SRI VENKATESWARA UNIVRRSITY : : TIRUPATI
B.VOC , in FOOD PROCESSING TECHNOLOGY
Under CBCS W.E.F.2021-2022
COURSE STRUCTURE
SEMESTER-IV

S.. NO	Skill / general education	Courses	Title of the paper/course and code	Credits per course	Hours /week	Total hours/ course	Marks		
							Internal	External	Total
1	Domain Skill Component	**CORE-I**	Technology of Beverages	**04**	**04**	**60**	**25**	**75**	**100**
2		**PRACTICAL-1**	Technology of Beverages	**02**	**03**	**30**	---	**50**	**50**
3		**CORE-II**	Technology of Spices and Condiments	**04**	**04**	**60**	**25**	**75**	**100**
4		**PRACTICAL-II**	Technology of Spices and Condiments	**02**	**03**	**30**	--	**50**	**50**
5		**CORE-III**	Enzymes In Food Processing	**04**	**04**	**60**	**25**	**75**	**100**
6		**PRACTICAL-III**	Enzymes In Food Processing	**02**	**03**	**30**	---	**50**	**50**
7		**CORE-IV**	Technology of Food Additives And Flavours	**04**	**04**	**60**	**25**	**75**	**100**
8		**PRACTICAL-IV**	Technology of Food Additives And Flavours	**02**	**03**	**30**	**-----**	**50**	**50**
9		**CORE-V**	Marketing of Food Products	**04**	**04**	**60**	**25**	**75**	**100**
10		**PRACTICAL-V**	Marketing of Food Products	**02**	**03**	**30**	**-----**	**50**	**50**
11		**CORE-VI**	HSIFT 802 Food Analysis	**04**	**04**	**60**	**25**	**75**	**100**
12		**PRACTICAL-VI**	HSIFT 802 Food Analysis	**02**	**03**	**30**	**-----**	**50**	**50**
	TOTAL			**36**			**900**		

SRI VENKATESWARA UNIVERSITY: TIRUPATI

B.VOC. DEGREE COURSE IN FOOD PROCESSING TECHNOLOGY

IV SEMESTER

Under CBCS W.E.F. 2021-22

SKILL COMPONENT

Total Credits: 04
Total hours: 60

Core Paper-I: TECHNOLOGY OF BEVERAGES

UNIT-I INTRODUCTION TO BEVERAGES

Definition and Scope of beverage industry, Types of beverages and their importance.National and International status of beverage industry.

UNIT- II NON-ALCOHOLIC BEVERAGES

Processing and chemical composition of tea and coffee, types of tea-black tea, green tea.
Manufacturing of carbonated beverages, technology of carbonation, and application in juice preservation.

UNIT-III ALCOHOLIC BEVERAGES

Types, processing of beer, the role of yeast in beer, technology of brewing process, equipments used for brewing and distillation.
Processing of wine, whisky, brandy.

UNIT-IV PACKAGED DRINKING WATER

Definition, types, manufacturing processes, quality evaluation and raw and processed water, methods of water treatment, BIS quality standards of bottled water; mineral water.

UNIT-V PACKAGING OF BEVERAGES

Need and importance of packaging. Types of packaging materials -paper, glass, metal and plastic. Quality standards for packed processed products. Packaging evaluation: WVTR, GTR, thermal resistance, bursting strength, tensile strength, tearing strength, drop test. Label types: Function and regulations.

B.VOC. DEGREE COURSE IN FOOD PROCESSING TECHNOLOGY

IV SEMESTER

Under CBCS W.E.F. 2021-22

SKILL COMPONENT

Core Paper-I: TECHNOLOGY OF BEVERAGES

Total Credits: 02 Total hours: 30

PRACTICALS:

1. Determination of total hardness test of water.
2. Determination of chlorine test of water.
3. Determination of brix and acidity of various juices
4. Identification of adulteration in coffee powder.
5. Preparation of green tea and black tea.
6. Preparation of carbonated water.
7. Preparation of wine
8. Prepare and differentiate Squash, Nectar and RTS
9. Industrial visit of alcoholic beverages industry
10. Market survey of beverages available in local market

IV SEMESTER

Under CBCS W.E.F. 2021-22

SKILL COMPONENT

Total Credits: 04
Total hours: 60

Core Paper-II: TECHNOLOGY OF SPICES AND CONDIMENTS

UNIT-I INTRODUCTION OF SPICES

Definition, Classification of Spices, chemical composition of spices, Functional properties. Difference between spices and condiments.
National and International status and scope of spice processing industries in India

UNIT-II INTRODUCTION OF CONDIMENTS

Definition, Classification of Condiments, chemical composition of condiments, Functional properties. National and International status and scope of condiments processing industries in India.

UNIT-III PROCESSING TECHNOLOGY OF SPICES

Pepper, Cardamom, ginger, Chilli, turmeric, Cumin, Coriander, Cinnamon, fenugreek, Garlic, Clove – Method of manufacture, effect of processing on spice quality.
Role of spices in foods. Sensory aspects of spices, contamination of spices with micro-organisms and insects.

UNIT-IV PROCESSING TECHNOLOGY OF CONDIMENTS

Industrial processing of condiments, Processing of Fermented soy sauce, Mayonnaise, Mustard. Effect of processing on condiments quality.

Role of condiments in foods. Sensory aspects of condiments, contamination of condiments with micro-organisms and insects.

UNIT-V PACKAGING AND GRADING OF SPICES AND CONDIMENTS

Cleaning and grading of spices – packaging aspects of spices and condiments – grading specifications -Agmark, ASTA, ESA specifications – processes involved in the manufacture of spice extractives-oleoresins and essential oils.

IV SEMESTER

Under CBCS W.E.F. 2021-22

SKILL COMPONENT

Core Paper-II: TECHNOLOGY OF SPICES AND CONDIMENTS

Total Credits: 02 **Total hours: 30**

PRACTICALS:

1. Identification of whole spices.
2. Listing of essential oil in spices available in market.
3. Visual detection of spices and condiments for contaminants.
4. Identification of adulteration in spices.
5. Preparation of fermented soy sauce
6. Preparation of garlic powder.
7. Listing of phytochemicals available in market.
8. Preparation of spice mix.
9. Visit to spice processing unit.
10. Market survey of Condiments and Spice products

IV SEMESTER

Under CBCS W.E.F. 2021-22

SKILL COMPONENT

Total Credits: 04 **Total hours: 60**

CORE III-ENZYMES IN FOOD PROCESSING

UNIT.I

Enzymes classification, properties , characterization, and immobilization fermentative production of enzymes(Amaryllis, proteases, cellulases, pectinases, xylanases, lipases)used in food industry.

UNIT.II

Enzymes for production of protein hydrolysates and bioactive peptides maltodextrin and corn syrup solids(liquefaction, saccharification, extrnization, isomerisation for production of high-fructose-corn-syrup), fructose and fructo-oligosaccharides.

UNIT.III

Enzymes as processing aids: Role of enzymes in cheese making and whey processing, fruit juice (cell wall degrading enzymes for liquefaction, clarification, peeling, debiterring, decolourization of very dark coloured juices such as anthocyanases)

UNIT.IV

Enzymes as processing aids in banking(funglealpha- amylase for bread making; maltogenic alpha- amylase for anti- staling; xylanases and pentosanases as dough conditioners; lipases or dough conditioning; oxidased as replacers of chemical oxidants; synergistic effect of enzymes)meat and meat processing (meat tenderization) egg processing.

UNIT.V

Enzyme processing for flavours (enzyme-aided extraction of plant materials for production of flavours, production of flavour enhancers such as nucleotides)

SRI VENKATESWARA UNIVERSITY: TIRUPATI

B.VOC. DEGREE COURSE IN FOOD PROCESSING TECHNOLOGY

IV SEMESTER

Under CBCS W.E.F. 2021-22

SKILL COMPONENT

PRACTICALS- ENZYMES IN FOOD PROCESSING

Total Credits: 02 **Total hours: 30**

1. Assay of enzymes for activity
2. Specific activity, kinetics, stability (temperature, pH and storage);
3. Extraction and clarification of juices using enzymes
4. Application of enzymes in banking
5. Preparation of wine
6. Starch and protein hydrolysis
7. Meat tenderization.
8. Cheese making
9. Whey based products
10. Enzymatic Browning

SRI VENKATESWARA UNIVERSITY: TIRUPATI

B.VOC. DEGREE COURSE IN FOOD PROCESSING TECHNOLOGY

IV SEMESTER

Under CBCS W.E.F. 2021-22

SKILL COMPONENT

Total Credits: 04 **Total hours: 60**

Core Paper-IV: TECHNOLOGY OF FOOD ADDITIVES AND FLAVOURS

UNIT-I FOOD ADDITIVES

Definition of Food Additives, Characteristics, Classification and Functions, scope and purpose of food additives, need of food additives in food processing and preservation. Legitimate uses of Additives in foods, Intentional & Non-Intentional additives, Indirect food additives; Toxicological evaluation of food additives.

UNIT -II FLAVOURS

Definition, Classification and Functions, scope and purpose of flavours. Flavour Technology: Essence(flavour) recovery techniques from fruits, spices and herbs along with the equipment used: liquid and Solid flavour production; Flavouring remixing: flavour intensifiers: synthetic flavours; effect of processing on flavour quality.

UNIT III COLORANTS AND HUMECTANTS

Colorants: Natural and synthetic food colorants, chemistry, sources, analysis, effect on foods applications, safety Anti-browning agents: Chemistry of browning reactions in foods, browning inhibitors.
Humectants: Types, chemical properties, levels of additions in individual products, Limits of addition to food products

UNIT IV EMULSIFIERS AND PRESERVATIVES

Emulsifiers: Chemistry, function, mechanism and application; Anti-caking agents, Firming agents.
Preservatives-Types, chemical properties, levels of additions in individual products, Limits of addition to food products
Enzymes: functional aspects, enzyme nomenclature, manufacturing of commercial enzymes, use in food industry

UNIT V FLAVOUR ENHANCERS

Definition, properties, function of flavour enhancers Natural and artificial flavours.
Sweeteners: Non-nutritive sweeteners, nutritive sweeteners.
Antimicrobial agents: Introduction, Types of antimicrobial agents.

B.VOC. DEGREE COURSE IN FOOD PROCESSING TECHNOLOGY

IV SEMESTER

Under CBCS W.E.F. 2021-22

SKILL COMPONENT

Core Paper-IV: TECHNOLOGY OF FOOD ADDITIVES AND FLAVOURS

Total Credits: 02 **Total hours: 30**

PRACTICALS:

1. Identification of preservatives in foods.
2. Identification of non-nutritive sweeteners in foods
3. Identification of antioxidants usage in foods.
4. Identification of Colours in foods.
5. Listing of anticaking agents available in market.
6. Listing of thickeners available in market.
7. Listing of acidulants available in market.
8. Sensory evaluation of different flavours of processed foods.
9. Visit to flavour industry
10. Market Survey

SRI VENKATESWARA UNIVERSITY: TIRUPATI

B.VOC. DEGREE COURSE IN FOOD PROCESSING TECHNOLOGY

IV SEMESTER

Under CBCS W.E.F. 2021-22

SKILL COMPONENT

Total Credits: 04 Total hours: 60

CORE.V MARKETING OF FOOD PRODUCTS

UNIT.I

Concept of functions of marketing concepts and scope of marketing management, concepts and elements of marketing mix.

UNIT .II

Concepts of market structure, micro and macro environment : consumers behavior consumerism, marketing, opportunities, analysis, marketing research and marketing information systems.

UNIT .III

Market measurements – present and future demand ,market forecasting : market segmentation, targeting and positioning, allocation and marketing resources, marketing planning process, product policy and planning brand , packaging, services decision, marketing channel decisions, retailing, wholesaling and distribution, pricing decisions, price determination and pricing policy of milk products in organized and unorganized sectors, promotion-mix decisions.

UNIT .IV

Advertising-definition, objectives types of advertising, importance of advertising in modern marketing. Personal selling. Sales promotion: types of sales promotion, role and importance of sales promotion, food labeling, regulation of food labeling, nutritional labeling and health claims.

UNIT .V

International marketing, and international trade. Salient features of international marketing. World Trade organization (WTO).

SRI VENKATESWARA UNIVERSITY: TIRUPATI

B.VOC. DEGREE COURSE IN FOOD PROCESSING TECHNOLOGY

IV SEMESTER

Under CBCS W.E.F. 2021-22

SKILL COMPONENT

PRACTICALS V - MARKETING OF FOOD PRODUCTS

Total Credits: 02 **Total hours: 30**

1.Marketing survey

2.Planning and preparing advertising messages of new product

3.Develop a nutrition for prepared product

4.Designing of packaging for infant formulas, salt free low fat products.

5.Survey conducted on new product

6.Price determination of new product

7.Recent trends in marketing

8.New product Presentation in marketing

9.Marketing guidelines on processed food

10.Labeling to new product.

SRI VENKATESWARA UNIVERSITY: TIRUPATI

B.VOC. DEGREE COURSE IN FOOD PROCESSING TECHNOLOGY

IV SEMESTER

Under CBCS W.E.F. 2021-22

SKILL COMPONENT

CORE.VI HSIFT 802 FOOD ANALYSIS

Total Credits: 04 **Total hours: 60**

Unit-1

General principles of sampling .Moisture free and bound water in foods , principles and methods of analysis

Unit-2

(a) Kjeldahl Procedure: Total proteins: Protein Nitrogen and Non–protein nitrogen, methods and principles in Micro and Macro determination of nitrogen, solubility separation of protein fractions.

(b) Determining fats in liquid and solid foods principles, method of separation of lipid fraction, neutral glycerol, fatty acids, phospholipids and cholestrol

©Methods and principles of starch determination and reducing sugars and non reducing sugars determination.

Unit-3

Crude fibre and fibre fractions determination: Soluble and insoluble, neutral, detergent fibres and methods of determining fibre fractions.

Unit- 4

Methods of determination of ash. Principles and methods for determining Vitamins and Minerals(Ca, Phosphorus, Iron, Vitamin A, Beta carotene, Riboflavin and Vitamin C).

Unit-5

Colorimetry and Photometry and Spectrophotometry and Applications.

- PH and Isoelectric points

- Separation Techniques- Electrophoresis (paper and boundary zone), chromatographic procedures in food analysis (Solid, liquid, gas, Column, paper and gas and High performance liquid chromatography with suitable examples) ultra centrifugation and ultra filtration techniques.

PRACTICALS-FOOD ANALYSIS

Total Credits: 02 Total hours: 30

1. Types of sampling for food analysis
2. Determining action of moisture by different methods,

3. Estimation of total nitrogen and non protein nitrogen in foods low in nitrogen content by the Macrokjeldahl procedure
4. Estimation of total nitrogen in foods by Microkjeldahl procedure
5. Qualitative analysis of proteins and amino acids
6. Mineral matter – estimation of total ash, calcium.
7. Mineral matter – estimation of phosphorus and iron-available and non-available at two different Ph points
8. Vitamins – estimation of Vitamin A
9. Vitamins – estimation of Vitamin C
10. Vitamins – estimation of Vitamin Riboflavin