ST. TERESA'S COLLEGE, ERNAKULAM

(AUTONOMOUS)

Affiliated to Mahatma Gandhi University, Kottayam

CURRICULUM FOR

B.VOC FOOD PROCESSING TECHNOLOGY

Under Choice Based Credit & Semester System
& Outcome Based Education

(2018 Admissions)

BVFT - B.VOC FOOD PROCESSING TEHNOLOGY

PROGRAM SPECIFIC OUTCOMES

PSO1: Generalize the processing technology of various foods and its by-products.

PSO2: Explain the designing of the food plant and operation of food processing equipment.

PSO3: Determine the physical, chemical, microbial and nutritional characteristics of foods and its effect on health.

PSO4: Apply the basic knowledge on managerial and communication skills to initiate a project/ enterprise.

PSO5: Evaluate the safety, quality and emerging technologies in the food processing industry.

SEMESTER I

Course Code	Course Title	Credits	Course Type
VFPT1S01B18	Bakery and Confectionery Technology	5	Skill
VFPT1S02B18	Principles of Food Preservation	5	Skill
VFPT1S03B18	Food Chemistry	5	Skill
VFPT1SP01B18	Bakery and Confectionery Technology (Practical)	3	Skill
EN1A01B18	Fine-tune Your English	4	Common
VFPT1G01B18	Food Science and Nutrition I	4	General
VFPT1G02B18	Entrepreneurship Development and Project Management	4	General
VFPT1SI01B18	Internship	1	Skill

SEMESTER I

SKILL COURSE 01

VFPT1S01B18– BAKERY AND CONFECTIONERY

Credits: 5

Total Lecture Hours: 75

Course Outcomes:

CO1: Review the manufacturing of raw and refined sugar.

CO2: Identify the classification of confectionery.

CO3: Illustrate the properties of wheat.

CO4: Describe the principles of baking and bread manufacturing.

CO5: Explain the process of cake and biscuit manufacturing.

Mapping of Course Outcomes with Program Specific Outcomes

Mapping	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	2	2	1	2
CO2	2	2	2	1	2
CO3	2	1	2	1	1
CO4	3	2	2	2	2
CO5	3	2	2	2	2

Syllabus Content:

Module I: Manufacture of Sugar **14 Hours**

Sugarcane, jaggery, Khand sari sugar, raw sugar, refined sugar, white sugar, beet sugar, manufacture of sugar from sugar cane, refining of sugar.

Module II: Classification of confectionery **12 Hours**

Sugar boiled confectionery- crystalline and amorphous confectionery, rock candy, hard candy,

lemon drop, china balls, soft candy, lollypop, marshmallows, fudge, cream, caramel, toffee, lozenges, gumdrops, honeycomb candy.

Module III: Properties of wheat **15 Hours**

Wheat – Properties, Quality – Hardness, Gluten strength, protein content, soundness. Methodology and approaches to evaluate bread and bread – wheat quality – processing factors, product factors.

Module IV: Principles of baking and Bread manufacturing **20 Hours**

Major baking ingredients and their functions, role of baking ingredients in improving the quality of bread. Characteristics of good flour used for making bread, biscuits and cakes. Ingredients used for bread manufacture, methods of mixing the ingredients, dough development methods - straight dough, sponge dough, moulding, proofing, baking, packing, spoilage, bread staling, methods to reduce bread staling and spoilage.

Module V: Cake and Biscuit manufacturing **14 Hours**

Processing of cakes and biscuits- ingredients, development of batter, baking and packing, Spoilage in cakes and biscuits.

SEMESTER I

SKILL COURSE 02

VFPT1S02B18 –PRINCIPLES OF FOOD PRESERVATION

Credits: 5

Total Lecture Hours: 75

Course Outcomes:

CO1: Explain different types and mechanisms of food spoilage

CO2: Discuss the role of preservatives in food preservation.

CO3: Identify the methods of high temperature preservation of foods.

CO4: Describe the preservation of foods by low temperature.

CO5: Illustrate the methods of moisture removal to increase the shelf life of foods.

Mapping of Course Outcomes with Program Specific Outcomes

Mapping	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	2	1	2	1	2
CO2	2	1	2	1	2
CO3	2	3	2	1	2
CO4	2	3	2	1	2
CO5	2	3	2	1	2

Syllabus Content:

Module I: Food Spoilage **12 Hours**

Definition, types of spoilage - physical, enzymatic, chemical and biological spoilage. Mechanism of spoilage and its end products, shelf life determination.

Module II: **Preservation by using Preservatives** **13 Hours**

Food preservation: Definition, principles, importance of food preservation, traditional and modern methods of food preservation. Food additives – definition, types, Class I and Class II preservatives.

Module III: **Preservation by use of high temperature** **20 Hours**

Pasteurization: Definition, types, Sterilization, Canning - history and steps involved, spoilage encountered in canned foods, types of containers used for canning foods. Food irradiation – Principles, merits and demerits, effects of irradiation and photochemical methods.

Module IV: Preservation by use of Low Temperature **16 Hours**

Refrigeration - advantages and disadvantages, freezing: Types of freezing, common spoilages occurring during freezing, difference between refrigeration and freezing.

Module V: Preservation by Removal of Moisture **14 Hours**

Drying and dehydration - merits and demerits, factors affecting, different types of drying, Concentration: principles and types of concentrated foods.

SEMESTER I

SKILL COURSE 03

VFPT1S03B18 – FOOD CHEMISTRY

Credits: 5

Total Lecture Hours: 75

Course Outcomes:

CO1: Determine the moisture content and water activity in different types of food.

CO2: Explain the structure, physical and chemical characteristics of carbohydrates.

CO3: Explain the basic functions of proteins like enzymes.

CO4: Identify the changes that occur to macronutrients during processing.

CO5: Describe the relevance of micronutrients in the food industry.

Mapping of Course Outcomes with Program Specific Outcomes

Mapping	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	2	1	3	1	1
CO2	2	1	3	1	1
CO3	2	1	2	1	1
CO4	2	1	2	1	1
CO5	2	1	2	1	2

Syllabus Content:

Module I: Water **13 Hours**

Introduction to food chemistry, structure of water molecule, hydrogen bonding, effect of hydrogen bonding on the properties of water, moisture in foods, free water, bound water, water activity, estimation of moisture in foods, determination of moisture and water activity.

Module II: Carbohydrates **16 Hours**

Nomenclature, composition, sources, structure, reactions, functions, classification - monosaccharide, disaccharides, oligosaccharides and polysaccharides. Properties of Starch – gelatinisation, gel formation, syneresis**,** starch degradation, dextrinisation, retrogradation, Qualitative and quantitative tests of carbohydrates.

Module III: Proteins **18 Hours**

Nomenclature, sources, structure, functions, classification - essential and non-essential amino acids, Physical and chemical properties of proteins and amino acids, functional properties - denaturation, hydrolysis, changes in proteins during processing. Enzymes - Specificity, mechanism of enzyme action, factors influencing enzymatic activity, controlling enzyme action, enzymes added to food during processing, enzymatic browning.

Module IV: Fats and oils **15 Hours**

Nomenclature, composition, sources, structure, functions, classification, essential fatty acids. Physical and chemical properties - hydrolysis, hydrogenation, rancidity and flavour reversion, emulsion and emulsifiers, saponification value, acid value and iodine value, smoke point.

Module V: Pigments, colours and flavours in food **13 Hours**

Micro nutrients: Vitamins and minerals, Pigments indigenous to food, structure, chemical and physical properties, effect of processing and storage, colours added to foods, flavours- vegetable, fruit and spice flavours, flavours of milk and meat products, effect of processing on flavour components.

.SEMESTER I

SKILL COURSE 04

VFPT1SP01B18 – BAKERY AND CONFECTIONERY TECHNOLOGY (PRACTICAL)

Credits: 2

Total Lecture Hours: 60

Course Outcomes:

CO1: Identify and explain baking terms, ingredients and equipments used in baking

CO2: Illustrate scaling and measuring of ingredients.

CO3: Practice baking of various products.

CO4: Design and set up a small scale processing unit.

Mapping of Course Outcomes with Program Specific Outcomes

Mapping	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	3	2	1	2
CO2	2	3	2	1	3
CO3	3	2	3	2	2
CO4	2	3	1	3	2

Syllabus Content:

1. Preparation of ghee biscuits
2. Preparation of melting marvels
3. Preparation of sweet and salt biscuits
4. Preparation of bread
5. Preparation of pizza

6. Preparation of hot cross buns(sweet buns)

7. Preparation of jamnut cookies

8. Preparation of vanilla cake

9. Preparation of cake.

10. Visit to production unit of a bakery.

SEMESTER I

COMMON COURSE I

EN1A01B18 - FINE-TUNE YOUR ENGLISH

Credits: 4

Total Lecture Hours: 60

Course Outcomes:

CO1. Recognize the basics of English grammar

CO2. Choose the appropriate word classes

CO3. Identify common errors in the use of English language in various contexts

CO4. Apply the rules of grammar to comprehend, speak, and write grammatically correct English

CO5. Compose materials for business communication

Mapping of Course Outcomes with Program Specific Outcomes

Mapping	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	1	1	1	2	1
CO2	1	1	1	3	1
CO3	1	1	1	2	1
CO4	1	1	1	3	1
CO5	1	1	1	2	1

Syllabus Content:

Module I: Grammar **12 Hours**

Articles, The Verb, Active and Passive Voice, Tenses, Concord, Modal Auxiliaries, The Adverb, The Preposition, Conjunction, Idioms, Phrasal Verbs, Direct and Indirect Speech.

Module II: Listening **10 Hours**

Active listening, Barriers to listening, Listening and note taking, Listening to announcements, Listening to news on the radio and television.

Module III: Speaking **10 Hours**

Brief introduction to the Phonetic script, Falling and rising tones, Participating in conversations, Small Talk, Making a short formal speech, telephone skills.

Module IV: Reading **15 Hours**

Reading: theory and Practice, Scanning, Surveying a textbook using an index, Reading for information, Understanding text structure, Locating main points, Making inferences, Reading graphics, Reading for research.

Module V: Writing **13 Hours**

Describing people, place, events and things, Short Stories, Vocabulary and Comprehension, Guide to letter writing. Learning Resources

SEMESTER I

GENERAL COURSE 01

VFPT1G01B18– FOOD SCIENCE AND NUTRITION I

Credits: 4

Total Lecture Hours: 60

Course Outcomes:

CO1: Explain the relevance of nutrition in maintaining health.

CO2: Differentiate between the types of malnourishment.

CO3: Describe the basic characteristics and novel concepts of food.

CO4: Examine the symptoms due to vitamin – mineral deficiency and toxicity.

CO5: Summarize the changes in BMR during various physiological conditions.

Mapping of Course Outcomes with Program Specific Outcomes

Mapping	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	2	1	3	1	2
CO2	2	1	2	1	1
CO3	2	1	2	1	2
CO4	2	1	3	1	2
CO5	1	1	2	1	1

Syllabus Content:

Module I: Introduction to Nutrition **8 Hours**

Definition of nutrition and health, inter-relationship between nutrition and health. Malnutrition: Definition and types. Reference man and reference women.

Module II: Food and water **12 Hours**

Definition of food, classification of foods based on origin, pH, nutritive value. Basic five food groups, food guide pyramid. Functions of foods. New concepts of food: health foods, ethnic foods, organic foods, functional foods, nutraceuticals, fabricated foods, extruded foods, convenience foods, junk foods, GM foods and proprietary foods. Water: functions, sources, requirement, water balance, toxicity and deficiency.

Module III: Vitamins **15 Hours**

Classification, structure, function, sources, general causes for loss in foods, bioavailability, enrichment, fortification and restoration. Units of measurement. Deficiency and toxicity disorders.

Module IV: Minerals **10 Hours**

Classification of minerals. Functions, sources, bioavailability and deficiency of the following minerals- Calcium, Iron, Iodine, Fluorine, Sodium, Potassium.

Module V: Energy **15 Hours**

Units of energy, food as a source of energy, basal metabolic rate, factors affecting BMR, total energy Requirement.

SEMESTER I

GENERAL COURSE 02

VFPT1G02B18– ENTREPRENEURSHIP DEVELOPMENT AND PROJECT MANAGEMENT

Credits: 4

Total Lecture Hours: 60

Course Outcomes:

CO1: Illustrate the importance of entrepreneurs in the economic development of the nation

CO2: Examine the concept of entrepreneur and the qualities essential for an entrepreneur

CO3: Discuss the basic steps for starting an enterprise of their own.

CO4: Explain step by step procedure of managing a project

CO5: Examine the different schemes introduced by government to accelerate entrepreneurial growth

Mapping of Course Outcomes with Program Specific Outcomes

Mapping	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	2	2	1	3	2
CO2	2	2	1	3	2
CO3	3	3	1	3	2
CO4	3	3	2	3	2
CO5	2	2	1	3	1

Syllabus Content:

Module I: Introduction to Entrepreneurship 18 Hours

Meaning, definition and concepts, characteristics, functions, entrepreneurial traits and motivation, role of entrepreneur in economic development, factors affecting entrepreneurial growth. Types of entrepreneurs - Intrapreneurship, Women entrepreneurship, significance, problems, solutions to the problems

Module II: Entrepreneurial Development Programme 10 Hours

Objectives, Steps, Need for training- target group- Contents of the training programme-Special Agencies for Entrepreneurial Development and Training-DIC.

Module III: Project 12 Hours

Meaning, Features, Classification, Project identification, Stages in project identification, Project Life Cycle, Project formulation- Elements, Feasibility Analysis-Network Analysis-Project Planning.

Module IV: Setting up of micro small and medium enterprises 10 Hours

Setting up of micro small and medium enterprises, location significance, Green channel, Bridge capital, Seed capital assistance, Margin money scheme, Sickness, Causes-Remedies.

Module V: Role of institutions/schemes in entrepreneurial development 10 Hours

SIDCO, SIDBI, NIESBUD, EDII, SISI, NREG Scheme- SWARNA JAYANTHI, Rozgar Yojana Schemes.

SEMESTER I

SKILL COURSE 05

VFPT1SI01B18– INTERNSHIP

Credits: 1

Total Lecture Hours: 30

Course Outcomes:

CO1: Integrate academic and practical skills

CO2: Develop problem solving skills in the industry

Mapping of Course Outcomes with Program Specific Outcomes

Mapping	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	2	2	3	3	3
CO2	2	2	3	3	3