved in oil extraction	**K2**
CO3	Experiment with quick cooked rice , parboiling of rice	**K3**
CO4	Examine with the cooking quality and milling of rice	**K4**
CO5	Compare the gluten content in various proportions of flours	**K5**

Relationship Matrix:

Course Outcomes (COs)	**Programme Outcomes (POs)**					**Programme Specific Outcomes (PSOs)**					**Mean Score of COs**
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PSO1**	**PSO2**	**PSO3**	**PSO4**	**PSO5**	
CO1	**2**	**3**	**1**	**1**	**2**	**1**	**2**	**2**	**1**	**1**	**1.6**
CO2	**2**	**1**	**1**	**2**	**1**	**2**	**1**	**2**	**2**	**3**	**1.7**
CO3	**1**	**3**	**1**	**2**	**2**	**2**	**3**	**1**	**2**	**1**	**1.8**
CO4	**3**	**2**	**1**	**1**	**-**	**2**	**1**	**1**	**1**	**2**	**1.4**
CO5	**1**	**2**	**2**	**3**	**1**	**3**	**1**	**2**	**2**	**1**	**1.8**
Mean Overall Score											**1.66**
Correlation											**Medium**

Mean Overall Score	**Correlation**
< 1.5	Low
≥ 1.5 and < 2.5	Medium
≥ 2.5	High

Course Coordinator: S. Ashma Banu

Semester	Course Code	Course Category	Hours/ Week	Credits	Marks for Evaluation		
					CIA	ESE	Total
IV	23BFP4S24I	Skill	-	6	20	80	100

Course Title	Food Processing - II Internship

SYLLABUS		
exercise	**Content for Internship**	**Hours**
I	1.Study the operating system of food processing equipments such as pulper, sealers, juice extracting machines, autoclaves, corking machines etc. 2.Preparation of Fruit Juice. Preservation of fruits juices with addition of preservative.Technology of extraction of juices from different types of fruits. 3.Handling the various methods of drying: sun drying, cabinet drying and solar drying. 4.Practical demonstration of sealing pouching machine. Examination of the tetra pack	**180**

Course Outcomes		
Upon successful completion of this course, the student will be able to:		
CO No.	**CO Statement**	**Cognitive Level (K-Level)**
CO1	Relate the processing and preservation of juices by various methods	**K1**
CO2	Infer the dehydration process and its working principles.	**K2**
CO3	Experiment with whole grain and legume processing.	**K3**
CO4	Compare the different types of drying methods	**K4**
CO5	Make one of different cereals and pulse products with quality assurance.	**K5**

Relationship Matrix:

Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)					Mean Score of Cos
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	
CO1	3	1	1	2	2	1	3	2	1	1	1.7
CO2	2	2	1	1	1	2	2	1	2	2	1.6
CO3	2	2	1	3	1	3	2	1	3	1	1.9
CO4	1	1	2	1	2	1	1	1	1	2	1.3
CO5	2	3	1	1	2	1	1	2	1	2	1.6
Mean Overall Score											1.7
Correlation											Medium

Mean Overall Score	Correlation
< 1.5	Low
≥ 1.5 and < 2.5	Medium
≥ 2.5	High

Course Coordinator: Dr. A. Sangeetha