SHIVAJI UNIVERSITY, KOLHAPUR.

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Accredited By NAAC

New Syllabus For

B.F.T.M

Part - III

Syllabus to be implemented from June 2010 onwards.

BACHELOR OF FOOD TECHNOLOGY AND MANAGEMENT
THIRD YEAR

SUBJECT: CLINICAL AND COMMUNITY NUTRTION
PAPER- I

3
Theory: 100 Marks
Practical :- 50 Marks

OBJECIIVE :-

To enable students to :-

1] Know the dietary modification for disease condition.

2] Acquire knowledge regarding effect of various disease on nutritional status and nutritional requirement.

3] Understand the existing nutritional problems in the community.

Unit 1 :- Diet in liver diseases
Cirrhosis
Hepatitis
Hepatic coma
Diseases of gall bladder
Pancreatitis

Unit 2 :- Diet in cardiovascular diseases
Atheroclerosis
Coronary heart diseases
Dyslipidaemia
Hypertension
Congestive heart failure
Myocardial infraction

Unit 3 :- Diet in kidney diseases
Nephrotic syndrom
Glomerulonephritis
Acute and chronic renal failure
Dialysis
Renal calculi

Unit 4 :- Diet in Cancer

Risk factor
General reaction
Nutritional problems
Nutritional requirement
Role of food in prevention of cancer

Unit 5 :- Diet in diseases of nervous system

Polyneuropathy
Parkinsons Disease
Anorexia nervosa
Epilepsy

Unit 6 :- Diet in Aids

National nutritional problem in India
Role of National and International agency to overcome mal nutrition
ANP, ICDS, UNICEF, WHO, FAO, and ICAR

Unit 7 :- Assessment of Nutritional status

Population sampling
Anthropometry
Biophysical Assessment
Radiographic examination
Nutritional adequate of diet consume
Clinical assessment
Biochemical assessment

Unit 8 :- Diet survey methods

Population sampling and duration of diet survey.
Questionnaire method
Food list method
Interview method
Food inventory method
Food inventory of log book method
Weighment of raw food method
Weighment of cooked food method
Analysis of cooked food method
Adult consumption units

Practicals :-

1) Anthropometric measurement
2) Diet in liver diseases
3) Diet in kidney diseases
4) Diet in cardiovascular diseases
5) Diet in cancer
6) Diet in Aids
7) Diet survey
8) Biochemical assessment

References :-

Devdas R. P. (1972), Nutrition in Tamil Nadu Sangam Publisher.

Meyer J, Human (1972), 'Nutrition charles Thomas

King M and Morley O (1976) 'Nutrtion for Developing Countries, Oxford University Press.

Lowenberg E. M. Todhanter, N.E. Wilron, Era D Savage and June R. (1970) ' Food and Man Wiley' Eastern Pvt. Ltd.z

Wesna D (1981), 'Where there is no Doctor', The voluntary Health Association of India.

Raja Laxmi R. (1981) ' Applied Nutrition oxford and IBH Publishers'

ICMR, ' Technical Report Series'.

8) L. Kathleen Mahan, Sylvia Escott- Stump . Krause's ' Food, Nutrition and Diet Therapy.' (11th edition)

BACHELOR OF FOOD TECHNOLOGY AND MANAGEMENT
THIRD YEAR
PAPER-II

PROCESSING AND PRESERVATION OF FRUITS AND VEGETABLES

Theory: 100 Marks
Practical :- 50 Marks

Objectives :-

To enable the students to

1. Gain an insight into basic aspect of fruit and vegetable processing
2. Acquire knowledge of availability of fruits and vegetables in lean season

Theory:-

Unit 1 :- Introduction to fruits processing
Morphology of fruits
Classification
Composition of fruits
Nutritive value of fruits
Jam,jelly,marmalade,pickles,vinegar,fruit candy,fruit preserves

Unit 2 :- Processing of fruits
General principle
Properties of fruits
Methods of preservation
Drying dehydration, canning, syruping
Beverages
Recent development

Unit 3 :- Preservation of Fruits
Low temperature
High temperature
Natural preservatives
Artificial preservatives

Unit 4 :- Chemical modification
Processing
Storage
And Preservation

Packaging
Prewaxin
Wrapping
Pre Packaging studies
Designing of Packages.

Unit 5 :- Introduction to vegetable processing

Morphology of vegetable
Classification
Composition of vegetable
Nutritive value of vegetable

Unit 6 :- Processing of vegetable

General principle
Properties of vegetable
Methods of preservation
Drying dehydration, canning, syruping
Appetizers
Recent development

Unit 7 :- Preservation of vegetable

Low temperature
High temperature
Natural preservatives
Artificial preservatives

Unit 8 :- Chemical modification

Processing
Storage
And Preservation
Packaging
Prewaxing
Wrapping
Pre Packaging studies
Designing of Packages.

Practicals:

1. Preparation of beverages
- fruit juice
- cardial
- nectar
- squashes
2. Canning of fruit and vegetable
3. Preparation of pickles
4. Preparation of jam jelly, marmalade, fruit candies, resins
5. Industrial visit.

References:

'Fruit and vegetables preservation, principles and practices', New Delhi, International Book Distributors.

Herson A.C. ‘ Cannel Foods and Thermal processing and Microbiology’, New York, Chemical publishing Co.

S.C.Bhatiya, ‘Canning and preservation of fruits and vegetables’, CBS publication and distributors

M. Mirajkar, Menon Srilata, ‘ Food Science and Processing Technology’ New Delhi Vol. I and II, Kanishka Publisher.

Lowe, Belle (1995), ‘ Experimental Cookery’ New York, 4th ed. Wiley

Peckman Gladys C and Jeanne H. Freeland Graves (1987), ‘ Foundations of Food Peparation’ New York, 5th ed. McMillan.

Terell M.E. ‘ Professional Food Preparation’ (1978), New York, 2nd ed. Wiley

Mizer A David, Porter, Amry Sonnier Beth, (1987), ‘ Food Preparation for the Professional’ , Library of Congress Cataloging in Publication Data limited Status.

BACHELOR OF FOOD TECHNOLOGY AND MANAGEMENT

THIRD YEAR

PAPER- III

ANIMAL PRODUCT TECHNOLOGY

Theory: 100 Marks

OBJECTIVES

To enable the students to: -

1] Acquire knowledge regarding processing of animal proteins.

2] Develop high quality protein concentrates and weaning foods.

THEORY

Unit 1 :- Egg:-

Structure, composition and nutritive value.
Egg quality evaluation – grading and deterioration.
Egg processing – freezing, drying and canning
Effect of heat on egg protein.
Egg foams and factors influencing.
Preparation of protein concentrate.

Unit 2 :- Meat

Structure, composition and nutritive value.
Biochemical changes
Classification, curing, tenderising, cutts and grades, gelation formation. Changes during cooking.
Pre and post slaughter operations
Preservation with antibiotics, radiation's,
Manufacture of meat products and packaging.

Unit 3 :- Fish

Types and classification
Composition and nutritive value
Processing of fish meal, fish flour, fish – oil.
Canning and freezing of fish
Fish cookery
Fish spoilage.
Commercial fish handling preservation transport

Preparation of various fish products

Unit 4 :-Poultry

Classification composition and nutritive value preservation and storage.
Biochemical storage of meat products.
Processing - chilling, freezing, drying, pickling, smoking, Manufacturing of meat products and cooking.
Storage of meat products
Factors affecting composition physical chemical facilities.

Unit 5:-Milk and milk products

Nutritional importance, composition and nutritive value, milk micro-organisms,. Effect of heat on milk

Unit 6 :- Processing of milk products & indigenous milk products.

Unit 7:- Recent concepts in animal product processing
Unit 8 :- Recent concepts in processing of milk & milk products

REFERENCES

1] Potter, N. N. (1987). Food Science, New Delhi : CBS Publisher and Distributor.

2] Meyer, L.H. (1987). Food Chemistry, New Delhi: CBS Publisher and Distributor.

3] Srilakshmi B. (2001). Food Science, New Delhi : New Age International (P) Ltd.

BACHELOR OF FOOD TECHNOLOGY AND MANAGEMENT

THIRD YEAR
PAPER- IV
DAIRY TECHNOLOGY

Theory: 100 Marks
Practical :- 50 Marks

Objectives :-

To enable the students to

Gain knowledge in the field of Dairy technology

Know about the recent advances in Dairy technology

Theory:-

Unit 1 :-Introduction to Dairy technology
Introduction to Dairy technology &
Milk Processing industries in India

Unit 2 :-Theories of milk secretion
Morphology of Udder
Hormones
Methods of milching of animals
Hygeing during milching.

Management of milching animal
Types of sheds
Breed of milching animal
Indian Breeds
Feed and fodder for animal

Unit 3 :- Milk and colostrums
Importance
Composition
Physico chemical characteristic
Nutritive value
Factors affecting composition of milk

Unit 4 :- Processing of milk & milk products

Importance
Types of processing
Methods of processing
Steps in processing
Nutritive value of product
Composition
Storage & Packaging

Unit 5 :- Production of indigenous milk products

Unit 6 :- Fermented Dairy products

Definition
Type
Process
Nutritive value
Composition
Storage

Unit 7 :- Milk adulteration

Types of adulterant
Detection methods

Unit 8 :- Recent developments

Practicals:-

Physical examination of milk

Platform tests of milk

Detection of adulteration of milk

Preparation of indigenous milk products

Determination of fat, milk, SNF and total solids

Testing of milk for acidity, specific gravity, freezing point and viscosity

Preparation of flavored milk

8. Estimation of protein by Pyne's method

References:-

A. Q. Khan and T. N. Padmanabhan, " Technology of milk processing".

J. N.Warner, “ Principles of Dairy Processing”

Sukumar De “ Outlines of Dairy Technology”

R. Jennes, “ Principles of Dairy Chemistry”

Potter N. N. ‘Food Science’ CBS Publication and Distributors.

Meyer L .H. ‘ Food Chemistry’ CBS Publisher and Distributors.

PAPER- V

BACHELOR OF FOOD TECHNOLOGY AND MANAGEMENT
THIRD YEAR

SUBJECT: BAKERY AND CONFECTIONERY PAPER V

Theory: 100 Marks
Practical :- 50 Marks

To enable students to :-

1] Know the different types of bakery products and its ingredients.

2] Acquire knowledge regarding confection.

Unit 1 :-Wheat -varieties, qualities, types of wheat, grading system, chemical constituents, physiological and rheological properties, enzymes in wheat flour miling, aging, utilization, dough technology and chemistry Durum wheat products

Unit 2 :-Commercial baking technology:

- ingredients used in baking,
- functions of ingredients,
- the reactions of baking(mixing, leavening, baking),
- preparation methods of bread, cake, biscuits, cookies, pastry, buns, crackers
- types of quick bread, cake, cookies

Partially prepared bakery products-

- Refrigerated dough products
- Dry mixes- ingredients, formulation principles, advantages and disadvantages

-

Unit 3 :- Breakfast cereals-

- Introduction history, present status

- Processing of hot serve cereals and ready –to –eat breakfast cereals
- Flakes, shreds, granules, puffed cereals, sugar coated products

Unit 4 :- Snack foods

- popped and puffed snacks, factors affecting their quality
- convenience cereal foods
- extrusion cooking

Unit 5 :-Starch

- Manufacturing of food starches, modified starches, heating of starch granules, Gelatinization, retrogradation, factors affecting gelatinization.

Units 6 :-Chocolate based confectionery-

- Ingredients, chocolate and cocoa products

Unit 7 :- Sugar based confectionery

- Manufacturing of raw refined and white sugar, forms of sugar
- Liquid sweeteners,
- Reactions of sugar
- Crystalline and amorphous confectionery, Indian confectionery

Unit 8 :- Special dietary food and ingredients

- Hot cereals for children
- Quality control
- Junior cereals and baby foods
- Beverages
- Cereal derived supplements

Practicals:

- Preparation of bread, cakes, biscuits and candies

Reference books:

1. Food Science – Norman N. Potter, Joseph H. Hotchkiss

   CBS Publishers and distributors, New Delhi, 1997 5th edition.

2. Cereal technology – Matz.

3. Food facts and principles – Shakuntala Manay

4. The complete cook – Himalaya, Octopus pub., London, 2000

BACHELOR OF FOOD TECHNOLOGY AND MANAGEMENT
THIRD YEAR
SUBJECT: FOOD QUALITY CONTROL,UTILISATION OF INDUSTRIAL BY PRODUCT AND WASTE
PAPER- VI

Theory: 100 Marks

Objectives:
To enable students to :-
1.Maintain quality of food
2. Obtain Maximum utilization of by products

Unit 1 :- Introduction,
Definition
Related terminology
Importance of quality control.

Unit 2 :- Quality attributes of foods –

Nutritional Quality
Sensory Quality
Sensory tests
Sanitary Quality

Unit 3 :-Food Standards laws and regulation
FPA, FPO,Meat Product order Misbranding
Export inspection council Standards of weights & measures ,Army purchase organisation
ISI and AGMARK, HACCP,
Standards for raw material
Bacterial standards for Foods with special reference to fruit & vegetables,cereals,milk,meat & poultry
Govt.agencies& Voluntary agencies related to analysis of food

Unit 4 :- Indices for food sanitary qualities
Microbial standards and criteria
Indicator of Food Sanitary quality

Unit 5 :-Inplant quality control techniques
Employed for food product to maintain uniformity in product

Unit 6 :-Effect of processing & storage on quality of food

Unit 7:- Industrial byproducts and waste
Potential & prospects of byproduct & waste utilisation from the food industries in India Byproduct & waste with special reference to Agricultural & agrobased industries cereal & cereal product, fruits and vegetable,meat, poultry and fish,milk & milk products

Unit 8 :- Recent concepts in Food quality control

References:

1.Food Science – Norman N. Potter, Joseph H. Hotchkiss

CBS Publishers and distributors, New Delhi, 1997 5th edition.

2.Cereal technology – Matz.

3.Food facts and principles – Shakuntala Manay

4.The complete cook – Hamlya, Octopus pub., London, 2000

BACHELOR OF FOOD TECHNOLOGY AND MANAGEMENT

THIRD YEAR

SUBJECT: PRODUCTION PACKAGING AND MARKETING OF FOOD PRODUCTS

PAPER- VII

Theory: 100 Marks

OBJECIIVES
To enable students to: -
Acquire knowledge of food laws, food standards and food adulteration.
Understand the importance of packaging of food
Understand different techniques of marketing.

THEORY:

Unit 1: - Production Management-
Meaning, scope and importance
Introduction to product development
Product design
Dietary pattern of consumer

Unit 2 :- Ingredients of new food
Product Selection
Standardization
Challenges facing new food
Future problem
Types of production system

Unit 3 Legal standards
National and international
Government laws and regulation
Food additive regulation
State regulation
Labeling regulation

Unit 4 :- Quality-
Quality assurance
Sensory qualities
Economic and cost
Sanitation and Waste disposal
Quality Control

Unit 5 :- Traditional food products

Spice products
Cereal products
Fermented products

Unit 6 :- Convenience food product

Importance
Special dietary food
Low and high calorie food
Low fat food
Low amino acid
Low sodium food

Unit 7 :- Marketing

Meaning and scope
Importance
Marketing functions
Types of marketing

Unit 8 :- Packaging

Importance
Packaging materials
Types of packages
Special packaging methods
Sanitation of food packaging
Storage

References:

1) Trends in Food Science and Technology
- M.R. Raghavendra Rao
- N. Chandrasekhara
- K.A. Ranganath

Proceeding of the second international food convention (IFCON – 88) Feb. 18 to 23, 1988 at Mysore.

2) Trends in Food Science and Technology
- C.P. Natarayan
- S. Ranganna

3) Food Preservation and Processing
- Manoranyan kalia
- Sangita Sood
- Kalyani Publishers
- First Edition, 1996.

Equivalence

Old Course	New Course
BFTM- I – Personnel Management & Industrial Relation	Human Resource Management
BFTM- II – Indian Constitution	Deleted

BACHELOR OF FOOD TECHNOLOGY AND MANAGEMENT
THIRD YEAR

SUBJECT: CLINICAL AND COMMUNITY NUTRTION
PAPER- I

3
Theory: 100 Marks
Practical :- 50 Marks

OBJECIIVE :-

To enable students to :-

1] Know the dietary modification for disease condition.

2] Acquire knowledge regarding effect of various disease on nutritional status and nutritional requirement.

3] Understand the existing nutritional problems in the community.

Unit 1 :- Diet in liver diseases
Cirrhosis
Hepatitis
Hepatic coma
Diseases of gall bladder
Pancreatitis

Unit 2 :- Diet in cardiovascular diseases
Atheroclerosis
Coronary heart diseases
Dyslipidaemia
Hypertension
Congestive heart failure
Myocardial infraction

Unit 3 :- Diet in kidney diseases
Nephrotic syndrom
Glomerulonephritis
Acute and chronic renal failure
Dialysis
Renal calculi

Unit 4 :- Diet in Cancer

Risk factor
General reaction
Nutritional problems
Nutritional requirement
Role of food in prevention of cancer

Unit 5 :- Diet in diseases of nervous system

Polyneuropathy
Parkinsons Disease
Anorexia nervosa
Epilepsy

Unit 6 :- Diet in Aids

National nutritional problem in India
Role of National and International agency to overcome mal nutrition
ANP, ICDS, UNICEF, WHO, FAO, and ICAR

Unit 7 :- Assessment of Nutritional status

Population sampling
Anthropometry
Biophysical Assessment
Radiographic examination
Nutritional adequate of diet consume
Clinical assessment
Biochemical assessment

Unit 8 :- Diet survey methods

Population sampling and duration of diet survey.
Questionnaire method
Food list method
Interview method
Food inventory method
Food inventory of log book method
Weighment of raw food method
Weighment of cooked food method
Analysis of cooked food method
Adult consumption units

Practicals :-

9) Anthropometric measurement
10) Diet in liver diseases
11) Diet in kidney diseases
12) Diet in cardiovascular diseases
13) Diet in cancer
14) Diet in Aids
15) Diet survey
16) Biochemical assessment

References :-

Devdas R. P. (1972), Nutrition in Tamil Nadu Sangam Publisher.

Meyer J, Human (1972), 'Nutrition charles Thomas

King M and Morley O (1976) 'Nutrtion for Developing Countries, Oxford University Press.

Lowenberg E. M. Todhanter, N.E. Wilron, Era D Savage and June R. (1970) ' Food and Man Wiley' Eastern Pvt. Ltd.z

Wesna D (1981), 'Where there is no Doctor', The voluntary Health Association of India.

Raja Laxmi R. (1981) ' Applied Nutrition oxford and IBH Publishers'

ICMR, ' Technical Report Series'.

8) L. Kathleen Mahan, Sylvia Escott- Stump . Krause's ' Food, Nutrition and Diet Therapy.' (11th edition)

BACHELOR OF FOOD TECHNOLOGY AND MANAGEMENT
THIRD YEAR
PAPER-II

PROCESSING AND PRESERVATION OF FRUITS AND VEGETABLES

Theory: 100 Marks
Practical :- 50 Marks

Objectives :-

To enable the students to

3. Gain an insight into basic aspect of fruit and vegetable processing

4. Acquire knowledge of availability of fruits and vegetables in lean season

Theory:-

Unit 1 :- Introduction to fruits processing
Morphology of fruits
Classification
Composition of fruits
Nutritive value of fruits
Jam,jelly,marmalade,pickles,vinegar,fruit candy,fruit preserves

Unit 2 :- Processing of fruits
General principle
Properties of fruits
Methods of preservation
Drying dehydration, canning, syruping
Beverages
Recent development

Unit 3 :- Preservation of Fruits
Low temperature
High temperature
Natural preservatives
Artificial preservatives

Unit 4 :- Chemical modification
Processing
Storage
And Preservation

Packaging
Prewaxin
Wrapping
Pre Packaging studies
Designing of Packages.

Unit 5 :- Introduction to vegetable processing

Morphology of vegetable
Classification
Composition of vegetable
Nutritive value of vegetable

Unit 6 :- Processing of vegetable

General principle
Properties of vegetable
Methods of preservation
Drying dehydration, canning, syruping
Appetizers
Recent development

Unit 7 :- Preservation of vegetable

Low temperature
High temperature
Natural preservatives
Artificial preservatives

Unit 8 :- Chemical modification

Processing
Storage
And Preservation
Packaging
Prewaxing
Wrapping
Pre Packaging studies
Designing of Packages.

Practicals:

6. Preparation of beverages
- fruit juice
- cardial
- nectar
- squashes

7. Canning of fruit and vegetable
8. Preparation of pickles
9. Preparation of jam jelly, marmalade, fruit candies, resins
10. Industrial visit.

References:

'Fruit and vegetables preservation, principles and practices', New Delhi, International Book Distributors.

Herson A.C. ‘ Cannel Foods and Thermal processing and Microbiology’, New York, Chemical publishing Co.

S.C.Bhatiya, ‘Canning and preservation of fruits and vegetables’, CBS publication and distributors

M. Mirajkar, Menon Srilata, ‘ Food Science and Processing Technology’ New Delhi Vol. I and II, Kanishka Publisher.

Lowe, Belle (1995), ‘ Experimental Cookery’ New York, 4th ed. Wiley

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Terell M.E. ‘ Professional Food Preparation’ (1978), New York, 2nd ed. Wiley

Mizer A David, Porter, Amry Sonnier Beth, (1987), ‘ Food Preparation for the Professional’ , Library of Congress Cataloging in Publication Data limited Status.

BACHELOR OF FOOD TECHNOLOGY AND MANAGEMENT

THIRD YEAR

PAPER- III

ANIMAL PRODUCT TECHNOLOGY

Theory: 100 Marks

OBJECTIVES

To enable the students to: -

1] Acquire knowledge regarding processing of animal proteins.

2] Develop high quality protein concentrates and weaning foods.

THEORY

Unit 1 :- Egg:-

Structure, composition and nutritive value.
Egg quality evaluation – grading and deterioration.
Egg processing – freezing, drying and canning
Effect of heat on egg protein.
Egg foams and factors influencing.
Preparation of protein concentrate.

Unit 2 :- Meat

Structure, composition and nutritive value.
Biochemical changes
Classification, curing, tenderising, cutts and grades, gelation formation. Changes during cooking.
Pre and post slaughter operations
Preservation with antibiotics, radiation's,
Manufacture of meat products and packaging.

Unit 3 :- Fish

Types and classification
Composition and nutritive value
Processing of fish meal, fish flour, fish – oil.
Canning and freezing of fish
Fish cookery
Fish spoilage.
Commercial fish handling preservation transport

Preparation of various fish products

Unit 4 :-Poultry

Classification composition and nutritive value preservation and storage.
Biochemical storage of meat products.
Processing - chilling, freezing, drying, pickling, smoking, Manufacturing of meat products and cooking.
Storage of meat products
Factors affecting composition physical chemical facilities.

Unit 5:-Milk and milk products

Nutritional importance, composition and nutritive value, milk micro-organisms,. Effect of heat on milk

Unit 6 :- Processing of milk products & indigenous milk products.

Unit 7:- Recent concepts in animal product processing
Unit 8 :- Recent concepts in processing of milk & milk products

REFERENCES

1] Potter, N. N. (1987). Food Science, New Delhi : CBS Publisher and Distributor.

2] Meyer, L.H. (1987). Food Chemistry, New Delhi: CBS Publisher and Distributor.

3] Srilakshmi B. (2001). Food Science, New Delhi : New Age International (P) Ltd.

BACHELOR OF FOOD TECHNOLOGY AND MANAGEMENT

THIRD YEAR
PAPER- IV
DAIRY TECHNOLOGY

Theory: 100 Marks
Practical :- 50 Marks

Objectives :-

To enable the students to

Gain knowledge in the field of Dairy technology

Know about the recent advances in Dairy technology

Theory:-

Unit 1 :-Introduction to Dairy technology
Introduction to Dairy technology &
Milk Processing industries in India

Unit 2 :-Theories of milk secretion
Morphology of Udder
Hormones
Methods of milching of animals
Hygeing during milching.

Management of milching animal
Types of sheds
Breed of milching animal
Indian Breeds
Feed and fodder for animal

Unit 3 :- Milk and colostrums
Importance
Composition
Physico chemical characteristic
Nutritive value
Factors affecting composition of milk

Unit 4 :- Processing of milk & milk products

Importance
Types of processing
Methods of processing
Steps in processing
Nutritive value of product
Composition
Storage & Packaging

Unit 5 :- Production of indigenous milk products

Unit 6 :- Fermented Dairy products

Definition
Type
Process
Nutritive value
Composition
Storage

Unit 7 :- Milk adulteration

Types of adulterant
Detection methods

Unit 8 :- Recent developments

Practicals:-

Physical examination of milk

Platform tests of milk

Detection of adulteration of milk

Preparation of indigenous milk products

Determination of fat, milk, SNF and total solids

Testing of milk for acidity, specific gravity, freezing point and viscosity

Preparation of flavored milk

8. Estimation of protein by Pyne's method

References:-

A. Q. Khan and T. N. Padmanabhan, " Technology of milk processing".

J. N.Warner, “ Principles of Dairy Processing”

Sukumar De “ Outlines of Dairy Technology”

R. Jennes, “ Principles of Dairy Chemistry”

Potter N. N. ‘Food Science’ CBS Publication and Distributors.

Meyer L .H. ‘ Food Chemistry’ CBS Publisher and Distributors.

PAPER- V

BACHELOR OF FOOD TECHNOLOGY AND MANAGEMENT
THIRD YEAR

SUBJECT: BAKERY AND CONFECTIONERY PAPER V

Theory: 100 Marks
Practical :- 50 Marks

To enable students to :-

1] Know the different types of bakery products and its ingredients.

2] Acquire knowledge regarding confection.

Unit 1 :-Wheat -varieties, qualities, types of wheat, grading system, chemical constituents, physiological and rheological properties, enzymes in wheat flour miling, aging, utilization, dough technology and chemistry Durum wheat products

Unit 2 :-Commercial baking technology:

- ingredients used in baking,
- functions of ingredients,
- the reactions of baking(mixing, leavening, baking),
- preparation methods of bread, cake, biscuits, cookies, pastry, buns, crackers
- types of quick bread, cake, cookies

Partially prepared bakery products-

- Refrigerated dough products
- Dry mixes- ingredients, formulation principles, advantages and disadvantages

-

Unit 3 :- Breakfast cereals-

- Introduction history, present status

- Processing of hot serve cereals and ready –to –eat breakfast cereals
- Flakes, shreds, granules, puffed cereals, sugar coated products

Unit 4 :- Snack foods

- popped and puffed snacks, factors affecting their quality
- convenience cereal foods
- extrusion cooking

Unit 5 :-Starch

- Manufacturing of food starches, modified starches, heating of starch granules, Gelatinization, retrogradation, factors affecting gelatinization.

Units 6 :-Chocolate based confectionery-

- Ingredients, chocolate and cocoa products

Unit 7 :- Sugar based confectionery

- Manufacturing of raw refined and white sugar, forms of sugar
- Liquid sweeteners,
- Reactions of sugar
- Crystalline and amorphous confectionery, Indian confectionery

Unit 8 :- Special dietary food and ingredients

- Hot cereals for children
- Quality control
- Junior cereals and baby foods
- Beverages
- Cereal derived supplements

Practicals:

- Preparation of bread, cakes, biscuits and candies

Reference books:

5. Food Science – Norman N. Potter, Joseph H. Hotchkiss

   CBS Publishers and distributors, New Delhi, 1997 5th edition.

6. Cereal technology – Matz.

7. Food facts and principles – Shakuntala Manay

8. The complete cook – Himalaya, Octopus pub., London, 2000

BACHELOR OF FOOD TECHNOLOGY AND MANAGEMENT
THIRD YEAR
SUBJECT: FOOD QUALITY CONTROL,UTILISATION OF INDUSTRIAL BY PRODUCT AND WASTE
PAPER- VI

Theory: 100 Marks

Objectives:
To enable students to :-
1.Maintain quality of food
2. Obtain Maximum utilization of by products

Unit 1 :- Introduction,
Definition
Related terminology
Importance of quality control.

Unit 2 :- Quality attributes of foods –

Nutritional Quality
Sensory Quality
Sensory tests
Sanitary Quality

Unit 3 :-Food Standards laws and regulation
FPA, FPO,Meat Product order Misbranding
Export inspection council Standards of weights & measures ,Army purchase organisation
ISI and AGMARK, HACCP,
Standards for raw material
Bacterial standards for Foods with special reference to fruit & vegetables,cereals,milk,meat & poultry
Govt.agencies& Voluntary agencies related to analysis of food

Unit 4 :- Indices for food sanitary qualities
Microbial standards and criteria
Indicator of Food Sanitary quality

Unit 5 :-Inplant quality control techniques
Employed for food product to maintain uniformity in product

Unit 6 :-Effect of processing & storage on quality of food

Unit 7:- Industrial byproducts and waste
Potential & prospects of byproduct & waste utilisation from the food industries in India Byproduct & waste with special reference to Agricultural & agrobased industries cereal & cereal product, fruits and vegetable,meat, poultry and fish,milk & milk products

Unit 8 :- Recent concepts in Food quality control

References:

1.Food Science – Norman N. Potter, Joseph H. Hotchkiss

CBS Publishers and distributors, New Delhi, 1997 5th edition.

2.Cereal technology – Matz.

3.Food facts and principles – Shakuntala Manay

4.The complete cook – Hamlya, Octopus pub., London, 2000

BACHELOR OF FOOD TECHNOLOGY AND MANAGEMENT

THIRD YEAR

SUBJECT: PRODUCTION PACKAGING AND MARKETING OF FOOD PRODUCTS

PAPER- VII

Theory: 100 Marks

OBJECIIVES
To enable students to: -
Acquire knowledge of food laws, food standards and food adulteration.
Understand the importance of packaging of food
Understand different techniques of marketing.

THEORY:

Unit 1: - Production Management-
Meaning, scope and importance
Introduction to product development
Product design
Dietary pattern of consumer

Unit 2 :- Ingredients of new food
Product Selection
Standardization
Challenges facing new food
Future problem
Types of production system

Unit 3 Legal standards
National and international
Government laws and regulation
Food additive regulation
State regulation
Labeling regulation

Unit 4 :- Quality-
Quality assurance
Sensory qualities
Economic and cost
Sanitation and Waste disposal
Quality Control

Unit 5 :- Traditional food products

Spice products
Cereal products
Fermented products

Unit 6 :- Convenience food product

Importance
Special dietary food
Low and high calorie food
Low fat food
Low amino acid
Low sodium food

Unit 7 :- Marketing

Meaning and scope
Importance
Marketing functions
Types of marketing

Unit 8 :- Packaging

Importance
Packaging materials
Types of packages
Special packaging methods
Sanitation of food packaging
Storage

References:

1) Trends in Food Science and Technology
- M.R. Raghavendra Rao
- N. Chandrasekhara
- K.A. Ranganath

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- S. Ranganna

5) Food Preservation and Processing
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BFTM- I – Personnel Management & Industrial Relation	Human Resource Management
BFTM- II – Indian Constitution	Deleted

BACHELOR OF FOOD TECHNOLOGY AND MANAGEMENT
THIRD YEAR

SUBJECT: CLINICAL AND COMMUNITY NUTRTION
PAPER- I

3
Theory: 100 Marks
Practical :- 50 Marks

OBJECIIVE :-

To enable students to :-

1] Know the dietary modification for disease condition.

2] Acquire knowledge regarding effect of various disease on nutritional status and nutritional requirement.

3] Understand the existing nutritional problems in the community.

Unit 1 :- Diet in liver diseases
Cirrhosis
Hepatitis
Hepatic coma
Diseases of gall bladder
Pancreatitis

Unit 2 :- Diet in cardiovascular diseases
Atheroclerosis
Coronary heart diseases
Dyslipidaemia
Hypertension
Congestive heart failure
Myocardial infraction

Unit 3 :- Diet in kidney diseases
Nephrotic syndrom
Glomerulonephritis
Acute and chronic renal failure
Dialysis
Renal calculi

Unit 4 :- Diet in Cancer

Risk factor
General reaction
Nutritional problems
Nutritional requirement
Role of food in prevention of cancer

Unit 5 :- Diet in diseases of nervous system

Polyneuropathy
Parkinsons Disease
Anorexia nervosa
Epilepsy

Unit 6 :- Diet in Aids

National nutritional problem in India
Role of National and International agency to overcome mal nutrition
ANP, ICDS, UNICEF, WHO, FAO, and ICAR

Unit 7 :- Assessment of Nutritional status

Population sampling
Anthropometry
Biophysical Assessment
Radiographic examination
Nutritional adequate of diet consume
Clinical assessment
Biochemical assessment

Unit 8 :- Diet survey methods

Population sampling and duration of diet survey.
Questionnaire method
Food list method
Interview method
Food inventory method
Food inventory of log book method
Weighment of raw food method
Weighment of cooked food method
Analysis of cooked food method
Adult consumption units

Practicals :-

17) Anthropometric measurement
18) Diet in liver diseases
19) Diet in kidney diseases
20) Diet in cardiovascular diseases
21) Diet in cancer
22) Diet in Aids
23) Diet survey
24) Biochemical assessment

References :-

Devdas R. P. (1972), Nutrition in Tamil Nadu Sangam Publisher.

Meyer J, Human (1972), 'Nutrition charles Thomas

King M and Morley O (1976) 'Nutrtion for Developing Countries, Oxford University Press.

Lowenberg E. M. Todhanter, N.E. Wilron, Era D Savage and June R. (1970) ' Food and Man Wiley' Eastern Pvt. Ltd.z

Wesna D (1981), 'Where there is no Doctor', The voluntary Health Association of India.

Raja Laxmi R. (1981) ' Applied Nutrition oxford and IBH Publishers'

ICMR, ' Technical Report Series'.

8) L. Kathleen Mahan, Sylvia Escott- Stump . Krause's ' Food, Nutrition and Diet Therapy.' (11th edition)

BACHELOR OF FOOD TECHNOLOGY AND MANAGEMENT
THIRD YEAR
PAPER-II

PROCESSING AND PRESERVATION OF FRUITS AND VEGETABLES

Theory: 100 Marks
Practical :- 50 Marks

Objectives :-

To enable the students to

5. Gain an insight into basic aspect of fruit and vegetable processing

6. Acquire knowledge of availability of fruits and vegetables in lean season

Theory:-

Unit 1 :- Introduction to fruits processing
Morphology of fruits
Classification
Composition of fruits
Nutritive value of fruits
Jam,jelly,marmalade,pickles,vinegar,fruit candy,fruit preserves

Unit 2 :- Processing of fruits
General principle
Properties of fruits
Methods of preservation
Drying dehydration, canning, syruping
Beverages
Recent development

Unit 3 :- Preservation of Fruits
Low temperature
High temperature
Natural preservatives
Artificial preservatives

Unit 4 :- Chemical modification
Processing
Storage
And Preservation

Packaging
Prewaxin
Wrapping
Pre Packaging studies
Designing of Packages.

Unit 5 :- Introduction to vegetable processing

Morphology of vegetable
Classification
Composition of vegetable
Nutritive value of vegetable

Unit 6 :- Processing of vegetable

General principle
Properties of vegetable
Methods of preservation
Drying dehydration, canning, syruping
Appetizers
Recent development

Unit 7 :- Preservation of vegetable

Low temperature
High temperature
Natural preservatives
Artificial preservatives

Unit 8 :- Chemical modification

Processing
Storage
And Preservation
Packaging
Prewaxing
Wrapping
Pre Packaging studies
Designing of Packages.

Practicals:

11. Preparation of beverages
- fruit juice
- cardial
- nectar
- squashes

12. Canning of fruit and vegetable
13. Preparation of pickles
14. Preparation of jam jelly, marmalade, fruit candies, resins
15. Industrial visit.

References:

'Fruit and vegetables preservation, principles and practices', New Delhi, International Book Distributors.

Herson A.C. ‘ Cannel Foods and Thermal processing and Microbiology’, New York, Chemical publishing Co.

S.C.Bhatiya, ‘Canning and preservation of fruits and vegetables’, CBS publication and distributors

M. Mirajkar, Menon Srilata, ‘ Food Science and Processing Technology’ New Delhi Vol. I and II, Kanishka Publisher.

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Peckman Gladys C and Jeanne H. Freeland Graves (1987), ‘ Foundations of Food Peparation’ New York, 5th ed. McMillan.

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Mizer A David, Porter, Amry Sonnier Beth, (1987), ‘ Food Preparation for the Professional’ , Library of Congress Cataloging in Publication Data limited Status.

BACHELOR OF FOOD TECHNOLOGY AND MANAGEMENT

THIRD YEAR

PAPER- III

ANIMAL PRODUCT TECHNOLOGY

Theory: 100 Marks

OBJECTIVES

To enable the students to: -

1] Acquire knowledge regarding processing of animal proteins.

2] Develop high quality protein concentrates and weaning foods.

THEORY

Unit 1 :- Egg:-

Structure, composition and nutritive value.
Egg quality evaluation – grading and deterioration.
Egg processing – freezing, drying and canning
Effect of heat on egg protein.
Egg foams and factors influencing.
Preparation of protein concentrate.

Unit 2 :- Meat

Structure, composition and nutritive value.
Biochemical changes
Classification, curing, tenderising, cutts and grades, gelation formation. Changes during cooking.
Pre and post slaughter operations
Preservation with antibiotics, radiation's,
Manufacture of meat products and packaging.

Unit 3 :- Fish

Types and classification
Composition and nutritive value
Processing of fish meal, fish flour, fish – oil.
Canning and freezing of fish
Fish cookery
Fish spoilage.
Commercial fish handling preservation transport

Preparation of various fish products

Unit 4 :-Poultry

Classification composition and nutritive value preservation and storage.
Biochemical storage of meat products.
Processing - chilling, freezing, drying, pickling, smoking, Manufacturing of meat products and cooking.
Storage of meat products
Factors affecting composition physical chemical facilities.

Unit 5:-Milk and milk products

Nutritional importance, composition and nutritive value, milk micro-organisms,. Effect of heat on milk

Unit 6 :- Processing of milk products & indigenous milk products.

Unit 7:- Recent concepts in animal product processing
Unit 8 :- Recent concepts in processing of milk & milk products

REFERENCES

1] Potter, N. N. (1987). Food Science, New Delhi : CBS Publisher and Distributor.

2] Meyer, L.H. (1987). Food Chemistry, New Delhi: CBS Publisher and Distributor.

3] Srilakshmi B. (2001). Food Science, New Delhi : New Age International (P) Ltd.

BACHELOR OF FOOD TECHNOLOGY AND MANAGEMENT

THIRD YEAR
PAPER- IV
DAIRY TECHNOLOGY

Theory: 100 Marks
Practical :- 50 Marks

Objectives :-

To enable the students to

Gain knowledge in the field of Dairy technology

Know about the recent advances in Dairy technology

Theory:-

Unit 1 :-Introduction to Dairy technology
Introduction to Dairy technology &
Milk Processing industries in India

Unit 2 :-Theories of milk secretion
Morphology of Udder
Hormones
Methods of milching of animals
Hygeing during milching.

Management of milching animal
Types of sheds
Breed of milching animal
Indian Breeds
Feed and fodder for animal

Unit 3 :- Milk and colostrums
Importance
Composition
Physico chemical characteristic
Nutritive value
Factors affecting composition of milk

Unit 4 :- Processing of milk & milk products

Importance
Types of processing
Methods of processing
Steps in processing
Nutritive value of product
Composition
Storage & Packaging

Unit 5 :- Production of indigenous milk products

Unit 6 :- Fermented Dairy products

Definition
Type
Process
Nutritive value
Composition
Storage

Unit 7 :- Milk adulteration

Types of adulterant
Detection methods

Unit 8 :- Recent developments

Practicals:-

Physical examination of milk

Platform tests of milk

Detection of adulteration of milk

Preparation of indigenous milk products

Determination of fat, milk, SNF and total solids

Testing of milk for acidity, specific gravity, freezing point and viscosity

Preparation of flavored milk

8. Estimation of protein by Pyne's method

References:-

A. Q. Khan and T. N. Padmanabhan, " Technology of milk processing".

J. N.Warner, “ Principles of Dairy Processing”

Sukumar De “ Outlines of Dairy Technology”

R. Jennes, “ Principles of Dairy Chemistry”

Potter N. N. ‘Food Science’ CBS Publication and Distributors.

Meyer L .H. ‘ Food Chemistry’ CBS Publisher and Distributors.

PAPER- V

BACHELOR OF FOOD TECHNOLOGY AND MANAGEMENT
THIRD YEAR

SUBJECT: BAKERY AND CONFECTIONERY PAPER V

Theory: 100 Marks
Practical :- 50 Marks

To enable students to :-

1] Know the different types of bakery products and its ingredients.

2] Acquire knowledge regarding confection.

Unit 1 :-Wheat -varieties, qualities, types of wheat, grading system, chemical constituents, physiological and rheological properties, enzymes in wheat flour miling, aging, utilization, dough technology and chemistry Durum wheat products

Unit 2 :-Commercial baking technology:

- ingredients used in baking,
- functions of ingredients,
- the reactions of baking(mixing, leavening, baking),
- preparation methods of bread, cake, biscuits, cookies, pastry, buns, crackers
- types of quick bread, cake, cookies

Partially prepared bakery products-

- Refrigerated dough products
- Dry mixes- ingredients, formulation principles, advantages and disadvantages

-

Unit 3 :- Breakfast cereals-

- Introduction history, present status

- Processing of hot serve cereals and ready –to –eat breakfast cereals
- Flakes, shreds, granules, puffed cereals, sugar coated products

Unit 4 :- Snack foods

- popped and puffed snacks, factors affecting their quality
- convenience cereal foods
- extrusion cooking

Unit 5 :-Starch

- Manufacturing of food starches, modified starches, heating of starch granules, Gelatinization, retrogradation, factors affecting gelatinization.

Units 6 :-Chocolate based confectionery-

- Ingredients, chocolate and cocoa products

Unit 7 :- Sugar based confectionery

- Manufacturing of raw refined and white sugar, forms of sugar
- Liquid sweeteners,
- Reactions of sugar
- Crystalline and amorphous confectionery, Indian confectionery

Unit 8 :- Special dietary food and ingredients

- Hot cereals for children
- Quality control
- Junior cereals and baby foods
- Beverages
- Cereal derived supplements

Practicals:

- Preparation of bread, cakes, biscuits and candies

Reference books:

9. Food Science – Norman N. Potter, Joseph H. Hotchkiss

   CBS Publishers and distributors, New Delhi, 1997 5th edition.

10. Cereal technology – Matz.

11. Food facts and principles – Shakuntala Manay

12. The complete cook – Himalaya, Octopus pub., London, 2000

BACHELOR OF FOOD TECHNOLOGY AND MANAGEMENT
THIRD YEAR
SUBJECT: FOOD QUALITY CONTROL,UTILISATION OF INDUSTRIAL BY PRODUCT AND WASTE
PAPER- VI

Theory: 100 Marks

Objectives:
To enable students to :-
1.Maintain quality of food
2. Obtain Maximum utilization of by products

Unit 1 :- Introduction,
Definition
Related terminology
Importance of quality control.

Unit 2 :- Quality attributes of foods –

Nutritional Quality
Sensory Quality
Sensory tests
Sanitary Quality

Unit 3 :-Food Standards laws and regulation
FPA, FPO,Meat Product order Misbranding
Export inspection council Standards of weights & measures ,Army purchase organisation
ISI and AGMARK, HACCP,
Standards for raw material
Bacterial standards for Foods with special reference to fruit & vegetables,cereals,milk,meat & poultry
Govt.agencies& Voluntary agencies related to analysis of food

Unit 4 :- Indices for food sanitary qualities
Microbial standards and criteria
Indicator of Food Sanitary quality

Unit 5 :-Inplant quality control techniques
Employed for food product to maintain uniformity in product

Unit 6 :-Effect of processing & storage on quality of food

Unit 7:- Industrial byproducts and waste
Potential & prospects of byproduct & waste utilisation from the food industries in India Byproduct & waste with special reference to Agricultural & agrobased industries cereal & cereal product, fruits and vegetable,meat, poultry and fish,milk & milk products

Unit 8 :- Recent concepts in Food quality control

References:

1.Food Science – Norman N. Potter, Joseph H. Hotchkiss

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2.Cereal technology – Matz.

3.Food facts and principles – Shakuntala Manay

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BACHELOR OF FOOD TECHNOLOGY AND MANAGEMENT

THIRD YEAR

SUBJECT: PRODUCTION PACKAGING AND MARKETING OF FOOD PRODUCTS

PAPER- VII

Theory: 100 Marks

OBJECIIVES
To enable students to: -
Acquire knowledge of food laws, food standards and food adulteration.
Understand the importance of packaging of food
Understand different techniques of marketing.

THEORY:

Unit 1: - Production Management-
Meaning, scope and importance
Introduction to product development
Product design
Dietary pattern of consumer

Unit 2 :- Ingredients of new food
Product Selection
Standardization
Challenges facing new food
Future problem
Types of production system

Unit 3 Legal standards
National and international
Government laws and regulation
Food additive regulation
State regulation
Labeling regulation

Unit 4 :- Quality-
Quality assurance
Sensory qualities
Economic and cost
Sanitation and Waste disposal
Quality Control

Unit 5 :- Traditional food products

Spice products
Cereal products
Fermented products

Unit 6 :- Convenience food product

Importance
Special dietary food
Low and high calorie food
Low fat food
Low amino acid
Low sodium food

Unit 7 :- Marketing

Meaning and scope
Importance
Marketing functions
Types of marketing

Unit 8 :- Packaging

Importance
Packaging materials
Types of packages
Special packaging methods
Sanitation of food packaging
Storage

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