

SHIVAJI UNIVERSITY, KOLHAPUR.



**B
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2009**

New Syllabus For

BFTM PART- III

(Sem.-V & VI)

Syllabus to be implemented from June 2012 onwards.

**BFTM- III -: THIRD YEAR DEGREE COURSE
SEMESTER - V**

SR. NO.	SUBJECTS	TOTAL MARKS		TOTAL PERIOD PER WEEK		DURATION FOR EXAM.	
		Theory	Practical	Theory	Practical per batch		
		Uni	Int				
1	Clinical & Community Nutrition - I	40	10	--	4	4	Theory (2 Hrs.)
2	Processing and Preservation of Fruits and Vegetables- I	40	10	--	4	4	Theory (2 Hrs.)
3	Animal Product Technology- I	40	10	--	4	--	Theory (2 Hrs.)
4	Dairy Technology- I	40	10	--	4	4	Theory (2 Hrs.)
5	Technology of Bakery & Confectionery - I	40	10	--	4	4	Theory (2 Hrs.)
6	Food Quality ,Safety& waste Management - I	40	10	--	4	--	Theory (2 Hrs.)
7	Agri-business Management- I	40	10	--	4	--	Theory (2 Hrs.)
8	Industrial & Business Management - I	40	10	--	4	--	----
	Total Marks	320	80	---	---	--	----
	Grand Total	400					
	Total workload	-----		---	32	16	-----
	Total workload (Theory & practical)	48					

BFTM -: THIRD YEAR DEGREE COURSE SEMESTER – VI

SR. NO.	SUBJECTS	TOTAL MARKS		TOTAL PERIOD PER WEEK		DURATION FOR EXAM.	
		Theory Uni	Int	Practical	Theory		Practical per batch
1	Clinical & Community Nutrition - II	40	10	50	4	4	Theory (2 Hrs.) (Practical 3 hrs)
2	Processing and Preservation of Fruits and Vegetables- II	40	10	50	4	4	Theory (2 Hrs.) (Practical 3 hrs)
3	Animal Product Technology- II	40	10	---	4	---	Theory (2 Hrs.)
4	Dairy Technology- II	40	10	50	4	4	Theory (2 Hrs.) (Practical 3 hrs)
5	Technology of Bakery & Confectionery - II	40	10	50	4	4	Theory (2 Hrs.) (Practical 3 hrs)
6	Food Quality ,Safety& waste Management - II	40	10	---	4	---	Theory (2 Hrs.)
7	Agri-business Management- II	40	10	----	4	--	Theory (2 Hrs.)
8	Industrial & Business Management - II	40	10	---	4	--	---
9	Project	----	----	100	---	---	---
	Total Marks	320	80	300	---	--	-----
	Grand Total	700		---	---	--	--
	Total workload	-----			32	16	---
	Total workload(Theory & Practical)	48		---	---	---	---

BACHELOR OF FOOD TECHNOLOGY AND MANAGEMENT
THIRD YEAR
SEMISTER- V
SUBJECT: CLINICAL AND COMMUNITY NUTRITION
PAPER- I

OBJECTIVES:-

To enable students to:-

- 1] Know the dietary modification for disease condition.
- 2] Acquire knowledge regarding effect of various diseases on nutritional status and nutritional requirement.
- 3] Understand the existing nutritional problems in the community.

Unit 1:- National nutritional problem in India

Protein Energy Malnutrition
Micronutrient Deficiencies
Fluorosis

Unit 2:- Assessment of Nutritional status

Population sampling
Nutritional Anthropometry
Clinical assessment
Biochemical assessment
Dietary Assessment

Unit 3:- Diet in Cancer

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

Unit 4:- Diet in Liver diseases

Hepatitis
Cirrhosis of liver
Hepatic coma
Diseases of gall bladder
Diseases of the Pancreas

Practical:-

- 1) Anthropometric measurement
- 2) Diet in liver diseases
- 3) Diet in cancer

References:-

1. Mahan L. K. and Escott- Stump, S. (2000): “Krause’s Food, Nutrition and Diet Therapy”, 11th Edition, W.B. Saunders Ltd.
2. Shils, M. E., Olson, J.A., Shike, M. and Ross, A.C. (1999): Modern Nutrition in Health and Disease, 9th Edition, Williams and Wilkins.
3. Garrow, J.S., James , W.P.T. and Ralph, A.. (2000): Human Nutrition and Dietetics, 10th Edition, Churchill Livingstone.
4. Srilaxmi B. (2007): Dietetics, Revised 5th Edition, New Age International (P) Ltd., Publishers.
5. Guyton, A.C. and Hall, J. E. (1999): Textbook of Medical Physiology, 9th Edition, W.B. Saunders Co.
6. Antia F.P (1986): Clinical Dietetics and Nutrition, Bombay, 3rd edition, Oxford University Press.

**BACHELOR OF FOOD TECHNOLOGY AND MANAGEMENT
THIRD YEAR (SEMESTER V)**

**SUBJECT- PROCESSING AND PRESERVATION OF FRUITS AND
VEGETABLES I**

Paper - II

OBJECTIVES:-

To enable students to:-

- 1] Know the basic aspects of fruits and vegetables processing
- 2] Acquire knowledge regarding preservation methods used in food processing.
- 3] Know the quality control techniques and waste utilization in food industry

Unit 1:- Scope of Fruits & Vegetables Processing and Preservation in India

History of fruit preservation and canning industry, factors to be consider in setting up fruit and vegetable industry, morphology and composition of fruits and vegetables

Unit 2:- Spoilage of Fruits & Vegetables

Use of high temp, Use of low temp. , Use of chemical preservative, Irradiation, Drying, Ultrasound preservation, Pulse electric heating, etc Infection by microorganisms, action of enzymes, damage by insects, parasites and rodents, storage conditions, mechanical damage

Unit 3:- Browning reactions in fruits and vegetables

Enzymatic browning and non enzymatic browning,

Unit 4:- Principles and methods of fruit and vegetable preservation.

Principles of storage of fruits and vegetables. Use of high temperature, Use of low temperature, Asepsis, Use of chemical preservative, Use of natural preservative Irradiation, Drying, Ultrasound preservation, Pulse electric heating, etc

Practicals

1. Preservation by Sugar
2. Preservation by Salt
3. Preservation by High temperature
4. Preservation by low temperature

References

S.Saraswathy , T.L.preethi , S.Balsubramanyan , J.suresh ,N. Revanthi and S. naarajan (2008) : Post harvest Management of Horticulture Crops , Dr, Updesh Purohit for Agrobios (India) Jodhpur

Salunkhe D.K, Kadam S.S(2005) ,Handbook of fruit science and technology ,Marcel dekker, Inc.

Bose T.k ,Mitra S.K ,Sanyal D (2001) , Fruits : Tropical and subtropical (vol .1) ,Third edition ,Partha sankar basu naya udyog.

Bhatiya Vijaya (2004),Preservation of fruit and vegetables , 2nd edition ,Kalyani publishers

BACHELOR OF FOOD TECHNOLOGY AND MANAGEMENT
THIRD YEAR
SEMISTER- V
SUBJECT: ANIMAL PRODUCT TECHNOLOGY I
PAPER- III

OBJECTIVES:-

To enable students to:-

- 1] Know the structure of egg and meat.
- 2] Acquire knowledge regarding processing and preservation methods of egg and meat.
- 3] Understand the nutritive value of egg and meat.

Unit 1:- Importance of meat products & Slaughtering of animals

Pre-slaughter transport and care and antimortem inspection
Slaughtering of animals, post-mortem inspection and grading of meat
Pre and post slaughter operations, Classification
Structure and composition of meat
Nutritive value of meat

Unit 2:- Processing and preservation of meat

Aging or chilling, freezing, pickling, curing, cooking and smoking of meat,
Meat tenderization, gelation preparation
Preservation with antibiotics, radiations,
Manufacture of meat products and packaging.
Recent concepts in animal product processing

Unit 3:- Structure, Composition and quality of egg

Structure, composition of egg
Nutritive value of egg,
Evaluation of quality and grading of eggs

Unit 4:- Processing and Preservation of eggs

Egg processing – freezing, drying and canning
Preservation of shell eggs
Effect of heat on egg protein.
Egg foams and factors influencing.
Preparation of protein concentrate

References:

- 1) Manay S.N. and Shadaksharaswamy M. (2001); Food facts and principles, 2nd edn, New Age International (P) limited publishers.
- 2) Potter N. N. and Hotchkiss J.H. (1966); Food Science, 5th edn., CBS Publishers and distributors.
- 3) Shrilakshmi B. (2003); Food Science, 3rd edn., New Age International (P) limited publishers.
- 4) NIIR Board; Preservation of Meat and Poultry Products, 1st, Asia Pacific Business Press Inc.

- 5) Stadelman W.J. and Cotterill O.J. (1973); Egg Science & Technology, 1st, The AVI Publishing Company, Inc.

**BACHELOR OF FOOD TECHNOLOGY AND MANAGEMENT
THIRD YEAR (SEMESTER V)**

SUBJECT- DAIRY TECHNOLOGY I

Paper - IV

OBJECTIVES:-

To enable students to:-

- 1] Know the basic knowledge about dairy industry
- 2] Acquire knowledge regarding milk & milk product processing
- 3] Know the quality control techniques and waste utilization in milk industry

Unit 1:- Introduction to dairy industry

Introduction to dairy technology & milk processing industries in India present status and scope, Composition and factors affecting composition of milk, Nutritive value of milk, Physicochemical properties of milk and milk constituents, clean milk production, buying and collection of milk, cooling and transportation of milk

Unit 2:- Milk Processing

Manufacture, packaging and storage of pasteurized milk, distribution, cleaning and sanitization of dairy equipments, judging and grading of milk, flavor defects in milk- causes and prevention, Uses of milk

Unit 3:- Special Milks

Sterilized milk, homogenized milk, flavoured milk, fermented milk, reconstituted milk, recombined milk, Toned milk, double toned milk.

Unit 4:- Dried Milk (Whole milk powder & Skimmed milk powder)

Objects of production, definition, standards, composition, nutritive value, milk drying systems, packaging, storage, properties and keeping quality, judging and grading, defects- their causes and prevention.

Practical

1. Physical examination of milk
2. Platform tests of milk
3. Detection of adulteration of milk
4. Testing of milk for acidity
5. Specific gravity of milk
6. Preparation of Dahi
7. Preparation of Lassi
8. Preparation of Shrikhand

References

A.Q.Khan & T.N.Padmanabhan , technology of milk processing

Edgar spreer (2005) Milk & Milk product technology ,Marcel dekker .Inc.

J.N.Warner , Principles of dairy processing

Mangala kango (2006) ,Milk & milk products ,RBSA publishers

R.Jennes , Principles of dairy chemistry

Sukumar de (2000) Outlines of dairy technology, Oxford university press, New Delhi

BACHELOR OF FOOD TECHNOLOGY AND MANAGEMENT
THIRD YEAR
SEMISTER- V
SUBJECT: TECHNOLOGY OF BAKERY AND CONFECTIONERY I
PAPER- V

OBJECTIVES:-

To enable students to:-

- 1] Know the different types of bakery products and their ingredients.
- 2] Acquire knowledge regarding basics of confectionery.

Unit 1:-Wheat and bakery ingredients

Varieties, Qualities, Types of wheat, Grading system, Chemical constituents, physiological and rheological properties, Enzymes in wheat flour, Major and minor ingredients and their functions in bakery products

Unit 2:- Baking technology

The reactions of baking (mixing, leavening, baking), preparation methods of bread, cake, biscuits, cookies, pastry, buns, crackers, types of quick bread.

Unit 3:- Introduction to confectionery

History, traditional confectionery goods, types of confectionary, classification, invert sugar, glucose syrup, Manufacturing of food starches, heating of starch granules, gelatinization, retro gradation, factors affecting gelatinization.

Unit 4:- Sugar based Confectionery

Manufacturing of raw, refined and White sugar, forms of sugar, liquid sweeteners, reactions of sugar, crystalline and amorphous confectionery, Indian confectionery.

Practical:

- 1) Quality testing of flour and yeast
- 2) Preparation of cake, Biscuits, cookies
- 3) Preparation of bread

References:

- 1) Matz S. A. (1996): Bakery technology and engineering, 1st edition, Arya book depot New delhi.
- 2) Practical Baking Cooking, 1st edition, Queen street house, U.K.
- 3) Kamel B. S. and Stauffer C. E. (1993): Advances in baking technology, 1st edition, Blackie academic and professional.
- 4) Aylwaed F. (2001): Food Technology Processing and Quality control \, 1st edition, Agrobios (India)
- 5) Harry W., Loesecke (2001): Outlines of food technology, 2nd edition, Agribios (India)
- 6) Khetarpaul N, Grewal R. B. and Jood S. (2005): Bakery Science and Cereal Technology, 1st edition, Daya publishing house, Delhi.

- 7) Manay S.N. and Shadaksharaswamy M. (2001); Food facts and principles, 2nd edn, New Age International (P) limited publishers.
- 8) Minife B.W. (1997): Chocolate, cocoa and confectionery science and technology, 3rd edition, CBS Publishers and Distributors, New Delhi.

BACHELOR OF FOOD TECHNOLOGY AND MANAGEMENT

THIRD YEAR

(SEMESTER V)

Paper-VI

SUBJECT- Food Quality, Safety & waste Management - I

Objectives:

To enable students to :-

1. To maintain quality of food
2. To know about the Food Adulteration
3. To know food laws and Food standards

Unit 1:- Evaluation of Food quality

Definition

Quality attributes of food

Sensory characteristics of Food

Sensory tests

Instruments used for color & texture evaluation

Unit 2:- Quality control and Effect of processing and storage on quality of food

Quality control of food

Role and responsibilities of Quality control department of food industry

Effect of processing on Quality of Food

Effect of storage on Quality of Food

Unit 3:- Food Adulteration

Introduction

Classification of Adulterants

Harmful effects of Adulterants

Methods of detection of some Adulterants

Unit 4:-Food Laws and Standards

Food Standards and regulations in India

Prevention of Food Adulteration Act

Compulsory National Legislations-

Essential Commodities Act

Standards of Weights and Measures,

Export (Quality control and Inspection) Act

Voluntary based Product Certifications-

Bureau of Indian Standards Act

Agmark Grading and Marketing Act and Rules

Nutritional Labeling & Education act

References

- 1 .Food Science – Norman N. Potter, Joseph H. Hotchkiss
2. Food Science-Sumati R Mudambi,Shalini Rao& M.V.Rajagopal.
3. Food facts and principles – Shakuntala Manay
4. Quality Control for Food Industry - Krammer & Twigg
- 5 Food Science –B Srilaxmi

**BACHELOR OF FOOD TECHNOLOGY AND MANAGEMENT
THIRD YEAR (SEMESTER VI)**

Paper VII

Agribusiness Management – I

Objectives –

- 1) Introduction to Agribusiness/Agriculture business.
- 2) To combine the study of Technology and Management for Agriculture.
- 3) To understand fundamentals of farm management & production system .
- 4) To aware about Indian Agricultural products at global contest.

Unit 1:- Agribusiness

Scope, Nature and significance of agriculture business National Agriculture Policy, Food Processing Policy, Agro industries project and Government Policy.

Unit 2:- Fundamentals of Farm Management

Scope of Modern Agriculture, Special features of Agricultural and Industrial production, Difference between farm and non-farm business management

Unit 3:- Farm Production System

Scientific Farming, Co-operative farming, Contract farming, corporate farming and production of hi-tech agricultural crops

Unit 4:- Farm Technology

Effects of New Technology, Management & Technology, Gains from technological improvements to producers and consumers mechanism and automation, green houses, Role of Biotechnology in Agriculture, Commercialization of agriculture, Tissue culture, Green house operations & genetically modified crops.

References –

- 1) Indian Agriculture – Agarwal A.M.
- 2) Fundamentals of Modern Agriculture – Blake D.
- 3) Av Introduction to Agricultural production Economics & Farm Management – Robertson Tata McGraw-Hill.
- 4) Elements of farm management - Sharma A.M.& Sharma V.K.
- 5) CFN – 3 Economics of food IGNOU.

**BACHELOR OF FOOD TECHNOLOGY AND MANAGEMENT
THIRD YEAR (SEMESTER V)**

SUBJECT- Industrial & Business Management I

Paper - VIII

Objectives-

To enable the students

To under the basic concepts of industry and it's responsibilities

To understand various types of industry

Unit 1:- Introduction to Industry

Types of Industry, small scale industry, procedure to start small scale industry, Business meaning, it's objectives & importance, social responsibilities of business.

Unit 2:- Forms of business organization

Sole trader, Partnership firm, co-operative firm , joint stock company, state enterprise- public sector organization – it's nature characterization ,merits & limitation of each form.

Unit 3:- Introduction to management

Nature, characterization of management, levels of management, functional areas of management, and principles of functional management.

Unit 4:- Management functions

Planning –definition ,nature & importance ,it's type & stage of planning, organizing- definition ,importance & types, staffing –procedure ,recruitment selection ,direction –principles of directing theory 'X' & 'Y' ,controlling –definition ,basic – control process ,types of controlling ,techniques & controlling

References:

1. Peter drucker “ The practice of management ” allied publishers Pvt.Bombay
2. Harold krontz & Heinz weihirich –essentials of management Tata Mcqrewhill ,new delhi
3. Pandey I.M. Financial management ,Vikas publishing house pvt.ltd .New delhi
4. James A.F.stone ,R.edward forman & David R.gilbert, ‘Management’
5. Saxena S.C. Business administration & Management ,Sahitya bhavan ,Agra
6. Sarma – Industrial Management
7. Prasad L.M. ‘Principles & practice of management, Sultan chand & sons, New delhi.
8. T. Ramasamy , Principles of Management ,Himalaya publishing house ,Mumbai 2007
9. Kotlar Philip –Marketing Management Practice hall of India Pvt. Ltd. New delhi.

BFTM -: THIRD YEAR DEGREE COURSE

SEMESTER – VI

SR. NO.	SUBJECTS	TOTAL MARKS		TOTAL PERIOD PER WEEK		DURATION FOR EXAM.
		Theory Uni Int	<i>Practical</i>	Theory	Practical per batch	
1	Clinical & Community Nutrition - II	40 10	50	4	4	Theory (2 Hrs.) (Practical 3 hrs)
2	Processing and Preservation of Fruits and Vegetables- II	40 10	50	4	4	Theory (2 Hrs.) (Practical 3 hrs)
3	Animal Product Technology- II	40 10	---	4	---	Theory (2 Hrs.)
4	Dairy Technology- II	40 10	50	4	4	Theory (2 Hrs.) (Practical 3 hrs)
5	Technology of Bakery & Confectionery - II	40 10	50	4	4	Theory (2 Hrs.) (Practical 3 hrs)
6	Food Quality ,Safety& waste Management - II	40 10	---	4	---	Theory (2 Hrs.)
7	Agri-business Management- II	40 10	----	4	--	Theory (2 Hrs.)
8	Industrial Management - II	40 10	---	4	--	---
9	Project	---- ----	100	---	---	---
	Total Marks	320 80	300	---	--	-----
	Grand Total	700	---	---	--	--

	Total workload	-----		32	16	---
	Total workload(Theory & Practical)	48	---	---	---	---

BACHELOR OF FOOD TECHNOLOGY AND MANAGEMENT
THIRD YEAR
SEMISTER- VI
SUBJECT: CLINICAL AND COMMUNITY NUTRITION II
PAPER- I

OBJECTIVES:-

To enable students to:-

- 1] Know the dietary modification for disease condition.
- 2] Acquire knowledge regarding effect of various diseases on nutritional status and nutritional requirement.
- 3] Understand the existing nutrition programmes and importance of nutrition education in the community.

Unit 1:- National Nutrition Programmes

Integrated Child Development Services (ICDS) Programme
Nutrient Deficiency Control Programme
Supplementary feeding Programme
Food Security Programme

Unit 2:- Nutrition Education

Scope and need of nutrition education
Importance of nutrition education
Channels of Nutrition education
Methods of nutrition education

Unit 3:- Diet in Cardiovascular Diseases

Coronary heart diseases
Dyslipidemia
Atherosclerosis
Hypertension
Myocardial infarction
Congestive heart failure

Unit 4:- Diet in Kidney Diseases

Glomerulonephritis
Nephrotic syndrome
Acute renal failure
Chronic renal failure
Dialysis
Renal calculi

Practicals:-

- 1) Diet in kidney diseases
- 2) Diet in cardiovascular diseases
- 3) Biochemical assessment

References:-

1. Mahan L. K. and Escott- Stump, S. (2000): “Krause’s Food, Nutrition and Diet Therapy”, 11th Edition, W.B. Saunders Ltd.
2. Shils, M. E., Olson, J.A., Shike, M. and Ross, A.C. (1999): Modern Nutrition in Health and Disease, 9th Edition, Williams and Wilkins.
3. Garrow, J.S., James, W.P.T. and Ralph, A.. (2000): Human Nutrition and Dietetics, 10th Edition, Churchill Livingstone.
4. Srilaxmi B. (2007): Dietetics, Revised 5th Edition, New Age International (P) Ltd., Publishers.
5. Guyton, A.C. and Hall, J. E. (1999): Textbook of Medical Physiology, 9th Edition, W.B. Saunders Co.
6. Antia F.P (1986): Clinical Dietetics and Nutrition, Bombay, 3rd edition, Oxford University Press.

**BACHELOR OF FOOD TECHNOLOGY AND MANAGEMENT
THIRD YEAR (SEMESTER VI)
SUBJECT- PROCESSING AND PRESERVATION OF FRUITS AND
VEGETABLES -II
PAPER - II**

OBJECTIVES:-

To enable students to:-

- 1]. Know the basic aspects of fruits and vegetables processing
- 2] Acquire knowledge regarding preservation methods used in food processing.
- 3] know the quality control techniques and waste utilization in food industry.

Unit 1:- Canning and bottling of fruits and vegetables

Principle, Selection of fruits and vegetables, grading, washing , peeling, cutting, blanching, cooling, filling, exhausting, sealing, processing, cooling, storage- containers used, bottling of fruits and vegetables, spoilage of canned foods

Unit 2:- Establishments of fruit and vegetable canning industry

Availability of raw material, site, labour, seasonal factor, water supply, disposal of waste and transport facility

Unit 3:- Fruit and vegetable beverages

Fruit and vegetable juices, preparation of syrups, cordial and nectars, concentrates, RTS, Carbonated beverages.

Unit 4:- Fruit and vegetable products

Jam, jellies, marmalades, preserve, crystallized fruit, fruit cheese, fruit butter, candies, manufacture and uses of pectin- pectin from apples, citrus fruits, tomato products, pickles.

Practicals:

1. Preparation of Jam
2. Preparation of Jelly
3. Preparation of RTS
4. Preparation of Squash
5. Preparation of Syrup
6. Preparation of Nectar
7. Preparation of Marmalade
8. Preparation of Fruit candy
9. Preparation of Tomato products
10. Preparation of Pickles

References

Subbulakshi G ,Udapi shobha A, (2001) ,food processing and preservation , New age international (P) limited , publisher

Srivastava R.P, Kumar Sanjeev (1994) ,Fruits and vegetable preservation , first edition ,International book distributing co.

S.Ranganna (1977) ,Handbook of Analysis and quality control for fruit and vegetable products (second edition) ,Tata McGraw –hill publishing co. limited

Loesecke H.W.V. (2005), Drying and dehydration of foods, Updesh purohit for agrobios (India) jodhpur.

BACHELOR OF FOOD TECHNOLOGY AND MANAGEMENT
THIRD YEAR
SEMISTER- VI
SUBJECT: ANIMAL PRODUCT TECHNOLOGY II
PAPER- III

OBJECTIVES:-

To enable students to:-

- 1] Know the structure of poultry and fish.
- 2] Acquire knowledge regarding processing and preservation methods of poultry and fish..
- 3] Understand the nutritive value of poultry and fish.

Unit 1:- Slaughtering of poultry, structure & composition of poultry birds

Pre-slaughter transport and care and antimortem inspection
Slaughtering of poultry, post-mortem inspection and grading of poultry meat
Structure and composition of poultry meat
Nutritive value of poultry meat

Unit 2:- Processing and preservation of poultry meat

Manufacture of poultry products
Preservation of poultry meat
Sources and developments of meat and poultry industries and importance in national economy
By-products utilization of abattoir

Unit 3:- Structure and composition of fish

Types and Classification of Fish
Structure of fish
Composition and Nutritive value of fish
Post mortem changes

Unit 4:- Processing and preservation of fish

Fish spoilage.
Processing of fish meal, fish flour, fish – oil.
Canning and freezing of fish
Fish cookery
Commercial fish handling preservation transport
Preparation of various fish products

References:

- 1) Manay S.N. and Shadaksharaswamy M. (2001); Food facts and principles, 2nd edn, New Age International (P) limited publishers.
- 2) Potter N. N. and Hotchkiss J.H. (1966); Food Science, 5th edn., CBS Publishers and distributors.
- 3) Shrilakshmi B. (2003); Food Science, 3rd edn., New Age International (P) limited publishers.
- 4) NIIR Board; Preservation of Meat and Poultry Products, 1st, Asia Pacific Business Press Inc.

**BACHELOR OF FOOD TECHNOLOGY AND MANAGEMENT
THIRD YEAR (SEMESTER VI)**

SUBJECT- DAIRY TECHNOLOGY II

Paper - IV

OBJECTIVES:-

To enable students to:-

- 1] Know the basic knowledge about dairy industry
- 2] Acquire knowledge regarding milk & milk product processing
- 3] Know the quality control techniques and waste utilization in milk industry

Unit 1. Cream

Definition, classification, composition, nutritive value, physicochemical properties, production, different types, packaging, storage and distribution, judging and grading of cream, defects in cream- causes and prevention, Uses of cream.

Unit 2. Butter

Definition, classification, composition, nutritive value, production, packaging, storage and distribution, judging and grading, defects in butter- causes and prevention, uses of butter.

Unit 3. Cheese

Definition, classification, composition, nutritive value, types of cheese, manufacture of cheddar cheese, packaging, storage, distribution, judging and grading, defects- causes and prevention, Uses of cheese.

Unit 4. Condensed milk

Definition, composition, standards, nutritive value, types of condensed milk, manufacture, packaging and storage, judging and grading, defects- causes and prevention, Uses of Condensed milk.

Practicals:

1. Preparation of Basundi
2. Preparation of Khoa
3. Preparation of Rabdi
4. Preparation of Pedha
5. Preparation of Gulabjamun
6. Preparation of Paneer
7. Preparation of Rasgulla
8. Preparation of flavored milk
9. Preparation of Ice-cream

References:

A.Q.Khan & T.N.Padmanabhan , technology of milk processing

Edgar spreer (2005) Milk & Milk product technology, Marcel dekker .Inc.

J.N.Warner , Principles of dairy processing

Mangala kango (2006) ,Milk & milk products ,RBSA publishers

R.Jennes , Principles of dairy chemistry

Sukumar de (2000) Outlines of dairy technology ,Oxford university press,new delhi.

BACHELOR OF FOOD TECHNOLOGY AND MANAGEMENT
THIRD YEAR
SEMISTER- VI
SUBJECT: TECHNOLOGY OF BAKERY AND CONFECTIONERY II
PAPER- V

OBJECTIVES:-

To enable students to:-

- 1] Know the different types of bakery products and their ingredients.
- 2] Acquire knowledge regarding confectionery.

Unit 1:- Breakfast cereals and Snack foods

Introduction, history, present status, Processing of hot serve cereals and ready –to –eat breakfast cereals, Flakes, shreds, granules, puffed cereals, sugar coated products, popped and puffed snacks, factors affecting their quality, convenience cereal foods

Unit 2:- Durum wheat products and extrusion cooking

Types, raw materials and processing, Noodles, macaroni, pasta, sphagetti, Extrusion cooking, Types of extruders, process of extrusion cooking

Unit 3:- Chocolate based confectionery

History and development, cocoa processes, cocoa butter, emulsifiers used in chocolate confectionery coatings and cocoa, Chocolate manufacture, chocolate bars and covered confectionery

Unit 4:- Caramel, High boiled sweets, Toffee

Definition, composition, caramel manufacture process, properties of high boiled sweets, preparation of high boiled sweets, types of toffee ingredient and their role, Fondant, Fudge preparation.

Practical:

- 1) Preparation of candy
- 2) Preparation of toffee, chocolate
- 3) Preparation of fondant, fudge

References:

- 1) Matz S. A. (1996): Bakery technology and engineering, 1st edition, Arya book depot New delhi.
- 2) Practical Baking Cooking, 1st edition, Queen street house, U.K.
- 3) Kamel B. S. and Stauffer C. E. (1993): Advances in baking technology, 1st edition, Blackie academic and professional.
- 4) Aylwaed F. (2001): Food Technology Processing and Quality control, 1st edition, Agrobios (India)
- 5) Harry W., Loesecke (2001): Outlines of food technology, 2nd edition, Agribios (India)
- 6) Khetarpaul N, Grewal R. B. and Jood S. (2005): Bakery Science and Cereal Technology, 1st edition, Daya publishing house, Delhi.
- 7) Manay S.N. and Shadaksharaswamy M. (2001); Food facts and principles, 2nd edn, New Age International (P) limited publishers.
- 8) Minife B.W. (1997): Chocolate, cocoa and confectionery science and technology, 3rd edition, CBS Publishers and Distributors, New Delhi.

**BACHELOR OF FOOD TECHNOLOGY AND MANAGEMENT
THIRD YEAR (SEMESTER VI)**

Paper VI

SUBJECT- Food Quality, Safety & waste Management– II

Objectives:

To enable students to:-

- 1 .To maintain quality of food
2. Obtain Maximum utilization of by products & Waste
3. To know principles of food safety management

Unit 1:-Microbial Quality of Food

Microbial standards and criteria
Microbial growth measurements
Indicators of Food Sanitary quality

Unit 2:- Food safety Management

Introduction
Factors affecting Food Safety
Physical Hazards
Chemical hazards
Biological Hazards

Unit 3:- Industrial byproducts and waste utilization

Potential & prospects of byproduct & waste utilization from the food
Industries in India Byproduct & waste with special reference to Agricultural
& agro based industries, cereal & cereal product, fruits and vegetable, meat,
Poultry and fish, milk & milk products

Unit 4:-Consumer Protection

Government agencies

Municipal Laboratories
Food and Drug Administration
The central Food Testing Laboratory
Export Inspection Council Laboratory

Voluntary Agencies

Quality control laboratories of companies
Quality control laboratories of Consumer co-operatives
Private testing laboratories
Consumer Guidance Society

International Organisations and Agreements in the area of Food Standardisation and quality control

Codex Alimentarius

Codex India

World Health Organisation

International Organisation for Standardisation

Food and Agriculture Organisation

Joint FAO/WHO Expert committee on food additives

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CBS Publishers and distributors, New Delhi, 1997 5th edition.
2. Cereal technology – Matz.
3. Food facts and principles – Shakuntala Manay
- 4 Quality Control for Food Industry Krammer & Twigg
- 5 Quality Control in Food Industry S.N. Herschdogrfer
- 6 Food Science-B Srilaxmi
- 7 Tannenbaum, S.R. Ed. 1979. “Nutritional and Safety Aspects of Food Processing”,
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**BACHELOR OF FOOD TECHNOLOGY AND MANAGEMENT
THIRD YEAR (SEMESTER VI)**

Paper VII

Agribusiness Management – II

Objectives –

- 1) Introduction to farm Economics.
- 2) To combine the study of Technology and Management for Agri Business.
- 3) To understand techniques of marketing for agribusiness.
- 4) To aware about Indian Agricultural products at global contest.

Unit 1:-

Farm Economics and cost of Farm products, Economics of Food – Factors influencing food expenditure, food Prize & Quantity.

Demand for the agricultural products, production and supply of farm products.
Estimation of cost of production for farm products, problems in cost estimation.

Unit 2:-

Marketing of Agricultural produce/products

- Meaning, classification & Agricultural markets, structure of Agriculture market.
- Regulated markets, marketing of co-operatives, Product decisions-concept of product, brand, packaging, standardization Grading in India, Grade determination techniques, AGMARK, BIS, Transportation, storage & ware house.

Unit 3:-

- Pricing and promotion & Distribution of Agricultural commodities
- Pricing – Factors influencing pricing decision. Determination of Agricultural prices & marketing margins, pricing in competitive environment, Promotion of Agricultural product, - Concept of promotion Mix.
- Advertising, Sales, Personal Selling & Publicity.
- Promotion according to segmentation.
- Problems of promoting Agricultural products.

Unit 4:-

- International Market for Agricultural products, meaning of International Market, Difference in Domestic and International Market, Grades and standards prevailing in other countries, Quality Standards of Agricultural commodities
- Domestic & Export markets, ISO-14,000
- IS – 9000, Quality assurance, India's position in global market and only introduction to leading Agricultural produce / products for export earnings.

References –

- 1) Indian Agricultural Economics Myths & Realities.
- 2) Export Management – Prof. Laxmi Narayan
- 3) Agricultural Marketing in India – S.S.Acharya & M.L.Agarwal.
- 4) Indian Agriculture – Agarwal A.M.
- 5) Changing Prospective in Indian Agriculture - Bhanushali S.G. & Pujar A.G.
- 6) CFN – 3 Economics of food IGNOU.
- 7) International Marketing – Francis cherunilam

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SUBJECT- Industrial & Business Management II

Paper - VIII

OBJECTIVES:-

To enable students to:-

To understand the production process & its dimensions

To understand the sources of funds and financial management to run the business

To understand the marketing concepts of e-commerce

To make aware about Indian Factory act

Unit 1:- Production management

Selection of site, plant layout –it's type ,production –planning –control
,material management ,methods of purchasing inventory control, inspection & quality control ,six sigma.

Unit 2:- Financial management

Scope & importance –working capital management – sources of funds- elements of cost –break –even –analysis

Unit 3:- Marketing management –

Marketing & selling concepts – channels of distribution, advertising – importance –types of advertising, market research .E-marketing –B to B, B to C

Unit 4:- Important provision of Indian factory act , employment condition ,health aspects, work plan ,environment industrial safety.

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2. Harold krontz & Heinz weihirich –essentials of management Tata Mcgrewhill ,new delhi
3. Pandey I.M. Financial management ,Vikas publishing house pvt.ltd .New delhi
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5. Saxena S.C. Business administration & Management ,Sahitya bhavan ,Agra
6. Sarma – Industrial Management
7. Prasad L.M. ‘Principles & practice of management, Sultan chand & sons, New delhi.
8. T. Ramasamy , Principles of Management ,Himalaya publishing house ,Mumbai 2007
9. Kotlar Philip –Marketing Management Practice hall of India Pvt. Ltd. New delhi.