

- ***NETAJI SHIKSHAN SANSTHA'S***
- ***SUBHASH BABURAO KUL COLLEGE
KEDGAON TAL-DAUND, DIST-PUNE***
- ***ACADEMIC YEAR-2020-2021***
- ***UGC NEW DELHI AND S.P.P.U PUNE
APPROVED COURSE***
- ***BACHLER OF VOCATIONAL DEGREE
PROGRAMME***
- ***SYLLABUS OF FOOD PROCESSING
(THREE YEARS)***

**SYLLABUS
Semester I****VFP1G01TB – Bakery and Confectionery Technology
(GENERAL COURSE - 01)****Total Credits: 3****Total Lecture Hours: 45 (3 Hours/ Week)**

Aim of the course: To impart basic and applied technology of baking and confectionery and acquaint with the manufacturing technology of bakery and confectionery products.

Course Overview and Context

- ☐ To highlight the processing methods used in baking and confectionery industries.
- ☐ To know about the various types of food products made using baking technology.
- ☐ To have a basic idea about baking and confectionery manufacture and quality control.
- ☐ To know about the importance of each ingredient in the bakery and how it effects the overall product and its sensory and quality parameters.
- ☐ To be able to start a small scale bakery and confectionery unit

Content

MODULE	CONTENT	LECTURE
1	Manufacture of Sugar - Sugarcane, jaggery, khandasari sugar, manufacture of sugar from sugar cane, refining of sugar.	10
2	Classification of confectionery - Sugar boiled confectionery- crystalline and amorphous confectionery,hard candy, lemon drop, china balls, soft candy, lollypop,cream, caramel, toffee, gumdrops, honeycomb candy	10

3	Properties of wheat - Wheat – Properties, Quality – Hardness, Gluten strength, protein content, soundness. Methodology and approaches to evaluate bread and bread – wheat quality – processing factors, product factors.	10
4	Principles of baking and Bread manufacturing - 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, spoilage, bread staling, methods to reduce bread staling and spoilage.	10
5	Cake and Biscuit manufacturing- Processing of cakes and biscuits- ingredients, development of batter, baking and packing, Spoilage in cakes and biscuits.	05
		Total = 45

Learning Resources

Reference books:

1. Zhou. W, HuiY,H; (2014), “Bakery Products Science and Technology”, 2nd Edition, Wiley Blackwell Publishers,
2. Pyler, E. J. and Gorton, L.A.(2009), “Baking Science & Technology” Vol.1 Fourth Edition,Sosland Publications.
3. Stanley P. Cauvain, Linda S. Young, (2008), “Baked Products: ScienceTechnology and Practice”. John Wiley & Sons Publishers.

SYLLABUS**Semester I****VFP1G02TB – Principles of Food Preservation****(GENERAL COURSE - 02)****Total Credits: 3****Total Lecture Hours: 45 (3 Hours/ Week)**

Aim of the course: To make students understand about the mechanism of spoilage and deterioration in foods, the basic food preservation principles, and methods to preserve foods.

Course Overview and Context

- ☐ To study the different ways in which food spoilage occurs and the techniques to prevent it.
- ☐ To know the different spoilage agents and the ways in which they act on food.
- ☐ To understand the principles behind the various methods of food preservation.
- ☐ To know how to use these principles to preserve different types of foods.
- ☐ To study the method of action of different preservatives.

Content

MODULE	CONTENT	LECTURE
1	Food Spoilage -Definition, types of spoilage - physical, enzymatic, chemical and biological spoilage. Mechanism of spoilage and its end products, shelf life determination.	10
2	Preservation by using Preservatives -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	10

3	Preservation by use of high temperature - 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.	10
4	Preservation by use of Low Temperature- Refrigeration - advantages and disadvantages, freezing: Types of freezing, common spoilages occurring during freezing, difference between refrigeration and freezing.	08
5	Preservation by Removal of Moisture- Drying and dehydration - merits and demerits, factors affecting, different types of drying, Concentration: principles and types of concentrated foods. 12	07
		Total = 45

Learning Resources

Reference Books

1. Gould, G. W. (2012), “New Methods of food preservation”, Springer Science & Business Media.
2. Manay, N.S. Shadaksharaswamy, M. (2004), “Foods- Facts and Principles”, New age international publishers, New Delhi.
3. Srilakshmi, B.(2003), “Food Science”, New Age International Publishers, New Delhi.
4. Subalakshmi, G and Udipi, S.A.(2001),“Food processing and preservation”. New Age International Publishers, New Delhi.

SYLLABUS
Semester I**VFP1G03TB – Food Chemistry**
(GENERAL COURSE - 03)**Total Credits: 3****Total Lecture Hours: 45 (3 Hours/ Week)****Aim of the course:** To explain the chemical composition and functional properties of food.**Course Overview and Context**

- ☐ To study about the major and minor components of food and their properties
- ☐ To know about the changes that occurs in foods during processing.
- ☐ To study the classification, structure and chemistry of the various food components.
- ☐ To understand the changes that occurs in the different constituents during storage and ways and means to prevent it.

Content

MODULE	CONTENT	LECTURE
1	Water- 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.	10
2	Carbohydrates - Nomenclature, composition, sources, structure, reactions, functions, classification - monosaccharide, disaccharides, oligosaccharides and polysaccharides. Properties of Starch – gelatinisation, gel formation.	10

3	Proteins- Nomenclature, sources, structure, functions, classification - essential and nonessential 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	10
4	Fats and oils - 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.	08
5	Pigments, colours and flavours in food - 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.	07
		Total = 45

Reference Books:

1. Yildiz, Fatih (2009), "Advances in Food Biochemistry", CRC Press, New York.
2. Damodaran, S., Parkin, K L., Fennema, O R., (2008), "Fennema's Food Chemistry"- 4th edition, CRC press, New York
3. Campbell, M K and Farrell, S O (2006), "Biochemistry", 5th edition, Cengage Learning Publishers, USA.
4. Manay, N.S. Shadaksharaswamy, M. (2004), "Foods- Facts and Principles", New age international publishers, New Delhi.
5. Meyer, L.H. (2002), "Food Chemistry". CBS publishers and Distributors, New Delhi.

SYLLABUS
Semester I**VFP1S01PB – Bakery and Confectionery Technology (Practical)**
(SKILL COURSE - 01)**Total Credits: 6****Total Laboratory Hours: 90 (6 Hours/ Week)**

Aim of the course: To develop professional and practical knowledge in bakery and confectionery and make them competent as an entrepreneur.

Course Overview and Context

- ☐ To improve the culinary skills of the students
- ☐ To gain knowledge about the preparation of some basic food products
- ☐ To use the processes studied in food chemistry and food preservation papers to prepare different food products
- ☐ To understand how these can be utilized to start a small scale processing unit.
- ☐ It involves not only gaining knowledge on how to make a food product but also studies the principles behind them.
- ☐ It helps the students to gain not only theoretical but also practical knowledge

Content

MODULE	CONTENT	LECTURE
1	Preparation of ghee biscuits	15
2	Preparation of sweet and salt biscuits	15
3	Preparation of bread	15
4	Preparation of jamnut cookies	10
5	Preparation of vanilla cake	10
6	Preparation of cake.	10
7	Visit to production unit of a bakery	15
		Total = 90

**SYLLABUS
Semester I**

VFP1S02PB– **Communication Skills in English (Practical)**
(SKILL COURSE – 02)
Semester I

Total Credits: 6

Total Lecture Hours: 90 (4 Hours/ Week)

Aim of the course: To enhance LSWR skills so that students may effectively communicate in the English language

Course Overview and Context

□ The course aims at training students in the usage of English Language in various contexts and enabling them to communicate effectively in English.

Competencies of the course

- To re-introduce students to the basics of English grammar so that they may comprehend, speak and write grammatical correct English.
- To enable the students to speak English confidently and effectively in a wide variety of situations.
- To help the students to improve their reading efficiency by refining their reading strategies.
- To develop the ability to compose pieces o literary writing.

Content

MODULE	CONTENT	LECTURE
1	Grammar- Articles, The Verb, Active and Passive Voice, Tenses, Modal Auxiliaries, The Adverb, The Preposition, Conjunction, Idioms, Phrasal Verbs, Direct and Indirect Speech.	20
2	Listening- Active listening, Barriers to listening, Listening and note taking, Listening to announcements, Listening to news on the radio and television.	10

3	Speaking - Brief introduction to the Phonetic script, Falling and rising tones, Participating in conversations, Small Talk, Making a short formal speech, telephone skills.	20
4	Reading - 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.	20
5	Writing- Describing people, place, events and things, Short Stories, Vocabulary and Comprehension, Guide to letter writing.	20
		Total = 90

Learning Resources**References**

1. Sasikumar V, KiranmaiDutt, P and GeethaRajeevan (2007), “Communication Skills in English”, Cambridge University Press, New Delhi.
2. Alec Fisher (2011), “Critical Thinking: An Introduction”, Cambridge University Press, New Delhi.
3. Stephen Bailey, (2010), “Academic Writing: A Handbook for International Students”, Routledge Publishers.
4. IlonaLeki (1998), “Academic Writing: Exploring Processes and Strategies”, Cambridge University Press. New Delhi.
5. Patsy McCarthy, Caroline Hatcher (2002), “Presentation Skills: The Essential Guide for Students (StudySkills), SAGE Publishers.

SYLLABUS
Semester I**VFP1G04TB – Food Science and Nutrition I**
(GENERAL COURSE - 04)
Semester I**Total Credits: 3****Total Lecture Hours: 45 (3 Hours/ Week)**

Aim of the course: To understand the nutrient composition of foods, their functions, sources and to impart knowledge of concept of good health and its importance.

Course Overview and Context

- ☐ To know and understand the functions, importance of all nutrients present in foods.
- ☐ To know about the various types of nutrients and their functions in the body.
- ☐ To familiarize with the recent advances in field of nutrition
- ☐ To understand the different types of newly developed food products.

Content

MODULE	CONTENT	LECTURE
1	Introduction to Nutrition -Definition of nutrition and health, inter-relationship between nutrition and health. Malnutrition: Definition and types.	06
2	Food and water- 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, extruded foods, convenience foods, junk foods, GM foods and proprietary foods. Water: functions, sources, requirement, water balance, toxicity and deficiency.	09

3	Vitamins- Classification, structure, function, sources, general causes for loss in foods, bioavailability, enrichment, fortification and restoration. Units of measurement. Deficiency and toxicity disorders.	10
4	Minerals- Classification of minerals. Functions, sources, bioavailability and deficiency of the following minerals- Calcium, Iron, Iodine, Fluorine, Sodium, Potassium.	10
5	Energy- Units of energy, food as a source of energy, basal metabolic rate, factors effecting BMR, total energy Requirement.	10
		Total = 45

Learning Resources

Reference Books

1. James L Groff and Sareen S Gropper, (2009) "Advanced Nutrition and Human Metabolism", Fourth Edition, Wadsworth Publishing Company.
2. Maurice B Shils, Moshe Shike A, Catherine Ross, Benjamin Cabellero, Robert J Cousins, (2006), "Modern Nutrition in Health and Disease", Lippincott Williams al Wilkins.
3. Michael J Gibney, Ian A Macdonald and Helen M Roche (2003) "Nutrition and Metabolism", The Nutrition Society Textbook Series, Blackwell Publishing, First Edition.

**SYLLABUS
Semester I****VFP1S03PB – FOOD CHEMISTRY (Practical)
(SKILL COURSE - 03)****Total Credits: 6****Total Laboratory Hours: 90 (6 Hours/ Week)**

Aim of the course: To develop professional and practical knowledge in Food Chemistry & know various reactions

Course Overview and Context

- ☐ To improve the culinary skills of the students
- ☐ To gain knowledge about the preparation of some basic food products
- ☐ To use the processes studied in food chemistry and food preservation papers to prepare different food products
- ☐ To understand how these can be utilized to start a small scale processing unit.
- ☐ It involves not only gaining knowledge on how to make a food product but also studies the principles behind them.
- ☐ It helps the students to gain not only theoretical but also practical knowledge

Content

MODULE	CONTENT	LECTURE
1	Safety measures in laboratory	10
2	Determination of moisture content using hot air oven	15
3	Determination of moisture content of liquid foods	15
4	Determination of Titrable acidity of Fruit juice	20
5	Determination of Ash content of biscuits	15
6	Determination of Iodine value of oil	15
		Total = 90
