Netaji Shikshan Sanstha’s

**Subhash Baburao Kul Arts,Commerce,Science College**

Kedgaon, Tal: Daund, Dist: Pune, 412203.

**Teaching Plan**

**Name of Asst. Prof: -** Avachat O. S

**Academic Year:** 2022-23 **Class:-** F.Y. Food Processing.

**Subject: -** Bakery & confectionery technology

**Semester -I**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Month** | **Week** | **Topic** | **Learning Points** | **No. of Periods** |
| Aug | I ,II, III & IV | Manufacture of Sugar | Sugarcane, jaggery, khandasari sugar, manufacture of sugar from sugar cane, refining of sugar. | 10 |
| Sep | I ,II, III & IV | 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 | 12 |
| Oct | I ,II, III & IV | 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. | 08 |
| Nov | I, II, | 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 |
| Dec | I, II | Cake and Biscuit manufacturing | Processing of cakes and biscuits- ingredients, development of batter, baking and packing, Spoilage in cakes and biscuits. | 05 |

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Netaji Shikshan Sanstha’s

**Subhash Baburao Kul Arts,Commerce,Science College**

Kedgaon, Tal: Daund, Dist: Pune, 412203.

**Teaching Plan**

**Name of Asst. Prof: -** Avachat O. S

**Academic Year:** 2022-23 **Class:-** F.Y. Food Processing.

**Subject: -** Principles of food preservation

**Semester -I**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Month** | **Week** | **Topic** | **Learning Points** | **No. of Periods** |
| Aug | I, II, III & IV | Food Spoilage | -Definition, types of spoilage - physical, enzymatic, chemical and biological spoilage. Mechanism of spoilage and its end products, shelf life determination. | 10 |
| Sep | I, II, III & IV | 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 | 12 |
| Oct | I, II, III & IV | 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 |
| Nov | I, II, | 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 |
| Dec | I, II | Preservation by Removal of Moisture | Drying and dehydration - merits and demerits, factors affecting, different types of drying, Concentration: principles and types of concentrated foods. | 05 |

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**Subhash Baburao Kul Arts,Commerce,Science College**

Kedgaon, Tal: Daund, Dist: Pune, 412203.

**B.Voc (Food Processing)**

**Teaching Plan**

**Name of Asst. Prof: -** Avachat O. S

**Academic Year:** 2022-23 **Class:-**F.Y.Food Processing

**Subject: -**  VFP1G03TB (Food Chemistry)

**Semester -I**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Month** | **Week** | **Topic** | **Learning Points** | **No. of Periods** |
| July | I & II | Water | 1)Introduction to food chemistry  2)Structure of water molecule  3)Types of water in food and their properties  4) Concept of water activity | 10 |
| July | III & IV | Carbohydrates | 1) Structure and functions of carbohydrates  2) Classification of carbohydrates  3) Concept of starch Gelatinization and gel formation | 10 |
| Aug | I & II | Proteins | 1) Sources, Structure, Function and Classification  2)Physical and chemical properties  3)Changes in protein during food processing  4) Enzymes, their mode of mechanism and controlling enzyme action | 10 |
| Sep | II &III | Fats and Oils | 1) Composition, Structure, Functions, Classification  2) Essential fatty acids  3) Physical and chemical properties | 08 |
| Oct | I& II | Pigments | 1) Colours and flavours in food  2)Pigments used in food processing  3) Chemical and physical properties  4) Effect of processing and storage on pigments | 07 |

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Netaji Shikshan Sanstha’s

**Subhash Baburao Kul Arts,Commerce,Science College**

Kedgaon, Tal: Daund, Dist: Pune, 412203.

**B.Voc (Food Processing)**

**Teaching Plan**

**Name of Asst. Prof: -** Avachat O. S

**Academic Year:** 2022-23 **Class:-**F.Y.Food Processing

**Subject: -**  VFP1G04TB (Food Science and Nutrition I)

**Semester -I**

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| --- | --- | --- | --- | --- |
| **Month** | **Week** | **Topic** | **Learning Points** | **No. of Periods** |
| July | I & II | Introduction to Nutrition | 1)Definition of nutrition and health  2)Inter-relationship between nutrition and health  3)Malnutrition | 06 |
| July | III & IV | Food and water | 1) Definition and classification of food  2) Basic five food groups  3) Food balance pyramid  4) New concepts of food  5) Function, sources, requirement of water and water balance in human body | 10 |
| Aug | I & II | Vitamins | 1) Sources, Structure, Function and Classification  2)General cause for loss in food  3)Bioavailability, enrichment and fortification  4) Daily requirement and deficiency disorders | 10 |
| Sep | II &III | Minerals | 1) Functions, Sources, Classification  2) Daily requirements  3) Deficiency disorders | 10 |
| Oct | I& II | Energy | 1)Definition, unit of energy and source  2)Basal metabolic rate(BMR) and factors affecting on BMR  3) Total energy requirement | 10 |

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Netaji Shikshan Sanstha’s

**Subhash Baburao Kul Arts,Commerce,Science College**

Kedgaon, Tal: Daund, Dist: Pune, 412203.

**Teaching Plan**

**Name of Asst. Prof: -** Avachat O. S

**Academic Year:** 2022-23 **Class:-** F.Y. Food Processing.

**Subject: -** Bakery & confectionery technology (P)

**Semester -I**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Month** | **Week** | **Topic** | **Learning Points** | **No. of Periods** |
| July | I ,II, III & IV | Preparation of ghee biscuits  Preparation of sweet and salt biscuits | Procedure, Aim, Objectives, conclusion | 30 |
| Aug | I ,II, III & IV | Preparation of bread | Procedure, Aim, Objectives, conclusion | 15 |
| Sep | I ,II, III & IV | Preparation of jamnut cookies  Preparation of vanilla cake | Procedure, Aim, Objectives, conclusion | 15 |
| Oct | I, II, | Preparation of cake.  Visit to production unit of a bakery | Procedure, Aim, Objectives, conclusion | 30 |

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Netaji Shikshan Sanstha’s

**Subhash Baburao Kul Arts,Commerce,Science College**

Kedgaon, Tal: Daund, Dist: Pune, 412203.

**Teaching Plan**

**Name of Asst. Prof: -** Gaikwad Omkar

**Academic Year:** 2022-23 **Class:-** F.Y. Food Processing.

**Subject: -** Communication skills in english (P)

**Semester -I**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Month** | **Week** | **Topic** | **Learning Points** | **No. of Periods** |
| July | I ,II, III & IV | Grammer | Articles, The Verb, Active and Passive Voice, Tenses, Modal Auxiliaries, The Adverb, The Preposition, Conjunction, Idioms, Phrasal Verbs, Direct and Indirect Speech. | 20 |
| Aug | I ,II, III & IV | Listening | Active listening, Barriers to listening, Listening and note taking, Listening to announcements, Listening to news on the radio and television. | 10 |
| Sep | I ,II, III & IV | Speaking | Brief introduction to the Phonetic script, Falling and rising tones, Participating in conversations, Small Talk, Making a short formal speech, telephone skills. | 20 |
| Oct | I, II, | 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 |
| Nov | I,II | Writing | Describing people, place, events and things, Short Stories, Vocabulary and Comprehension, Guide to letter writing. | 20 |

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Kedgaon, Tal: Daund, Dist: Pune, 412203.

**B.Voc (Food Processing)**

**Teaching Plan**

**Name of Asst. Prof: -** Avachat O. S

**Academic Year:** 2022-23 **Class:-**F.Y.Food Processing

**Subject: -**  VFP1G03PB (Food Chemistry Practical)

**Semester -I**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Month** | **Week** | **Topic** | **Learning Points** | **No. of Periods** |
| July | I & II | Safety measures in laboratory | 1)Aim and objective  2) Material and method  3)Conclusion | 10 |
| July | III & IV | Determination of moisture content using hot air oven | 1)Aim and objective  2) Material and method  3) Result  4) Conclusion | 15 |
| Aug | I & II | Determination of moisture content of liquid foods | 1)Aim and objective  2) Material and method  3) Result  4) Conclusion | 15 |
| Sep | II &III | Determination of titrable acidity for fruit juice | 1)Aim and objective  2) Material and method  3) Result  4) Conclusion | 20 |
| Oct | I& II | Determination of ash content of biscuits | 1)Aim and objective  2) Material and method  3) Result  4) Conclusion | 15 |
| Oct | III | Determination of iodine value of oil | 1)Aim and objective  2) Material and method  3) Result  4) Conclusion | 15 |

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**Subhash Baburao Kul Arts,Commerce,Science College**

Kedgaon, Tal: Daund, Dist: Pune, 412203.

**Teaching Plan**

**Name of Asst. Prof: -** Avachat O. S

**Academic Year:** 2022-23 **Class:-** F.Y. Food Processing.

**Subject: -** Dairy Technology **Semester -II**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Month** | **Week** | **Topic** | **Learning Points** | **No. of Periods** |
| Dec | I ,II, III & IV | Introduction- Milk | Definition, sources, and composition of milk, factors effecting composition of milk, physiochemical properties of milk, grading of milk-definition and types of grades, collection and transportation of milk. | 12 |
| Jan | I ,II, III & IV | Processing of market milk | - Flowchart of milk processing, Reception, Different types of cooling systems. Clarification and filtration process, standardization- Pearson’s square method, pasteurization-LTLT, HTST and UHT process- continuous pasteurizer, Sterilization and Homogenization, Cream separation- centrifugal cream separator, bactofugation | 15 |
| Feb | I ,II, III & IV | Special milks | Skim milk, evaporated milk, condensed milk, standardized milk, toned milk, double toned milk, flavored milk, reconstituted milk. | 13 |
| Mar | I, II, | Indigenous and Fermented milk products | Product description, methods for manufacture of butter, cheese, khoa, paneer, shrikhand, ghee. Spray drying system: dried milk- whole milk and skim milk powder | 10 |
| Apr | I, II | In-Plant cleaning system | Introduction to Cleaning in- place (CIP) system - cleaning procedure, Cleaning efficiency, Methods of cleaning in food industry, cleaning solutions – Detergents, Sanitizers. Personal hygiene in dairy plant. | 10 |

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**Subhash Baburao Kul Arts,Commerce,Science College**

Kedgaon, Tal: Daund, Dist: Pune, 412203.

**B.Voc (Food Processing)**

**Teaching Plan**

**Name of Asst. Prof: -** Avachat O. S

**Academic Year:** 2022-23 **Class:-**F.Y.Food Processing

**Subject: -**  VFP2G06TB (Sanitation and Hygiene)

**Semester -II**

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| --- | --- | --- | --- | --- |
| **Month** | **Week** | **Topic** | **Learning Points** | **No. of Periods** |
| Jan | I , II &III | Sanitation and Health | 1)Definition, importance  2) Application of sanitation to food industry  3) Microorganisms- characteristics and their control  4) Food contamination, spoilage and food borne diseases | 13 |
| Feb | I &II | Hygiene and Food Handling | 1)Purchasing and receiving safe food  2) Sanitary procedures in food preparations  3) Serving and displaying of food | 10 |
| Feb | III & IV | Environmental Sanitation | 1) Location and layout of premises  2) Sanitary requirements for equipments  3) Guidelines for cleaning equipments  4) Pest control, environmental pollution | 10 |
| Mar | I ,II & III | Hygiene Practices in food idustry | 1) Introduction, necessity  2) Personal hygiene  3) Sanitary practices  4) Safety at work place | 12 |
| April | I & II | Sanitation regulations and Standards | 1)Regulatory agencies  2)Control of food quality  3) Food sanitation check list | 10 |

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**Subhash Baburao Kul Arts,Commerce,Science College**

Kedgaon, Tal: Daund, Dist: Pune, 412203.

**B.Voc (Food Processing)**

**Teaching Plan**

**Name of Asst. Prof: -** Avachat O. S

**Academic Year:** 2022-23 **Class:-**F.Y.Food Processing

**Subject: -**  VFP2G07TB (Food Science and Nutrition II)

**Semester -II**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Month** | **Week** | **Topic** | **Learning Points** | **No. of Periods** |
| Jan | I , II &III | Body Composition | 1)Five levels of body composition  2)Estimation of body composition  3) Body composition changes  4) Body Mass Index (BMI) | 12 |
| Feb | I, II &III | Carbohydrates | 1) Definition, Classification  2) Metabolism of carbohydrates  3) Glycemic Index and glycemic load  4) Resistant starch | 13 |
| Mar | I & II | Proteins | 1) Definition, classification of amino acids  2)Protein metabolism  3) Transamination, Deamination and urea cycle | 13 |
| Mar | II, III & IV | Lipids | 1) Definition, classification, structure  2) Physical and chemical properties  3) Digestion of lipids | 13 |
| April | I & II | Inborn errors of metabolism | 1) Introduction, definition  2) Inborn errors of carbohydrate metabolism  3) Inborn errors of Protein metabolism | 09 |

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**Subhash Baburao Kul Arts,Commerce,Science College**

Kedgaon, Tal: Daund, Dist: Pune, 412203.

**Teaching Plan**

**Name of Asst. Prof: -** Avachat O. S

**Academic Year:** 2022-23 **Class:-** F.Y. Food Processing.

**Subject: - Dairy Technology (P)**

**Semester -II**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Month** | **Week** | **Topic** | **Learning Points** | **No. of Periods** |
| Dec | I ,II, III & IV | Milk Testing- Platform Tests.  Determination of Activity (Titrable Acidity) of Milk. | Procedure, Aim, Objectives, conclusion | 20 |
| Jan | I ,II, III & IV | Determination of fat and SNF content in milk.  Clot on boiling test for milk | Procedure, Aim, Objectives, conclusion | 22 |
| Feb | I ,II, III & IV | Determination of specific gravity of milk.  Preparation of Lassi. | Procedure, Aim, Objectives, conclusion | 20 |
| Mar | I, II, | Preparation of khoa  Preparation of Basundi | Procedure, Aim, Objectives, conclusion | 15 |
| Apr | I, II | Preparation of chakka and shrikand | Procedure, Aim, Objectives, conclusion | 13 |

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Netaji Shikshan Sanstha’s

**Subhash Baburao Kul Arts,Commerce,Science College**

Kedgaon, Tal: Daund, Dist: Pune, 412203.

**Teaching Plan**

**Name of Asst. Prof: -** Gaikwad Omkar

**Academic Year:** 2022-23 **Class:-** F.Y. Food Processing.

**Subject: -** Critical thinking, academic writing & presentation skills **(P)**

**Semester -II**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Month** | **Week** | **Topic** | **Learning Points** | **No. of Periods** |
| Dec | I ,II, III & IV | Critical thinking | Introduction to critical thinking, Benefits, Barriers, Reasoning, Arguments, Deductive and inductive arguments, Inferential comprehension, Critical thinking in academic writing, Elements: Clarity, Accuracy, Precision and Relevance. | 20 |
| Jan | I ,II, III & IV | Research for academic writing | Data collection, Use of print, electronic sources and digital sources. Selecting key points, Note making, paraphrasing, summary. | 20 |
| Feb | I ,II, III & IV | Writing process | Documentation, Plagiarism. Structure and Content: Title, Body paragraphs, Introduction and conclusion. Revising, Proof-reading. | 15 |
| Mar | I, II, | Writing models | Letters, Letters to the editor, Resume and covering letters, e-mail, Seminar papers, Project reports, Notices, Filling application forms, Minutes, agenda, Essays | 15 |
| Apr | I, II | Presentation skills | Soft skills for academic presentations, Effective communication skills, Structuring the presentation, Choosing appropriate medium, Flip charts, OHP, PowerPoint presentation, Clarity and brevity, Interaction and persuasion, Interview skills, Group Discussions | 20 |

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Netaji Shikshan Sanstha’s

**Subhash Baburao Kul Arts,Commerce,Science College**

Kedgaon, Tal: Daund, Dist: Pune, 412203.

**Teaching Plan**

**Name of Asst. Prof: -** Jagtap.S.T

**Academic Year:** 2022-23 **Class:-** F.Y. Food Processing.

**Subject: -** Business Communication **(P)**

**Semester -II**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Month** | **Week** | **Topic** | **Learning Points** | **No. of Periods** |
| Dec | I ,II, III & IV | Basis of Communication | 1)Meaning importance and process of communication  2) Need and objectives of communication  3)7Cs of communication  4) How to overcome communication barrier. | 18 |
| Jan | I ,II, III & IV | Media of Communication | 1) Introduction and concept of media communication  2) Verbal and nonverbal communication  3) Channel of formal and informal communication | 12 |
| Feb | I ,II, III & IV | Listening as a Communication Tool | 1) Meaning and important types of listening  2) Barriers to effective listening and how to make listening  3) Effective speech and presentation characteristics of a good speech  4) How to make effective presentation  5) Planning preparation organising hearing and delivery of presentation | 25 |
| Mar | I, II, | Groups | 1) Importance of features advantage and disadvantages techniques of group discussion  2) Group discussion making brain stroming stations  3) Nominal group technique  4) Solving problems in groups | 15 |
| Apr | I, II | New Trends in Business Communication | 1) Explain new techniques of communication  2) Email, teleconferencing, video conferencing, SMS | 20 |

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Netaji Shikshan Sanstha’s

**Subhash Baburao Kul Arts,Commerce,Science College**

Kedgaon, Tal: Daund, Dist: Pune, 412203.

**B.Voc (Food Processing)**

**Teaching Plan**

**Name of Asst. Prof: -** Mr. Avachat. O. S

**Academic Year:** 2022-23 **Class:-**S.Y.Food Processing

**Subject: -**  VFP3G08TB (Technology of fish, meat & egg processing)

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| --- | --- | --- | --- | --- |
| **Month** | **Week** | **Topic** | **Learning Points** | **No. of Periods** |
| July | I, II & III | Compositional and Nutritional aspect of Animal foods | Fish - Classification of fish (fresh water and marine), composition, spoilage of fish -microbiological, physiological, biochemical.   Meat - Definition of carcass, concept of red meat and white meat, composition of meat, marbling in meat, post mortem changes in meat - rigor mortis, tenderization of meat, ageing of meat.   Egg- Composition and nutritive value, egg proteins, characteristics of fresh egg, deterioration of egg quality. | 15 |
| July | III & IV | Fish Processing | Preservation of fish-Chilling, Freezing, curing, drying, salting - salting methods: brining, pickling, curing and canning of fish. Smoking - smoke production, smoke components, quality, safety and nutritive value of smoked fish. | 08 |
| Aug | I & II | Meat processing | Meat Quality - colour, flavour, texture, Water Holding Capacity (WHC), Emulsification capacity of meat.    Preservation of meat -Refrigeration and freezing, thermal processing - canning of meat, dehydration, meat curing. | 15 |
| Sep | II &III | Products from fish, meat and egg | Fishery products: Surimi - Process, traditional and modern production lines, quality of surimi products. Fish protein concentrates (FPC), fish protein extracts (FPE | 10 |
| Oct | I & II | Products from fish, meat and egg | Meat products: Sausages - processing, RTE meat products. Egg products– Egg powder, frozen egg pulp, designer eggs. | 12 |

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Netaji Shikshan Sanstha’s

**Subhash Baburao Kul Arts,Commerce,Science College**

Kedgaon, Tal: Daund, Dist: Pune, 412203.

**B.Voc (Food Processing)**

**Teaching Plan**

**Name of Asst. Prof: -** Mr. Avachat. O. S

**Academic Year:** 2022-23 **Class:-**S.Y.Food Processing

**Subject: -**  VFP3G08TB - Technology of Fish, Meat & Egg Processing

**Semester -III**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Month** | **Week** | **Topic** | **Learning Points** | **No. of Periods** |
| Aug | I, II & III | **Compositional and Nutritional aspect of Animal foods** | **Compositional and Nutritional aspect of Animal foods- Fish - Classification of fish (fresh water and marine), composition, spoilage of fish -microbiological, physiological, biochemical.   Meat - Definition of carcass, concept of red meat and white meat, composition of meat, marbling in meat, post mortem changes in meat - rigor mortis, tenderization of meat, ageing of meat.   Egg- Composition and nutritive value, egg proteins, characteristics of fresh egg, deterioration of egg quality.** | 15 |
| Sep | III & IV | **Fish Processing** | **Preservation of fish-Chilling, Freezing, curing, drying, salting - salting methods: brining, pickling, curing and canning of fish. Smoking - smoke production, smoke components, quality, safety and nutritive value of smoked fish.** | **08** |
| Oct | I & II | **Meat processing** | **Meat Quality - colour, flavour, texture, Water Holding Capacity (WHC), Emulsification capacity of meat.    Preservation of meat -Refrigeration and freezing, thermal processing - canning of meat, dehydration, meat curing.** | **15** |
| Nov | II &III | **Products from fish, meat and egg** | **Fishery products: Surimi - Process, traditional and modern production lines, quality of surimi products. Fish protein concentrates (FPC), fish protein extracts (FPE). Meat products: Sausages - processing, RTE meat products. Egg products– Egg powder, frozen egg pulp, designer eggs.** | **10** |
| Dec | I& II | **Products from fish, meat and egg** | **- Fishery products: Surimi - Process, traditional and modern production lines, quality of surimi products. Fish protein concentrates (FPC), fish protein extracts (FPE). Meat products: Sausages - processing, RTE meat products. Egg products– Egg powder, frozen egg pulp, designer eggs.** |  |

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Netaji Shikshan Sanstha’s

**Subhash Baburao Kul Arts,Commerce,Science College**

Kedgaon, Tal: Daund, Dist: Pune, 412203.

**B.Voc (Food Processing)**

**Teaching Plan**

**Name of Asst. Prof: -** Mr. Vishal Divekar

**Academic Year:** 2022-23 **Class:-**S.Y.Food Processing

**Subject: -**  VFP3G09TB (Technology of spices and plantation crops)

**Semester -III**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Month** | **Week** | **Topic** | **Learning Points** | **No. of Periods** |
| Aug | I, II & III | Spice processing | 1) Introduction, classification, composition, functions  2) International quality specifications of spices  3) Spice processing and post processing treatments  4) Introduction to gas chromatography, Spectrophotometer | 15 |
| Sep | III & IV | Processing of major spices | 1) Study of major spices like black pepper, cardamom, ginger, clove, cinnamon chili, turmeric etc.  2) Method of manufacturing  3) Chemistry of volatile compounds | 15 |
| Oct | I & II | Spice extractives | 1)Value added spice products  2) Spice volatile oils, spice oleoresins  3) Use of spice extractives, alternative products  4) Ground spices, processed spices, organic spices, curry powders | 10 |
| Nov | II &III | Plantation crops | 1)Cashew processing-Composition, Structure and characteristics of cashew nut  2) Uses, Traditional method of cashew processing  3) General processing, | 10 |
| Dec | I& II | Sugarcane and cocoa processing | 1)Production and processing of sugarcane  2) Cocoa: varieties, Processing of cocoa  3) Manufacture of chocolate- conching, milk chocolate, dark chocolate, cocoa butter, wafer coated chocolate, | 10 |

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**Subhash Baburao Kul Arts,Commerce,Science College**

Kedgaon, Tal: Daund, Dist: Pune, 412203.

**B.Voc (Food Processing)**

**Teaching Plan**

**Name of Asst. Prof: -** Mr. Avachat. O.S

**Academic Year:** 2022-23 **Class:-**S.Y.Food Processing

**Subject: -**  VFP3G10TB – Food Microbiology

**Semester -III**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Month** | **Week** | **Topic** | **Learning Points** | **No. of Periods** |
| July | I, II & III | Introduction to food microbiology | Discovery, current status, role of food microbiology, sources of micro organisms in food, changes caused by microorganisms - food fermentation. Growth and survival of microorganisms in foods, biological, chemical and physical changes caused by microorganisms, physical and chemical methods to control microorganisms. | 09 |
| July | III & IV | Characteristics of microorganisms | Classification of microorganisms, nomenclature, morphology – yeast and moulds, bacterial cells, viruses. Important microbes in food, microbial growth characteristics – Microbial reproduction, nature of growth in food. Food hygiene and sanitation: Contamination during handling and processing and its control. | 11 |
| Aug | I & II | Food preservation | Factors influencing microbial growth in food: Intrinsic and extrinsic factor - Hydrogen ion concentration, Moisture requirement, concept of water activity, temperature, oxidation reduction potential, Principles of different food preservation methods. | 10 |
| Sep | II &III | Spoilage in different food groups | Food spoilage – Introduction, spoilage in cereals, vegetables and fruits, meat, poultry, fish, milk and milk products, canned foods, nuts and oil seeds, fats and oil seeds. | 16 |
| Oct | I & II | Beneficial uses of microorganisms | Microorganisms used in food fermentation, mechanisms of nutrient transport, intestinal bacteria and probiotics, food bio preservatives of bacterial origin, food ingredients and enzymes of microbial origin. Economic importance of microorganisms. | 14 |

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Netaji Shikshan Sanstha’s

**Subhash Baburao Kul Arts,Commerce,Science College**

Kedgaon, Tal: Daund, Dist: Pune, 412203.

**B.Voc (Food Processing)**

**Teaching Plan**

**Name of Asst. Prof: -** Mr. Avachat. O.S

**Academic Year:** 2022-23 **Class:-** S.Y.Food Processing

**Subject: -**  VFP3S07PB – Chemical & microbial analysis of foods (Practical)

**Semester -III**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Month** | **Week** | **Topic** | **Learning Points** | **No. of Periods** |
| July | I,II,III, IV | Demonstrations of process of essential oil extraction and oleoresin of different spice.  Detection of papaya seeds in black pepper | 1)Aim and objective  2) Material and method  3) Result  4) Conclusion | 20 |
| Aug | I & II | Preparation of fermented foods | 1)Aim and objective  2) Material and method  3) Result  4) Conclusion | 10 |
| Sep | II, III & IV | Introduction to the Basic Microbiology Laboratory Practices and Equipments  Functioning & use of compound microscope | 1)Aim and objective  2) Material and method  3) Result  4) Conclusion | 20 |
| Oct | I & II | Cleaning and sterilization of glassware  Preparation of slant, stab and plates using nutrient agar. | 1)Aim and objective  2) Material and method  3) Result  4) Conclusion | 20 |
| Nov | I & II | Standard Plate Count Method.  Visit to oil refining industry | 1)Aim and objective  2) Material and method  3) Result  4) Conclusion | 20 |

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Netaji Shikshan Sanstha’s

**Subhash Baburao Kul Arts,Commerce,Science College**

Kedgaon, Tal: Daund, Dist: Pune, 412203.

**B.Voc (Food Processing)**

**Teaching Plan**

**Name of Asst. Prof: -** Mrs. Jagtap. S. T

**Academic Year:** 2022-23 **Class:-** S.Y.Food Processing

**Subject: -**  VFP3S08PB – Business Management (Practical)

**Semester -III**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Month** | **Week** | **Topic** | **Learning Points** | **No. of Periods** |
| July | I,II,III, IV | Management | 1) Introduction meaning characteristics and nature of management  2)Scope and functional areas of management  3)Management as a science art or profession  4) Management and administration principles of management  5) Social responsibility of management | 15 |
| Aug | I & II | Planning | 1) Meaning nature and importance of planning  2) Purpose of planning  3) Objectives types of plans  4) Planning process | 15 |
| Sep | II, III & IV | Organising and Staffing | 1) nature and purpose principles of organisation  2) types of organisation  3) organisation chart organisation manual departmentation committees  4) delegation of authority responsibility and accountability centralisation VS decentralization of authority  5) nature and importance of staffing  6) process of selection and recruitment | 20 |
| Oct | I & II | Direction and motivation | 1)Meaning and nature of direction  2) Meaning and importance of motivation  3) Theories of motivation(Maslow's, Herzberg, McGregor s X&Y theory  4) Leadership meaning style managerial grid by Blake and mountain likerts four level model  5) Coordination meaning and importance | 20 |
| Nov | I & II | Controlling | 1) Meaning and steps in controlling  2) Essentials of a sound control system  3) Methods of establishing control  4) Control by Exception | 20 |

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Netaji Shikshan Sanstha’s

**Subhash Baburao Kul Arts,Commerce,Science College**

Kedgaon, Tal: Daund, Dist: Pune, 412203.

**B.Voc (Food Processing)**

**Teaching Plan**

**Name of Asst. Prof: -** Mr. Avachat. O.S

**Academic Year:** 2022-23 **Class:-** S.Y.Food Processing

**Subject: -**  VFP3S09PB – Technology of Fish, Meat and Egg Processing (Practical)

**Semester -III**

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| **Month** | **Week** | **Topic** | **Learning Points** | **No. of Periods** |
| July | I & II | Slaughtering and dressing of poultry bird | 1)Aim and objective  2) Material and method  3)Conclusion | 05 |
| July | III & IV | Determination of water holding capacity of meat | 1)Aim and objective  2) Material and method  3) Result  4) Conclusion | 05 |
| Aug | I & II | Determination of meat pH | 1)Aim and objective  2) Material and method  3) Result  4) Conclusion | 05 |
| Sep | II, III & IV | Preparation of meat products and Tenderization of meat | 1)Aim and objective  2) Material and method  3) Result  4) Conclusion | 10 |
| Oct | I & II | Composition, structure of egg and  Preservation of shell egg | 1)Aim and objective  2) Material and method  3) Result  4) Conclusion | 10 |

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**Subhash Baburao Kul Arts,Commerce,Science College**

Kedgaon, Tal: Daund, Dist: Pune, 412203.

**B.Voc (Food Processing)**

**Teaching Plan**

**Name of Asst. Prof: -** Mr. Avachat. O.S

**Academic Year:** 2022-23 **Class:-**S.Y.Food Processing

**Subject: -**  VFP4G11TB – Technology of Cereals, pulses & oilseeds

**Semester -IV**

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| --- | --- | --- | --- | --- |
| **Month** | **Week** | **Topic** | **Learning Points** | **No. of Periods** |
| Jan | I & II | Paddy Processing | Composition and Quality characteristics. Curing of Paddy. Parboiling Processessoaking, steaming, drying,Paddy Dryer -LSU Dryer. Production of Flattened Rice and Puffed Rice from Paddy. | 10 |
| Jan | III &IV | Rice Milling | Paddy Dehusking Processes. Rice Mill Flow Chart. Engelberg Huller Mills. Modern Rice Mills – Their Components - Pre Cleaners, rubber roll Shellers, Paddy Separators – Satake type, Extraction of rice bran oil and uses of rice bran in food industry | 15 |
| Feb | I, II & III | Wheat milling | Wheat - composition and nutritional value, wheat milling process – cleaning-conditioning/hydrothermal treatment, milling-break roll and reduction rolls. | 10 |
| Mar | I,II, III & IV | Milling of Pulses | Varieties-chemical composition and structure-dry milling and wet milling process of pulses, processed products of pulses. | 10 |
| April | I & II | Oil seed processing | Introduction- methods- hydraulic press- screw press – principle and working, solvent extraction methods, Clarification, degumming, neutralization, bleaching, deodorization techniques/process, blending of oils. Hydrogenation. | 15 |

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**B.Voc (Food Processing)**

**Teaching Plan**

**Name of Asst. Prof: -** Mr. Avachat. O.S

**Academic Year:** 2022-23 **Class:-**S.Y.Food Processing

**Subject: -**  VFP4G12TB – Technology of Beverages

**Semester -IV**

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| **Month** | **Week** | **Topic** | **Learning Points** | **No. of Periods** |
| Jan | I & II | Introduction to beverages | 1)Types of beverages and their importance  2)Status of beverage industry in India  3)Manufacturing technology for juice-based beverages, technology of still, carbonated  4) Role of various ingredients of soft drinks, carbonation of soft drinks | 10 |
| Jan | III &IV | Manufacturing process of beverages | 1)Beverages based on tea, coffee  2)Processing of cocoa, spices, plant extracts, herbs, nuts  3) Dairy based beverages | 10 |
| Feb | I, II & III | Types of coffee and tea | 1)Chemical composition and processing of tea and coffee and their quality assessment  2) Types of tea  3) Types of coffee | 15 |
| Mar | I,II, III & IV | Alcoholic Beverages | 1)Types, manufacture and quality evaluation  2) The role of yeast in beer and other alcoholic beverages  3) Types of beer  4) Equipments used for brewing and distillation  5) Wine and related beverages, distilled spirits. | 15 |
| April | I & II | Packaged Drinking Water | 1)Definition, types, manufacturing processes  2) Quality evaluation and raw and processed water  3) Methods of water treatment  4) BIS quality standards of bottled water; mineral water, carbonated water. | 10 |

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**Subhash Baburao Kul Arts,Commerce,Science College**

Kedgaon, Tal: Daund, Dist: Pune, 412203.

**B.Voc (Food Processing)**

**Teaching Plan**

**Name of Asst. Prof: -** Mr. Avachat. O.S

**Academic Year:** 2022-23 **Class:-**S.Y.Food Processing

**Subject: -** VFP4G13TB – Food Product Design and Development

**Semester -IV**

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| **Month** | **Week** | **Topic** | **Learning Points** | **No. of Periods** |
| Jan | I , II &III | Concept of product development | 1)Need, importance and objectives of formulation for new product development  2)Product success and failure, factors for success  3) process of product development, managing for product’s success  4)Innovation strategy - possibilities for innovation, building up strategy, product development programme | 12 |
| Feb | I, II &III | Product development process | 1)Ideas, Formulation based on sources availability  2) Cost competitiveness for concept developments of new products  3)Product strategy, product design and process development, product launch and evaluation | 12 |
| Mar | I & II | Knowledge base for product development technology | 1)Adaptable technology and sustainable technology for standardized formulation for process development  2)Knowledge and the food system, knowledge management, knowledge for conversion of product concept to new product  3) Process control parameters and scale up | 12 |
| Mar | II, III & IV | Role of consumers in product development | 1)Consumer behavior  2) Food preferences, avoiding acceptance  3) Integration of consumer needs in product development and sensory needs. | 12 |
| April | I & II | Managing the product development process | 1)Principles of product development management  2) People in product development management  3) Designing the product development process, key decision points. | 12 |

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**Subhash Baburao Kul Arts,Commerce,Science College**

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**B.Voc (Food Processing)**

**Teaching Plan**

**Name of Asst. Prof: -** Avachat .O.S

**Academic Year:** 2022-23 **Class:-**S.Y.Food Processing

**Subject: -** VFP4S10PB – Technology of Cereals, Pulses and Oilseeds (Practical)

**Semester -IV**

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| --- | --- | --- | --- | --- |
| **Month** | **Week** | **Topic** | **Learning Points** | **No. of Periods** |
| Jan | II, III, IV | Physical characteristics of Wheat  Estimation of Gluten Content of flour. | Aims,  Objectives,  Result,  Conclusion. | 20 |
| Feb | I,II,III, IV | Estimation of Potassium Bromate in flour.  Physical Characteristics of Rice and paddy | Aims,  Objectives,  Result,  Conclusion. | 20 |
| Mar | I,II, III & IV | Cooking characteristics of rice.  Visit to rice mill station. | Aims,  Objectives,  Result,  Conclusion. | 30 |
| April | I & II | Visit to beverage unit. | Aims,  Objectives,  Result,  Conclusion. | 20 |

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**Subhash Baburao Kul Arts,Commerce,Science College**

Kedgaon, Tal: Daund, Dist: Pune, 412203.

**B.Voc (Food Processing)**

**Teaching Plan**

**Name of Asst. Prof: -** Mr. Vishal Divekar

**Academic Year:** 2022-23 **Class:-**S.Y.Food Processing

**Subject: -** VFP4S11PB – Byproduct utilization and Waste management Practical

**Semester -IV**

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| --- | --- | --- | --- | --- |
| **Month** | **Week** | **Topic** | **Learning Points** | **No. of Periods** |
| Jan | II | Waste Management | 1)Aim and objective  2) Material and method  3)Conclusion | 05 |
| Feb | I | Waste Characterization | 1)Aim and objective  2) Material and method  3) Result  4) Conclusion | 05 |
| Feb | II & III | Effluent Treatment | 1)Aim and objective  2) Material and method  3) Result  4) Conclusion | 10 |
| Mar | II & IV | Waste utilization of agro industries | 1)Aim and objective  2) Material and method  3) Result  4) Conclusion | 15 |
| April | I & II | Waste utilization of animal and marine product | 1)Aim and objective  2) Material and method  3) Result  4) Conclusion | 10 |

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**Subhash Baburao Kul Arts,Commerce,Science College**

Kedgaon, Tal: Daund, Dist: Pune, 412203.

**Teaching Plan**

**Name of Asst. Prof: - Prof Jagtap S.T.**

**Academic Year:** 2022-23 **Class: - S.Y Food processing**

**Subject: - VFP4S12PB- Marketing Management**

**Semester -IV**

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| --- | --- | --- | --- | --- |
| **Month** | **Week** | **Topic** | **Learning Points** | **No. of Periods** |
| July | I ,II, III & IV | Marketing management | 1) introduction and Definitions of marketing and marketing management  2)Nature ,scope and concept of marketing  3) functions of marketing  4) marketing research  5) marketing mix | 15 |
| Aug | I ,II, III & IV | Marketing segmentation | 1) meaning concept need of segmentation  2) basis of market and market targeting  3)market positioning and understanding the consumer Behaviour  4) buying motives  5) factors influencing consumer buying decisions | 15 |
| Sep | I ,II, III & IV | Marketing of products | 1) product meaning development and mix  2)branding brand equity and brand loyalty  3) Trademarks ,packaging and labelling  4) pricing of products, factors influencing pricing  5) pricing policies and strategies and types of pricing | 20 |
| Oct | I ,II, III & IV | Logistic and supply chain management | 1) ts elements and concept of logistics  2) channels of distribution  3)factors affecting the choice of a channel of distribution  4) types of channels distribution | 20 |
| Nov. | I, II, III & IV | Emerging trends in marketing | 1) introduce modern marketing  2) direct marketing and e marketing  3) tele marketing and viral marketing  4) relationship marketing and social marketing  5) social media marketing and Demarketing | 20 |

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**Subhash Baburao Kul Arts,Commerce,Science College**

Kedgaon, Tal: Daund, Dist: Pune, 412203.

**B.Voc (Food Processing)**

**Teaching Plan**

**Name of Asst. Prof: -** Mr. Avachat O.S

**Academic Year:** 2022-23 **Class:-**T.Y.Food Processing

**Subject: -** VFP5G14TB – Processing Of Fruits & Vegetables

**Semester -V**

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| **Month** | **Week** | **Topic** | **Learning Points** | **No. of Periods** |
| July | I & II | **Introduction** | **Composition and nutritive value of fruits and vegetable. Factors effecting composition and quality of fruits and vegetables. Quality requirements of raw materials for processing; grading, sorting, cleaning, washing, peeling, slicing and blanching** | **12** |
| July | III & IV | **Spoilage of fruits and vegetables** | **Different types of spoilages in fruits and vegetables. Spoilage during storage of fruits and vegetables and their prevention. General methods of preservation of whole fruits/vegetables and processed fruits and vegetables. Spoilage of pickles. Methods of preparation. Types of preservatives commonly used in Fruits and vegetables processing industry, limits of usage of preservatives.** | **12** |
| Aug | I ,II & III | **Processing of fruits and vegetables** | **Processing of fruits and vegetables-Dehydration of fruits and vegetables using various drying technologies like sun drying, solar drying (natural and forced convection), osmotic, tunnel drying, fluidized bed drying, freeze drying, convectional and adiabatic drying; applications to raisins,vegetables, intermediate moisture fruits and vegetables. Fruit powders using spray drying.** | **16** |
| Sep | II, III, IV | **Manufacture of Fruit products** | **Manufacturing process of juice, soup, puree, Jellies and marmalades:selection, preparation, production. Difference between jam and jelly. Theory of jell formation, failure and remedies in jam and jelly making.** | **10** |
| Oct | I& II | **Manufacture of vegetable products** | **Manufacturing process of sauce, ketchup, vegetable juices and concentrated products** | **10** |

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**Subhash Baburao Kul Arts,Commerce,Science College**

Kedgaon, Tal: Daund, Dist: Pune, 412203.

**B.Voc (Food Processing)**

**Teaching Plan**

**Name of Asst. Prof: -** Mr. Avachat O.S

**Academic Year:** 2022-23 **Class:-**T.Y.Food Processing

**Subject: -** VFP5G15TB – Engineering Properties of foods

**Semester -V**

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| --- | --- | --- | --- | --- |
| **Month** | **Week** | **Topic** | **Learning Points** | **No. of Periods** |
| July | I & II | **Physical Properties of Foods** | **Methods of estimation of – Shape- roundness, roundness ratio, size, volume- platform scale method, density, specific gravity-apparatus, porosity and surface area.** | **10** |
| July | III & IV | **Thermal Properties of Foods** | **Definitions - specific heat, enthalpy, conductivity and diffusivity, surface heat transfer coefficient. Measurement of thermal properties like specific heat, thermal conductivity and thermal diffusivity** | **15** |
| Aug | I ,II & III | **Aerodynamic properties and frictional properties of Foods** | **Aerodynamic property-definition- terminal velocity - application in handling and separation of food materials. Frictional property-coefficient of friction,angle of repose, angle of internal friction, application in food handling and storage** | **15** |
| Sep | II, III, IV | **Rheology and texture of foods** | **Rheology- rheological classification-viscoelasticity-viscometers. Texture of foods- methods of textural evaluationsubjective and objective method- texture profile method** | **10** |
| Oct | I& II | **Electrical, optical properties and mechanical damage** | **Electrical and optical property- importance and its application. Mechanical damagecauses of mechanical damage-methods for detection and evaluation of mechanicaldamage.** | **10** |

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**B.Voc (Food Processing)**

**Teaching Plan**

**Name of Asst. Prof: -** Mr. Avachat O.S

**Academic Year:** 2022-23 **Class:-**T.Y.Food Processing

**Subject: -** VFP5G16TB – Sensory Evaluation of foods

**Semester -V**

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| **Month** | **Week** | **Topic** | **Learning Points** | **No. of Periods** |
| July | I & II | Introduction to sensory | 1)Definition of sensory evaluation  2) basic tastes; human senses and sensory perception; threshold; psychophysics, Tongue surface | 10 |
| July | III & IV | Arrangements for Sensory Evaluation Test controls | 1)Environment and test room design  2) Product controls: sample preparation and presentation  3)Panelist controls; factors influencing measurements: psychological and physiological errors | 10 |
| Aug | I ,II & III | Statistical Methods for Sensory Evaluation | 1)Classification of test methods  2)Qualitative (interview and focus group) and quantitative tests (paired preference and acceptance tests)  3)Two sample test, Ranking test, Two sample difference test, numeric scoring test, hedonic ranking test | 15 |
| Sep | II, III, IV | Subjective and objective methods | 1)Texture analyser  2)Mechanical characteristics- chewiness, brittleness, and geometric characteristics  3)Sensory panel-types-criteria for panel selection | 15 |
| Oct | I& II | Applications of Sensory Analysis in the Food Industry | 1)Quality control  2)Storage stability testing  3)Product development and consumer acceptance testing | 10 |

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**B.Voc (Food Processing)**

**Teaching Plan**

**Name of Asst. Prof: -** Mr. Avachat O.S

**Academic Year:** 2022-23 **Class:-**T.Y.Food Processing

**Subject: -**  VFP5S13PB – Processing Of Fruits & Vegetables (Practical)

**Semester -V**

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| **Month** | **Week** | **Topic** | **Learning Points** | **No. of Periods** |
| July | III & IV | **Handling and operating of food processing equipments and Instrument** | **Pulper, Sealers, Juice extracting machines, Autoclaves, Corking machines, Refractometer,Thermometer,Vacuum gauge, pressure gauge, seam checking gauge,Electronic weighing balance** | **15** |
| Aug | I ,II, III & IV | **Quality analysis** | **Effects of pretreatment on quality of cut fruits and vegetables** | 25 |
| Sep | I ,II, III & IV | **Quality Testing** | **Determination of Degree Brix (TSS), pH and % acidity in fruits and vegetable products** | 20 |
| Oct | I ,II, III | Estimation of benzoic acid | **Estimation of benzoic acid, sulphur dioxide and KMS in terms of ppm present in fruits and vegetable products.** | 15 |
| Oct | IV | **Product Preparation** | **Preparation of tomato juices, ketchups, soup, paste.** | 15 |

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**B.Voc (Food Processing)**

**Teaching Plan**

**Name of Asst. Prof: -** Mr. Avachat O.S

**Academic Year:** 2022-23 **Class:-**T.Y.Food Processing

**Subject: -**  VFP5S14PB – Food Processing Equipments (Practical)

**Semester -V**

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| **Month** | **Week** | **Topic** | **Learning Points** | **No. of Periods** |
| July | III & IV | Introduction to equipments used in food industry | 1)Aim and objective  2) Material and method  3)Conclusion | 05 |
| Aug | I ,II, III & IV | Mechanical Equipments | 1)Aim and objective  2) Material and method  3) Result  4) Conclusion | 10 |
| Sep | I ,II, III & IV | Heat exchangers, dryers and evaporators | 1)Aim and objective  2) Material and method  3) Result  4) Conclusion | 10 |
| Oct | I ,II, III | Refrigeration and thermal processing equipments | 1)Aim and objective  2) Material and method  3) Result  4) Conclusion | 10 |
| Oct | IV | Food packaging Equipments | 1)Aim and objective  2) Material and method  3) Result  4) Conclusion | 10 |

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**B.Voc (Food Processing)**

**Teaching Plan**

**Name of Asst. Prof: -** Mr. Avachat O.S

**Academic Year:** 2022-23 **Class:-**T.Y.Food Processing

**Subject: -**  VFP5S15PB – Computer Applications (Practical)

**Semester -V**

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| **Month** | **Week** | **Topic** | **Learning Points** | **No. of Periods** |
| July | III & IV | **Office Automation** | **Introduction-Tools, Windows 7, desktop, files and folders, printers, Microsoft Office button, Quick access tool bar** | **10** |
| Aug | I ,II, III & IV | **MS Word 7** | **Introduction- Typing text, Saving, opening, Closing, common edit functions (cut copy paste, change case). Text Editing - Inserting text, spell check, correcting mistakes, common formatting functions. Formatting paragraph, tables, bullets & numbering, inserting clipart & word art, picture & Drawing tool bar, Header & footer.** | **20** |
| Sep | I ,II, III & IV | **MS Excel 7** | **Introduction- Parts of MS Excel windows, opening, saving and closing, workbook, entering data and numbers, Texts, date & time, formatting data, tool bar, drawing in MS Excel, Drawing tool bar, formatting & editing worksheet.** | **10** |
| Oct | I ,II, III | **MS Power Point 7** | **Introduction- Parts of power point windows. Features, background design, word art, clipart, 3D settings. Animations, sound views, types of views, inserting, deleting , arranging slides, slide shows** | **10** |
| Oct | IV | **DBMS, Internet & Email** | **DBMS Intro & basic concepts, Internet introduction, Creating Email- Inbox, compose, draft, attachments.** | **10** |

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**B.Voc (Food Processing)**

**Teaching Plan**

**Name of Asst. Prof: -** Mr. Avachat O.S

**Academic Year:** 2022-23 **Class:-**T.Y.Food Processing

**Subject**: VFP6G17TB - Unit Operations in Food Industry

**Semester -VI**

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| **Month** | **Week** | **Topic** | **Learning Points** | **No. of Periods** |
| Jan | I , II &III | Heat Transfer in Food Processing | 1)Modes of heat transfer  2)Heat exchangers- plate heat exchanger-tubular heat-scraped surface heat exchanger. | 10 |
| Feb | I &II | Evaporation | 1)Basic principle  2) Need for evaporation  3)Types of evaporation  4)Heat economy | 10 |
| Mar | I, II & III | Distillation and crystallization | 1)Simple distillation, flash distillation, steam distillation, fractional distillation  2) Crystallization -theory, tank crystallizer and scraped surface crystallizer. | 15 |
| Mar | III & IV | Extraction and extrusion | 1)Solid Liquid extraction  2)Liquid-Liquid extraction, Super critical fluid extraction  3) Single screw extruder, twin screw extruder | 15 |
| April | I & II | Mechanical separation and material handling | 1)Sedimentation, Centrifugal separation, filtration  2) Material handling  3) Types of conveyors | 10 |

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**B.Voc (Food Processing)**

**Teaching Plan**

**Name of Asst. Prof: -** Mr. Avachat O.S

**Academic Year:** 2022-23 **Class:-**T.Y.Food Processing

**Subject: -**  VFP6G18TB - Food Quality Assurance

**Semester -VI**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Month** | **Week** | **Topic** | **Learning Points** | **No. of Periods** |
| Jan | II &III | Concept of quality | 1)Quality attributes  2)Physical, chemical, nutritional, microbial, and sensory  3)Measurement and evaluation | 10 |
| Feb | I, II &III | Concepts of quality management | 1)Objectives, importance and functions of quality control  2)Quality management systems in India  3) Food laws and regulations | 15 |
| Mar | I & II | HACCP system | 1)HACCP introduction  2) Definition, principles  3) Guidelines for the application of HACCP system. | 10 |
| Mar | II, III & IV | Food Quality Laws and Regulations | 1)Quality assurance  2)Total Quality Management, GMP/GHP, GLP, GAP  3)Indian & International quality systems and standards like ISO and Food Codex, Export import policy | 15 |
| April | I & II | Intellectual Property Rights | 1)Introduction, History in India  2)Laws related to IPR, Copyright, patent, trademark, designs, geographical indications of food  3)World Intellectual Property Organization (WIPO)  4) Commercialization of Intellectual Property Rights (IPR), important websites | 10 |

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**B.Voc (Food Processing)**

**Teaching Plan**

**Name of Asst. Prof: -** Mr. Avachat O.S

**Academic Year:** 2022-23 **Class:-**T.Y.Food Processing

**Subject: -**  VFP6G19TB – Emerging Technologies In Food Industry

**Semester -VI**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Month** | **Week** | **Topic** | **Learning Points** | **No. of Periods** |
| Jan | II &III | **Membrane separation process** | **Membrane Technology-process- Micro-filtration, Ultra-filtration, Nano-filtration and Reverse Osmosis-advantages-equipment** | **10** |
| Feb | I, II &III | **High pressure processing and microwave heating** | **Microwave heating of foods- Mechanism of Heat Generation-Working of microwave oven,High Pressure processing: Concept-Equipment for HPP Treatment-Mechanism of Microbial Inactivation and its Application in Food** | **18** |
| Mar | I & II | **Irradiation and PEF and ohmic heating** | **Pulsed electric field – equipment –mechanism of PEF-advantages, Ohmic heating of foods- mechanism- principle-advantages, applications** | **12** |
| Mar | III & IV | **Osmotic dehydration of foods** | **Principle – Mechanism of osmotic dehydration – Effect of process parameters on mass transfer – Methods to increase the rate of mass transfer – Applications – Limitations of osmotic dehydration** | **10** |
| April | I & II | **Nanotechnology and antimicrobial technology** | **Role of Antimicrobial agents in food –Plant and animal derived antimicrobials – Antimicrobial enzymes, antimicrobial food packaging, nanotechnology-application of nanotechnology in food industry** | **10** |

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Netaji Shikshan Sanstha’s

**Subhash Baburao Kul Arts,Commerce,Science College**

Kedgaon, Tal: Daund, Dist: Pune, 412203.

**B.Voc (Food Processing)**

**Teaching Plan**

**Name of Asst. Prof: -** Mr. Avachat O.S

**Academic Year:** 2022-23 **Class:-**T.Y.Food Processing

**Subject: -**  VFP6S16PB – Food Service Management

**Semester -VI**

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| --- | --- | --- | --- | --- |
| **Month** | **Week** | **Topic** | **Learning Points** | **No. of Periods** |
| Jan | II &III | **Introduction to Food Service Establishments** | **Types of food service establishments. Planning for a food service unit- Planning, investment, Project report, Registration (License and Inspection).** | **15** |
| Feb | I, II &III | **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.** | **25** |
| Mar | I & II | **Food Service and Delivery 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.** | **20** |
| Mar | II, III & 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** | **20** |
| April | I & II | **Accounting** | **Book keeping, books of accounts, Journal, Ledger, trial balance, balance sheet. profit analysis, food cost control.** | **10** |

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Kedgaon, Tal: Daund, Dist: Pune, 412203.

**B.Voc (Food Processing)**

**Teaching Plan**

**Name of Asst. Prof: -** Mr. Gaikwad O.D

**Academic Year:** 2022-23 **Class:-**T.Y.Food Processing

**Subject: -**  VFP6S17PB – Personality Development

**Semester -VI**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Month** | **Week** | **Topic** | **Learning Points** | **No. of Periods** |
| Jan | II &III | **Leadership** | **Introduction to Leadership, Leadership Power, Leadership Styles, Leadership in administration** | **18** |
| Feb | I, II &III | **Interpersonal Relations** | **Introduction to Interpersonal Relations, Analysis of different ego states, Analysis of Transactions, Analysis of Strokes, Analysis of Life position** | 18 |
| Mar | I & II | **Stress and Conflict Management** | **Introduction to Stress, Causes of Stress, Impact Stress, Managing Stress. Conflict: Introduction to Conflict, Causes of Conflict** | **18** |
| Mar | II, III & IV | **Time Management** | **Time as a Resource, Identify Important Time Management Wasters, Individual Time Management Styles, Techniques for better Time Management.** | **18** |
| April | I & II | **Motivation** | **Introduction to Motivation, Relevance and types of Motivation, Motivating the subordinates, Analysis of Motivation** | **18** |

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Kedgaon, Tal: Daund, Dist: Pune, 412203.

**B.Voc (Food Processing)**

**Teaching Plan**

**Name of Asst. Prof: -** Mr. Avachat O.S

**Academic Year:** 2022-23 **Class:-**T.Y.Food Processing

**Subject: -**  VFP6S18PB – Industrial Experience

**Four Months Experience Taken By Students In Industry & Report Submitted to Department.**

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**Subhash Baburao Kul Arts,Commerce,Science College**

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**B.Voc (Food Processing)**

**Teaching Plan**

**Name of Asst. Prof: -** Avachat O. S

**Academic Year:** 2022-23 **Class:-**T.Y.Food Processing

**Subject: -**  VFP5G16TB – Sensory Evaluation of foods

**Semester -V**

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| **Month** | **Week** | **Topic** | **Learning Points** | **No. of Periods** |
| July | I & II | Introduction to sensory | 1)Definition of sensory evaluation  2) basic tastes; human senses and sensory perception; threshold; psychophysics, Tongue surface | 10 |
| July | III & IV | Arrangements for Sensory Evaluation Test controls | 1)Environment and test room design  2) Product controls: sample preparation and presentation  3)Panelist controls; factors influencing measurements: psychological and physiological errors | 10 |
| Aug | I ,II & III | Statistical Methods for Sensory Evaluation | 1)Classification of test methods  2)Qualitative (interview and focus group) and quantitative tests (paired preference and acceptance tests)  3)Two sample test, Ranking test, Two sample difference test, numeric scoring test, hedonic ranking test | 15 |
| Sep | II, III, IV | Subjective and objective methods | 1)Texture analyser  2)Mechanical characteristics- chewiness, brittleness, and geometric characteristics  3)Sensory panel-types-criteria for panel selection | 15 |
| Oct | I& II | Applications of Sensory Analysis in the Food Industry | 1)Quality control  2)Storage stability testing  3)Product development and consumer acceptance testing | 10 |

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Kedgaon, Tal: Daund, Dist: Pune, 412203.

**B.Voc (Food Processing)**

**Teaching Plan**

**Name of Asst. Prof: -** Avachat O. S

**Academic Year:** 2022-23 **Class:-**T.Y.Food Processing

**Subject: -**  VFP5S14PB – Food Processing Equipments (Practical)

**Semester -V**

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| **Month** | **Week** | **Topic** | **Learning Points** | **No. of Periods** |
| July | III & IV | Introduction to equipments used in food industry | 1)Aim and objective  2) Material and method  3)Conclusion | 05 |
| Aug | I ,II, III & IV | Mechanical Equipments | 1)Aim and objective  2) Material and method  3) Result  4) Conclusion | 10 |
| Sep | I ,II, III & IV | Heat exchangers, dryers and evaporators | 1)Aim and objective  2) Material and method  3) Result  4) Conclusion | 10 |
| Oct | I ,II, III | Refrigeration and thermal processing equipments | 1)Aim and objective  2) Material and method  3) Result  4) Conclusion | 10 |
| Oct | IV | Food packaging Equipments | 1)Aim and objective  2) Material and method  3) Result  4) Conclusion | 10 |

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**B.Voc (Food Processing)**

**Teaching Plan**

**Name of Asst. Prof: -** Avachat O. S

**Academic Year:** 2022-23 **Class:-**T.Y.Food Processing

**Subject**: VFP6G17TB - Unit Operations in Food Industry

**Semester -VI**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Month** | **Week** | **Topic** | **Learning Points** | **No. of Periods** |
| Jan | I , II &III | Heat Transfer in Food Processing | 1)Modes of heat transfer  2)Heat exchangers- plate heat exchanger-tubular heat-scraped surface heat exchanger. | 10 |
| Feb | I &II | Evaporation | 1)Basic principle  2) Need for evaporation  3)Types of evaporation  4)Heat economy | 10 |
| Mar | I, II & III | Distillation and crystallization | 1)Simple distillation, flash distillation, steam distillation, fractional distillation  2) Crystallization -theory, tank crystallizer and scraped surface crystallizer. | 15 |
| Mar | III & IV | Extraction and extrusion | 1)Solid Liquid extraction  2)Liquid-Liquid extraction, Super critical fluid extraction  3) Single screw extruder, twin screw extruder | 15 |
| April | I & II | Mechanical separation and material handling | 1)Sedimentation, Centrifugal separation, filtration  2) Material handling  3) Types of conveyors | 10 |

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**B.Voc (Food Processing)**

**Teaching Plan**

**Name of Asst. Prof: -** Avachat O. S

**Academic Year:** 2022-23 **Class:-**T.Y.Food Processing

**Subject: -**  VFP6G18TB - Food Quality Assurance

**Semester -VI**

|  |  |  |  |  |
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| **Month** | **Week** | **Topic** | **Learning Points** | **No. of Periods** |
| Jan | II &III | Concept of quality | 1)Quality attributes  2)Physical, chemical, nutritional, microbial, and sensory  3)Measurement and evaluation | 10 |
| Feb | I, II &III | Concepts of quality management | 1)Objectives, importance and functions of quality control  2)Quality management systems in India  3) Food laws and regulations | 15 |
| Mar | I & II | HACCP system | 1)HACCP introduction  2) Definition, principles  3) Guidelines for the application of HACCP system. | 10 |
| Mar | II, III & IV | Food Quality Laws and Regulations | 1)Quality assurance  2)Total Quality Management, GMP/GHP, GLP, GAP  3)Indian & International quality systems and standards like ISO and Food Codex, Export import policy | 15 |
| April | I & II | Intellectual Property Rights | 1)Introduction, History in India  2)Laws related to IPR, Copyright, patent, trademark, designs, geographical indications of food  3)World Intellectual Property Organization (WIPO)  4) Commercialization of Intellectual Property Rights (IPR), important websites | 10 |

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