

**GUJARAT VIDYAPEETH
AHMEDABAD**

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

Faculty of Science and Applied Science

Bachelor of Vocational (Food Processing Technology)

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

FPT-301 FOOD PROCESSING MACHINERIES

(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 study the design of food process and food plant design, based on the established chemical process designed.

- To discuss the various processing equipment on the basis of unit operations of mechanical processes.

Unit-1. Design and selection of food processing equipment, Refrigeration and Freezing Equipment, Food Dehydration Equipment

Materials of construction-metals, steel, stainless steels, aluminium, copper, plastic, and glass, Fabrication of equipment-strength of construction, Fabrication and installation of equipment, hygienic design of food processing equipment. Refrigeration –refrigeration cycle, compressors, evaporators, condensers, cooling equipment, hydrocooling, vacuum cooling, surface contact cooling, tunnel cooling, vacuum cooling freezing-air freezing, cold surface freezing, liquid freezing. Principles of drying, commercial food drying equipment-sun dryers, solar dryers, bin, silo and tower dryers, tray/cabinet dryers, tunnel dryers, rotary dryers, drum dryers, spray dryers, vacuum and freeze dryers

Unit-2. Mechanical, Thermal processing equipment

Size reduction- cutting, crushing and grinding, size enlargement - agglomeration, homogenization-pressure homogenization, colloid mills, ultrasonic homogenizers, forming-extrusion and forming equipment. Canning-basic canning operations, batch sterilizers-still retorts, batch rotary sterilizers, crateless retorts, retorts for glass and flexible containers, continuous flow sterilizers-direct heating and indirect heating

Text books:

1. Dincer, I. Heat Transfer Food Cooling Applications. Taylor and Francis Publishers, USA. 1997.
2. Heldman, D. R. and Lund, D.B. Handbook of Food Engineering 2nd edition. CRC press, Newyork. 2007.
3. Singh, R.P. Introduction to Food Engineering 3rd edition. Academic Press, London. 2004.
4. Saravacos,G D and Kostarapoulos A E.Handbook of Food Processing Equipment.2006.Brijbasi Art Press Ltd,New Delhi.

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FPT-301 FOOD PROCESSING MACHINERIES (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)

Credit: 2

45 Hrs

Objectives

- To study the design of food process and food plant design, based on the established chemical process designed.
- To discuss the various processing equipment on the basis of unit operations of mechanical processes.

(1) Heat transfer in parallel and counter flow heat exchangers

(2) Performance on vapor compression refrigeration system

(3) Performance characteristics of centrifugal blower

(4) Performance characteristics of centrifugal pump

(5) Performance on Air conditioning unit

(6) Performance test on solar drying unit

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FPT-302 BAKERY AND CONFECTIONERY 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 highlight the processing methods used in confectionary and culinary industries

Unit-1. Manufacture of Sugar, Bread Cake & Biscuit manufacturing

Sugarcane, gur, khandasari sugar, raw sugar, refined sugar, white sugar, beet sugar. Ingredients, role of ingredients, dough development, molding, proofing, knock-back, baking, packing. Processing of cake and biscuit- Ingredients, role of ingredients, development of batter, baking, packing.

Unit-2. Classification of confectionery, Cocoa processing

Sugar boiled confectionery- crystalline and amorphous confectionery, rock candy, hard candy, lemon drop, china balls, soft candy, lollypop, marshmallows, fondant, fudge, cream, caramel, toffee, lozenges, gumdrops, honeycomb candy. Processing of cocoa, manufacture of chocolate- conching, enrobing, milk chocolate, white chocolate, dark chocolate, cocoa butter, wafer coated chocolate, fat bloom, cocoa powder.

Text books:







1. Manay, N.S, Shadaksharaswamy, M., Foods- Facts and Principles, New Age International Publishers, New Delhi, 2004.
2. Potter, N. N, Hotchkiss, J. H. Food Science. CBS Publishers, New Delhi. 2000
3. Srilakshmi, B. Food Science (3rd edition), New Age International (P) Limited Publishers, New Delhi, 2003.

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FPT-302 BAKERY AND CONFECTIONERY TECHNOLOGY-Practical
(Syllabus of practical portion) (In force from June, 2018)
Total Mark: 100 = External Evaluation: 60 Marks +
Internal Evaluation: 40 Marks)
(Total Teaching Hours = 45, Credit = 00 + 02)

Objectives

- To highlight the processing methods used in confectionary and culinary industries

-   ① Process of Sugar
-   ① Cake and Bread Making
-   ① Biscuit Packing.

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FPT-303 FOOD ADULTERATION TESTING

(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 enable the students
- To understand different sampling techniques employed in chemical analysis of foods.
- To learn various chemical methods of food analysis.
- To be familiar with adulteration test used for quality control

Unit-1. Food Adulteration, Sampling techniques

Definition, classification – intentional & incidental, health hazards caused by various adulterants and the critical level of metals in various foods, common adulterants in food and their testing. Population and sampling, importance of sampling, types of sampling, sampling plan, preparation of samples, problems in sampling.

Unit-2. Chemical analysis of moisture, carbohydrates and protein, Chemical analysis of fat, vitamin C and minerals

Moisture assay – oven drying methods, Karl Fischer titration, Toluene distillation method Carbohydrate- starch, crude fiber Protein- Kjeldhal method, Biuret method, Lowry's method. Fat- soxhlet method, gerber method. Analysis of vitamin C. Estimation of minerals by ashing - dry, wet and low temperature plasma ashing.

Text books:

1. Kalia, M. Food Analysis and Quality Control. Kalyani Publishers, New Delhi. 2002.
2. Winton, A.L and Winton, K.B. Techniques of food analysis. Allied Scientific Publishers, New Delhi. 1999.
3. Nielsen, S.S. Introduction to the chemical analysis of foods. Jones and Bartlett Publishers, Boston, London. 2003.
4. Connell, J.J. Control of fish quality. Blackwell Scientific Publications, Cambridge. 2000.
5. PFA ACT.

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FPT-303 FOOD ADULTERATION TESTING-(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 enable the students
- To understand different sampling techniques employed in chemical analysis of foods.
- To learn various chemical methods of food analysis.
- To be familiar with adulteration test used for quality control

(1) Food Testing

Chemical

Moisture

Carbohydrate

Protein

Common

(2) Adulteration

Food and Their Testing

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Semester-III
(In Force from June-2017)

FPT-304 FOOD PRODUCT DEVELOPMENT

(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 learn various processing aspects of food products having economic importance

Unit-1 :

Detail Techniques of Processing Aspects. Milk and milk Processing
Fruit Product Detail and Write methods of Jack Fruit Products.

Unit-2:

Method of Making peanut butter importance of peanut butter and nutritive value.
New Innovation of Preparation of 5 product development list.

Text books:

1. Manay, N.S, Shadaksharaswamy, M., Foods- Facts and Principles, New Age International Publishers, New Delhi, 2004.
2. Potter, N. N, Hotchkiss, J. H. Food Science. CBS Publishers, New Delhi. 2000.
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FPT-304 FOOD PRODUCT DEVELOPMENT –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 learn various processing aspects of food products having economic importance
 1. Manufacture of bread, biscuit and different types of cake.
 2. Manufacture of different milk products.
 3. Manufacture of jack fruit products.
 4. Preparation of mayonnaise.
 5. Preparation of peanut butter.
 6. Preparation of potato chips and tapioca chips.
 7. Preparation of RTS.
 8. Preparation of new product development.

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Semester-I
(In Force from June-2017)

FPT-104: Internship/Field Work (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)

-
- 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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ENG-301: 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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EC-301: 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)

UNIT-1 P C Software : પ્રેઝન્ટેશન સોફ્ટવેર

1.1 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 – એમ્પટી પ્રેઝન્ટેશન, From Template – ફ્રોમ ટેમ્પલેટ,

Open Existing Presentation – ઓપન એક્ઝિસ્ટીંગ 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 - नवी स्लाईड ઉમેરવી, To delete slide - સ્લાઈડ ડીલીટ કરવી

Save the presentation - પ્રેઝન્ટેશન સેવ કરવું

1.5 Slide show – સ્લાઈડ શો, Custom Animation – કસ્ટમ એનિમેશન, Interaction – ઈન્ટરેક્શન,

Slide Transition – સ્લાઈડ ટ્રાન્ઝિશન

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EC-301: Computer (Practical)

(Syllabus of practical portion) (In force from June, 2017)
Total Mark: 100 = External Evaluation: 60 Marks +
Internal Evaluation: 40Marks)
(Total Teaching Hours = 45, Credit = 00 + 02)

1.P C Software : Spreadsheet Software - સ્પ્રેડશીટ સોફ્ટવેર

2.Introduction to Spreadsheet - સ્પ્રેડશીટ નો પરીચય

3.Anatomy of a Spreadsheet - સ્પ્રેડશીટ ભાગો (આકૃતિ સાથે)

4.Working with a Spreadsheet

Opening A New Spreadsheet - નવી સ્પ્રેડશીટ ઓપન કરવી, Save A File - ફાઇલ સેવ કરવી, Adding, Deleting and Naming Sheets શીટ ઉમેરવી / શીટ ડીલીટ કરવી / શીટને નામ આપવું, Moving cell contents – સેલની માહિતી અન્ય સ્થાન ઉપર લઈ જવી, Cut, Copy & Paste – કટ / કોપી અને પેસ્ટનો ઉપયોગ, Find and Replace – ફાઇન્ડ અને રીપ્લેસ, Undo and Redo Buttons – અન ડુ અને રી ડુ બટન્સ,

Addressing – સ્થાનાંક

5.Relative address – સાપેક્ષ સ્થાનાંક, Absolute address – નિરપેક્ષ સ્થાનાંક, Mixed

Address –મિશ્ર સ્થાનાંક, Custom List – એન્ટ્રીઓ આપોઆપ મેળવવી

Spreadsheet Formatting – સ્પ્રેડશીટને ફોર્મેટ કરવી

Spreadsheet Page Settings & Printing – સ્પ્રેડશીટમાં પેજ સેટીંગ અને પ્રિન્ટીંગ

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EC-302 FOOD BIO-CHEMISTRY

(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:

This course will enable the students to:

- Augment the biochemistry knowledge acquired at the postgraduate level
- Understand the mechanisms adopted by the human body for regulation of metabolic pathways
- Get an insight into interrelationships between various metabolic pathways
- Become proficient for specialization in nutrition

Unit I:

- Chemistry and nucleic acid and metabolism and amino acid

UNIT II:

- Classification of enzymes, properties, kinetics of enzymes action, inhibitors, activators, co-enzymes & isoenzymes,
- Structure of chromosomal replication.

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EC-101: FOOD BIO-CHEMISTRY (Practical)

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

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

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

Objectives:

- Estimation on DNA
- Estimation of RNA
- Isolation of DNA from bacteria and animal tissues.
- Separation of amino acid by TLC
- Estimation of Amino acid
- Determination of the following chemical constant of fats and oils. Saponification value Iodine value peroxide value , acid value , R.M. value
- Enzyme kinetics with reference to the determinations of optimum pH and temperature.