

DEPARTMENT OF NUTRITION AND DIETETICS

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

Programme: B.Voc. FOOD PROCESSING AND SAFETY



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 |
| | IV | General | 23BFP3S17I | Food Processing - I Internship | - | 180 | 6 | 20 | 80 | 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 |
| | IV | 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 |
| | IV | 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 |
| | IV | 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 | <u>Introduction to Food science</u> 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 | <u>Cereals, Millets & Pulses:</u> 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 | <u>Milk, Egg and Fleshy foods:</u> 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 | <u>Vegetables and fruits</u> 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 | <u>Oil, Fats, Sugar and Nuts:</u> 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 bicarbonate, 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 |
| | 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 | 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: 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, 2 nd 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 | | |

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|---|
| Text Books: |
| 1 Sumathi R. Mudambi, Rajagopal, M.V., Fundamentals 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., 6th 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. Bhuvaneshwari.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 Coordinator: 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 | 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: 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 |

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|--|
| 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 canned food. 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 merits and 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): |
| <ol style="list-style-type: none"> 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): |
| <ol style="list-style-type: none"> 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 techniques of 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

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|--|
| Text Book(s): |
| Chakraverty, A. (1995), “Post Harvest Technology of Cereals, Pulses and Oilseeds”.Oxford and IBH Publishing Co, Calcutta |
| Reference Book(s): |
| <ol style="list-style-type: none"> 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 penicillium species, mushroom poisoning, and sea food toxins. Other toxins naturally occurring in foods: – Lathyragens, 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, retrogradation, dextrinisation of starches, enzymatic and non enzymatic browning reaction in foods, rancidity – types and prevention. Heat transfer operation in foods – conduction, convection, radiation, gelatinization, retrogradation, dextrinisation of starches, enzymatic and non enzymatic browning reaction in foods, rancidity – types and prevention. | 6 |
| V | Water 6 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 control of 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, 2 nd 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 and milk 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 of microorganisms. | 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 <ol style="list-style-type: none"> 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 |
|---|
| <ol style="list-style-type: none"> 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, 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 |
| 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 <ol style="list-style-type: none"> 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 |
| | Food Microbiology Practical <ol style="list-style-type: none"> 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 the Demonstration of bacterial motility 9. Negative staining of bacteria | |

| |
|---|
| Practical manual |
| <ol style="list-style-type: none"> 1. Chris bell, <i>et al</i>, Food microbiology and laboratory practice, Black well publishing professionals, 2121 state avenue, Ames, Iowa, UK. ., 2006, 2. Bisen P.S, <i>et al.</i>, 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 operation 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: <i>In situ</i> and <i>Ex situ</i> 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 ∞ 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 DaysNational Science Day – 28th FebruaryWorld wild life Day – 3rd MarchInternational forest Day – 21st MarchWorld Water Day – 22nd MarchWorld Meteorological Day – 23rd MarchWorld Health Day – 7th AprilWorld Heritage Day – 18th AprilEarth / Planet Day – 22nd AprilPlants Day – 26th MayEnvironment 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. | |

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| 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 for Entrepreneurs 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 Starting 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. | |

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| Text Book(s): |
| <ol style="list-style-type: none"> 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/Entrepreneurship.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 Kotler Marketing Management, Prentice Hall of India Private Limited, New Delhi. 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 | <ol style="list-style-type: none"> 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 | <p>GENERAL BIOCHEMISTRY PRACTICAL</p> <ol style="list-style-type: none"> 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 | 135 |
| | <p>FOOD SERVICE MANAGEMENT PRACTICAL</p> <ol style="list-style-type: none"> 1. Common ingredients for Indian – south and north Indian menu, western menu 2. Planning, compiling and preparation of menus for different regions <ol style="list-style-type: none"> a) Indian-south and north Indian - Thali meal and mini meal. 3. Quantity cookery: <ol style="list-style-type: none"> 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 <p>a) Hostel b) Hotel c) Hospital</p> | |

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| Practical manual |
| 1. West's and Woods 'Introduction to food service' 2 nd 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