

**GUJARAT VIDYAPEETH
AHMEDABAD**

M.D. Gramseva Sankul, Sadra, Dist: Gandhinagar

Faculty of Science and Applied Science

Bachelor of Vocational (Food Processing Technology)

**Semester-V
(In Force from June-2017)**

GUJARAT VIDYAPEETH : AHMEDABAD
M.D. Gramseva Sankul, Sadra, Dist: Gandhinagar
Faculty of Science and Applied Science
Bachelor of Vocational (Food Processing Technology)
Semester-V
(In Force from June-2017)

FPT-501 FRUIT AND VEGETABLE PROCESSING TECHNOLOGY

_(Syllabus of theoretical portion)(In Force from June-2017)

Total Mark: 100 = External Evaluation: 60 Marks +

Internal Evaluation: 40 Marks)

(Total Teaching Hours = 30, Credit = 02 + 00)

Objectives

- To acquire knowledge about the selection of fruits for processing and value addition

- To introduce the latest technologies , manufacturing processes and tools for effective control of safety and quality during processing

Unit-1. Introduction, Processing of juice, jam and jelly

Ripening and quality of fruits, harvesting and transportation, cold storage of fruits, selection and preparation of fruits for processing, deskinning, enzyme inactivation, packing and processing. Various fruit products- frozen whole fruits, slices, cubes, canned fruits, dehydrated fruits, fruit preserves, candied fruits. Fruit juice manufacture, Canning of fruit juices, freezing of fruit pulps. Aseptic processing of fruit juices. Packaging of aseptically processed juices and pulps. Concentrated fruit juices. Manufacture of jams. Theory of jelly formation, ingredients. Machinery. Jellies, marmalades, squashes, cordials, syrups, specifications.

Unit-3. Processing of tomato, apple and orange, Pineapple and Mango & Processing of vegetables

Tomato juice, canned whole tomatoes, tomato ketchup, tomato jams, tomato puree, tomato powder. Apple and apple product- Clarified apple juice, aseptically packed apple puree, apple cider, orange products- orange juice, concentrated orange juice, orange squash, orange jams. Pineapple products- juice, jam, canning Mango and mango products- raw unripe mango products: brined mango slices, dried green mango slices and powder (Amchur), canned mango slices in syrup, canned or frozen mango pulp, mango juice or mango nectar, mango jam, mango squash, mango juice powder, mango freeze dried products, mango syrup. Processing of okra (ladies finger),

potatoes, onions, carrots, green peas, procuring, transportation, storage, processing, packaging and ware housing.

Text books:

1. Siddappa and Bhatia, Fruits and Vegetable Processing Technology
2. Lea, R. A. W, Fruit juice processing and packaging
3. Hui, Y. H. Processing of fruits
4. Cash J. N. Processing of vegetables
5. Jongen, W. Fruit and vegetable processing

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FPT-501 FRUIT AND VEGETABLE PROCESSING-Practical

(Syllabus of practical portion) (In force from June, 2017)

Total Mark: 100 = External Evaluation: 60 Marks +

Internal Evaluation: 40 Marks)

(Total Teaching Hours = 45, Credit = 00 + 02)

Objectives

- To be innovative in exploring various processed and value added from agricultural Commodities
1. Dehydration of carrot.
 2. Processing of mango squash and mango pickle.
 3. Processing of pineapple jam.
 4. Manufacture of tomato puree.
 5. Manufacture of lemon pickle and lemon juice.
 6. Manufacture of tomato ketchup and tomato sauce.
 7. Manufacture of tutifruity.

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Semester-V
(In Force from June-2017)

FPT-502- FOOD PACKAGING

(Syllabus of theoretical portion) (In force from June, 2017)

Total Mark: 100 = External Evaluation: 60 Marks +

Internal Evaluation: 40 Marks)

(Total Teaching Hours = 30, Credit = 02 +00)

Objectives

- To be familiar with different methods and materials used for packaging.
- To understand the technology behind packaging.

Unit-1. Introduction to food packaging, Laws & Specifications

Definition, functions and requirements for effective packaging, packaging criteria, Classification of packaging- Primary, secondary and tertiary packaging, Flexible, rigid and Semi- rigid packaging.

Quality testing of packaging materials

- Paper & paper boards-thickness, bursting strength, grammage, puncture resistance, Cobbs test, tearing resistance.
- Flexible packaging materials (plastics)-yield, density, tensile strength, elongation, impact resistance, WVTR, GTR, Overall Migration Rate, seal strength.
- Transportation hazards and testing.
- Oxygen interactions, moisture interchanges and aroma permeability.

Materials for food packaging

Paper, Glass, Tin, Aluminium: TFS, Polymer coated tin free steel cans, cellophane, plastics-LDPE, HDPE, LLDPE, HMHDPE, Polypropylene, polystyrene, polyamide, polyester, polyvinyl chloride.

Unit-2. Different forms of food containers, Modern concepts of packaging technology

Boxes, jars, cans, bottle. Interaction of packages with foods-Global migration of plastics, packaging requirements for various products- fish, meat, spices, vegetables &

fruits, canned foods, dehydrated foods. Aseptic packaging, Form-Fill-Seal packaging, Edible Films, Retort pouch packaging, Easy-Open-End, Boil-In-Bags, Closures, tetra-pack, vacuum-packaging, MAP & CAP, Hyper baric storage, insect resistant packaging, intelligent packaging.

Text books:

1. Cruess, W.V. Commercial Fruit & Vegetable Products. Allied Scientific Publishers, New Delhi. 2003
2. Davis, E.G. Evaluation of tin & plastic containers for foods. CBS Publishers, New Delhi. 2004
3. Gopal T.K.S. Seafood packaging, CIFT, Matsyapuri Cochin, 2007
4. Potter, N. N, Hotchkiss, J. H. Food Science. CBS Publishers, New Delhi. 2000.
5. Sacharow, S., Griffin, R.C. Food Packaging. AVI Publishing Company, West Port, Connecticut. 2000
6. Srilakshmi, B. Food Science. New Age International Publishers, New Delhi, 2003

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FPT-502- FOOD PACKAGING- Practical

(Syllabus of practical portion) (In force from June, 2017)

Total Mark: 100 = External Evaluation: 60 Marks +

Internal Evaluation: 40 Marks)

(Total Teaching Hours = 45, Credit = 00 + 02)

Objectives

- To be familiar with different methods and materials used for packaging.
- To understand the technology behind packaging.

1. Food Technology Aseptic Packaging
2. Quality Testing of Packaging Material
3. Visit of Various Packing Industry

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Semester-V
(In Force from June-2017)

FPT-503- FOOD SAFETY

(Syllabus of theoretical portion) (In force from June, 2017)

Total Mark: 100 = External Evaluation: 60 Marks +

Internal Evaluation: 40 Marks)

(Total Teaching Hours = 30, Credit = 02 + 00)

Objectives

- To know about scope and mile stone of microbiology.

Unit-1 :

Introduction to Microbiology: meaning, scope and milestone of microbiology: classification of micro-organisms- their taxonomy and nomenclature, kingdom, morphology, growth and growth rate; methods in microbiology cultivation, isolation, purification and preservation of micro organisms; types of micro-scopes and their use; microbes as friends and foes-its destruction through sterilization and disinfection; bacteria and other micro-organisms;

Unit-2 :

Food and water borne infections- bacterial, typhoid and para-typhoid fevers, cholera, shigellosis, food poisoning, poliomyetitis, giardiasis, intestinal helminthes; diseases transmitted through animal bites-Malaria, Filaria, Cat bite and rate bite fever, plague, Rabies, diseases through ARBO viruses; contact diseases

Text books:

1. Manay, N.S, Shadaksharaswamy, M., Foods- Facts and Principles, New Age International Publishers, New Delhi, 2004.
2. Meyer, L H-Food Chemistry. CBS publishers & distributors, New Delhi. 2002
3. Potter, N. N, Hotchkiss, J. H. Food Science. CBS Publishers, New Delhi. 2000.
4. Nielsen, S.S. Introduction to the chemical analysis of foods. Jones and Bartlett Publishers, Boston, London. 2003

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FPT-503- FOOD SAFETY (Practical)

(Syllabus of practical portion) (In force from June, 2017)

Total Mark: 100 = External Evaluation: 60 Marks +

Internal Evaluation: 40 Marks)

(Total Teaching Hours = 45, Credit = 00 + 02)

Objectives

- To know about scope and mile stone of microbiology.

- 1. Microbiology laboratory instruments and their uses; practice of disinfection and sterilization methods; use of various microscopes and observation of various microorganisms; staining bacteria-simple staining method, differential staining method, negative staining method, special staining; isolation and identification of microorganisms;
- 2. Study of effect of ultra violet rays, PH, temperature, dyes, chemicals etc. on the growth of mirco-organism; antimicrobial effect of antibiotics-agar ditch method, agar cup method, paper disc method;
- 3. Examination of microorganisms in air, water, moldy bread, milk sewage; culture media;
- 4. Examination of pathogenic. Micro organics; hanging drop preparation; bacterial cultivation preparation and sterilization of media, nutrient agar, inoculation, incubation.

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Semester-V
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FPT-504- FOOD ANALYSIS

(Syllabus of theoretical portion) (In force from June, 2017)

Total Mark: 100 = External Evaluation: 60 Marks +

Internal Evaluation: 40 Marks)

(Total Teaching Hours = 30, Credit = 02 + 00)

Objectives

- (1) To know about traditional food and Indian Products Use to process.
- (2) To know different production process.

Unit I. Introduction to Food Service Units, Organization & Management

- Origin of Food Service units
- Kinds of food service units
- Principles of management
- Functions of management! manager

Unit II. Food Production Process

- Food purchase and receiving
 - Storage
 - Quantity food production: Standardization of recipes, Recipe adjustments and portion control, Quantity food production techniques
 - Food service
- Food hygiene and sanitation

Text Books :

- West B Bessie & Wood Levelle (1988) Food Service in Institutions 6th Edition Revised By Hargar FV, Shuggart SG, & Pagne Palacio June, Macmillian Publishing Company New York.
- Sethi Mohini (2005) Institution Food Management New Age International Publishers • Knight J B & Kotschevar LH (2000) Quantity Food Production Planning & Management 3rd edition John Wiley & Sons.
- Dessler Gary (1987) Personnel Management, Modern Concepts & Techniques Prentice Hall New Jersey
- Tripathi P C (2000) Personnel management 15th ed Sultan Chand, New Delhi
- Kazarian E A (1977) Food Service facilities Planning 3rd Edition Von Nostrand Reinhold New York
- Kotas Richard & Jayawardardene. C (1994) Profitable Food and Beverage Management Hodder & Stoughton Publications
- Longree K, Langree K, Longrie K (1996) Quantity Food sanitation, John Wiley & sons
- Roday .S (2003) Food Hygiene & Sanitation, Tata McGraw Hill publication Ltd
- Taneja S and Gupta SL (200 1) Enterpreneurship development, Galgotia Publishing

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FPT-504- - FOOD ANALYSIS (Practical)

(Syllabus of practical portion) (In force from June, 2017)

Total Mark: 100 = External Evaluation: 60 Marks +

Internal Evaluation: 40 Marks)

(Total Teaching Hours = 45, Credit = 00 + 02)

Objectives

- (1) To know about traditional food and Indian Products Use to process.
- (2) To know different production process.

1. Market survey for food items both raw and processed	1
2. Survey of food service units	1
3. Standardization of a recipe	2
4. Preparing Quick Foods for scaling up for quantity production	2
1. Planning menus for the following:	6
• Packed meals for office employees	
• Nutritious tiffins for school children	
• School/college canteens	
Demonstration of a specialized cuisine	1
Develop a checklist for good hygiene practices	1

Exploring and enlisting traditional recipes of different states of the country. Standardization of common recipes of North, East, South, West and Central zone of country. Preparation of meals of different state. Value addition of traditional recipes and meals. Nutrient composition of traditional v/s value added meals.

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FPT-505- FOOD SCIENCE

(Syllabus of Practical portion) (In force from June, 2017)

Total Mark: 100 = External Evaluation: 60 Marks +

Internal Evaluation: 40 Marks)

(Total Teaching Hours = 90, Credit = 00 + 04)

Objectives:

Unit I: Introduction to food science, Chemistry, Microbiology

- Definition, importance and applications
- Basic terminology used in food science
- Sources, chemistry and functional properties of Carbohydrates, Lipids and Proteins.
- Colloidal chemistry: Definition, classification, properties and applications of sols, gels, foams and emulsions.
- Introduction to yeast, mold and bacteria - Characteristics and their role in preservation and spoilage of food.
- Hygiene and sanitation practices in food processing and waste disposal.

Unit II: Preservation techniques, principles and their applications

- High temperature, low temperature, removal of moisture, irradiation and additives.
- Food packaging and labeling: FSSAI, Codex

Text Book :

- Frazier W. C. and Westhoff D. C. (1988). Food Microbiology, 4th Edition.
- Manay S. and Shadaksharaswamy M (2002). Foods - Facts and Principles. Wiley Eastern Ltd.
- Potter H (1995). Food Science, 5th Edition. CBS Publishers & Distributors.
- Srilakshmi (2007). Food Science, 4th Edition. New Age International Ltd.
- www.fssai.gov.in
- Raina U, Kashyap S, Narula V, Thomas S, Suvira, Vir S, Chopra S (2010). Basic Food Preparation: A Complete Manual, Fourth Edition. Orient Black Swan Ltd.
- Sethi Mohini and Rao E (2011). Food Science (Experiments and Applications), 2nd Edition. CBS Publishers & Distributors Pvt. Ltd.

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FPT-505- FOOD SCIENCE(PRACTICAL)

(Syllabus of Practical portion) (In force from June, 2017)

**Total Mark: 100 = External Evaluation: 60 Marks +
Internal Evaluation: 40 Marks)**

(Total Teaching Hours = 90, Credit = 00 + 04)

Objectives:

1. Applications and factors affecting formation of Sols, gels, foams and emulsions ii. Study of microscopic structure of different food starches and their gelatinization properties
2. Slide preparation and identification of bacteria yeast and mold ii. Assessment of hygienic practices of food handlers
3. Preservation of food using different methods (Blanching, Dehydration, Freezing) Basic principle involved in food preservation using additives
4. Sensory evaluation methods and their applications. Food analysis: Moisture, pH, acidity, Total soluble solids by refractometer.
5. Evaluation of Food labels

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FPT-506: Internship/Fieldwork

(Syllabus of theoretical portion) (In force from June, 2017)

Total Mark: 100 = External Evaluation: 60 Marks +

Internal Evaluation: 40 Marks)

(Total Teaching Hours = 30, Credit = 02 + 00)

-
- Students will go for the 15 days field work or internship any food industries related organization during the semester.
 - Students will be given a case study during the internship and they have to submit a report thereon at the end of the semester, on dates announced by the department. The guidelines for training will be provided by the department.
 - A team consisting of internal & external experts will evaluate the record and conduct the viva-voice at the end of semester.

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Semester-V
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ENG-501: English

(Syllabus of theoretical portion) (In force from June, 2017)

Total Mark: 100 = External Evaluation: 60 Marks +

Internal Evaluation: 40 Marks)

(Total Teaching Hours = 30, Credit = 02 + 00)

Adopted from Microbiology Department

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Semester-I
(In Force from June-2017)

EC-501: COMPUTER

(Syllabus of theoretical portion) (In force from June, 2017)

Total Mark: 100 = External Evaluation: 60 Marks +

Internal Evaluation: 40 Marks)

(Total Teaching Hours = 30, Credit = 02 + 00)

Introduction to Presentation Software: - પ્રેઝન્ટેશન સોફ્ટવેરનો પરીચય

Need for a Presentation - પ્રેઝન્ટેશનની જરૂરીયાત

What can you create in Presentation Software પ્રેઝન્ટેશન સોફ્ટવેર દ્વારા થતા જુદા જુદા

કાર્યો, Presentation Technique (4P) - પ્રેઝન્ટેશનની ટેકનીક

Facilities available in Presentation Software - પ્રેઝન્ટેશન સોફ્ટવેરમાં ઉપલબ્ધ

વિશિષ્ટસગવડતાઓ

1.2 Presentation Wizard - પ્રેઝન્ટેશન વિઝાર્ડ

Empty Presentation – એમ્પ્ટી પ્રેઝન્ટેશન, From Template – ફ્રોમ ટેમ્પલેટ,

Open Existing Presentation – ઓપન એક્ઝિસ્ટિંગ પ્રેઝન્ટેશન

1.3 Presentation Views - પ્રેઝન્ટેશન વ્યૂ

Normal / Outline / Slide sorter / Slide show / Notes Page / Handout Page

1.4 To create Presentation

To add slide - નવી સ્લાઈડ ઉમેરવી, To delete slide - સ્લાઈડ ડીલીટ ક

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EC-501:COMPUTER (Practical)

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(Total Teaching Hours = 45, Credit = 00 + 02)

1 Database Management - 1 ડેટાબેઝ મેનેજમેન્ટ-1

1 Concept of Database ડેટાબેઝનો ખ્યાલ

2 Database design concept ડેટાબેઝની ડિઝાઈનનો ખ્યાલ

3 DBMS, Feature of DBMS – DBMS, DBMS ની સગવડતાઓ

4 Elements of database એલીમેન્ટ્સ ઓફ ડેટાબેઝ, Field types ફીલ્ડ ટાઈપ્સ, Field properties ફીલ્ડ પ્રોપર્ટીસ