Certificate Programme in Food Processing and Preservation

The objective of this course is togives a brief explanation of food structure and changes occurring in food during processing, novel and emerging technologies for processing and value addition of food, food products manufacture, and preservation and shelf life extension of perishable foods. Learn also the role of water in food and its influence on the shelf life of the food materials and important aspect of food reactions.

Duration: Certificate: 6 months Diploma : 1 Year

Certificate Programme are Sr. No. 1, 2 and 3	
Course	**Credits**
GC-FP-01T Food Preservation I	06
GC-FP-02T Fundamentals of Nutrition	06
GC-EM-03P Practical and Project-I	06
Diploma Course are Sr. No. 1,2,3,4,5 and 6	
GC-FP-04T Food Preservation II	06
GC-FP-05T Bakery and Confectionery	06
GC-FP-06P Practical and Project	06

GC-FP-01T Food Preservation I

Total Marks: 100
External Marks: 70
Internal Marks: 30
Credits: 6
Pass Percentage: 40%

Unit 1 Fundamentals of Food Preservation: Concept; Importance of food preservation; Principles of food preservation; Techniques of food preservation.

Unit 2 Microorganisms in food: Introduction; Types of Microorganisms; Conditions for growth; Food spoilage & their control.

Unit 3 Preservation by preservatives: Concept and definition, Types, Natural preservatives, Synthetic preservatives.

Unit 4 Irradiation: Concept, definition, Principles of irradiation, Types, Application.

Reference:

1. Food Preservation and processing by Kalila, MnoranjanSood, Sangita.
2. Food microbiology by M.R. Adom M.O. Moss.
3. Modern Food Microbiology by James M.
4. NiirBoard : Modern Technology of Agro Processing and Agriculture Waste of India.

GC-FP-02T Fundamentals of Nutrition

Total Marks: 100
External Marks: 70
Internal Marks: 30
Credits: 6
Pass Percentage: 40%

Unit-I - Introduction to Nutrition: Definition of nutrition, nutrients, RDA;Classification of nutrients (Macro, Micro).

Unit-II -Macro nutrients (Carbohydrates, Proteins, fats): Classification, Sources; Functions, RDA; Deficiency, excess

Unit-III -Micro nutrients (Vitamins, Minerals): Classification, Sources;Functions, RDA;Deficiency, excess.

Unit-IV -Water and Fiber: Composition, Sources, Classification;Functions, RDA;Deficiency, excess.

References:

1. Shubhangini Joshi, Text book of food and nutrition, Tata Macgrohill Publishing Co.,New Delhi.
2. B.Shrilakshmi, nutrition Science, New Age International Publishers
3. Muddambi S.R and Rajgopal M.V., Fundamentals of Food and nutrition,Wiley Eastern Ltd., New Delhi.
4. Nutritive Value of Indian Foods ,NIN, Hyderabad.
5. Dietary guidelines for Indians ,NIN Hyderabad June 2014.

GC-EM-03P Practical and Project-I

Total Marks: 100
External Marks: 70
Internal Marks: 30
Credits: 6
Pass Percentage: 40%

Practical

1) Identification of lab equipment
2) Identification of class I & class II Preservatives.
3) Identification of spoiled food.
4) Preparation of product by using Salt as preservative (any two)
5) Preparation of product by using Sugar as a preservative (any two)
6) Preparation of product by using Oil as preservative (any two)
7) Preparation of product by using Chemical preservative (any two)
8) Visit to the food preservation unit.

Scheme of practical examination

Internal practical examination 30 marks

I) Preparation
10 marks

II) Identification
5 marks

III) Submission of practical record book
5 marks

IV) Viva – Voce
5 marks

References :

1.Khetarpaul N (2005) Food Processing and Preservation . Dayabooks .
2.Rahman M S (2007) Handbook of Food Preservation 2nd ed CRC Press .
3.Nagi M and Bajaj S (1982) Home Preservation of fruits and Vegetables . Centre for Communication and International Linkages , PAU , Ludhiana .
4. Srivastava R P and Kumar S (2002) Fruits and Vegetables Preservations : Principles and Practices, 3rd Edition . International Book Distributing Co. Lucknow.

GC-FP-04T Food Preservation II

Total Marks: 100
External Marks: 70
Internal Marks: 30
Credits: 6
Pass Percentage: 40%

Unit I - Preservation by drying: Concept, history; Types of drying and dryers; Treatments prior to drying.

Unit II -Preservation by use of high temperature: Concept and importance; Various methods used-pasteurization, Boiling, Canning; Effect of high temperature on food.

Unit III -Preservation by Low Temperature: Concept, History; Types of Preservation methods by low temperature;Different equipment's used for preservation by low temperature; Treatments Prior to freezing

Unit IV -Modern techniques in food preservation: Concept, Definition;High Hydrostatic pressure;Hurdle technology;Pulse electric field.

References:

1) PrakashTriveni : Food Preservation, Aadi publication, Delhi.
2) M .ShafiurRahman : Hard Book Of Food Preservation, Marcel Dekker Inc, New York.
3) McWillims and Paine : Modern Food Preservation , Surjeet Publication.
4) Fellows, P and Ellis H. 1990 Food Processing Technology: Principal and Practicals, New York.
5) NPCS Board, Modern Technology on Food Preservation
6) B. Sivasankar; Food Processing and Preservation

GC-FP-05T Bakery and Confectionery

Total Marks: 100
External Marks: 70
Internal Marks: 30
Credits: 6
Pass Percentage: 40%

Course content:

Unit-I -Introduction to bakery and confectionery industry: Importance of bakery and confectionery in food industry; Primary processing equipment's used in Bakery and confectionery; Flour Mill mixer, moulding machine, balance, packing machines,;Measuring glass, moulds, Knifes, extruder, oven.

Unit II -Bakery Products: Ingredients used in Bakery products; Types and quality of flour;Principles involved in bakery Products;Procedures of Different types of bakery products

Unit III -Introduction to confectionary products: Types of confectionary Products;Characteristics of confectionary Products;Ingredients used in confectionary Products.

Unit-IV -Confectionary Products: chocolate Processing;Boiled sweets;Gelatine sweet;Crystallized confectionery.

References:

1. John Kingslee: A professional text bakery and confectionery, New Age International Publication.
2. NIIR Borad ; the complete technology book on bakery products
3. W.P Edwards: Science of Bakery Products.
4. Emmanuealobene : Chocolate Science and Technology

GC-FP-06P Practical and Project

Total Marks: 100
External Marks: 70
Internal Marks: 30
Credits: 6
Pass Percentage: 40%

Practical

1) Introduction to Bakery and Confectionery Equipment
2) Determination of gluten content
3) Preparation of Bread
4) Preparation of Biscuit
5) Preparation of Cookies
6) Preparation of Cake
7) Preparation of Barfi
8) Preparation of Chikki
9) Preparation of Chocolate
10) Preparation of Boiled candy

Scheme of practical examination

Internal Practical Examination 30 marks

I) Preparation 25 marks

II) Identification of bakery and confectionery equipment's 5 marks

III) Submission of practical record book 5 marks

IV) Viva – Voce 5 marks

References:

1.Sivasankar B (2004) Food Processing and Preservation . PHI Learning Pvt. Ltd , New Delhi
2.Adams M R and Moss M O (2018) Food Microbiology . New Age International Private Limited , New Delhi
3.Kalila M and Sood S (1996) Food Preservation and processing Ist Edition Kalyani Publishers ,New Delhi .
4.Khader V (1999) Text Book on Food Storage and Preservation Ist Edition Kalyani Publishers ,New Delhi .
5.Nagi M and Bajaj S (1982) Home Preservation of Fruits and Vegetables . Centre for Communication and International Linkages , PAU , Ludhiana
6.JohnKingslee: A professional text bakery and confectionery, New Age, International Publication.
7. NIIR Borad ; the complete technology book on bakery products
8. W.P Edwards: Science of Bakery Products.
9.Emmanuealobene : Chocolate Science and Technology