SHIVAJI UNIVERSITY, KOLHAPUR.

B
Accredited By NAAC
(2009)
Syllabus For
B.F.T.M. Part II
Sem.-III & IV

Syllabus to be implemented from June 2011 onwards.

BFTM – II : SECOND YEAR DEGREE COURSE (SEMESTER –III)

SR. NO.	*SUBJECTS*	TOTAL MARKS			TOTAL PERIOD PER WEEK		DURATION FOR EXAM.
		Theory		Practical	Theory	Practical per batch	
		Uni	Int				
1	Advanced Human Nutrition-I	40	10	---	4	4	**Theory** (2 Hrs.)
2	Cereal, legume & oil seed Technology- I	40	10	---	4	4	**Theory** (2 Hrs.)
3	Food Microbiology- I	40	10	---	4	4	**Theory** (2 Hrs.)
4	Food Hygiene, Sanitation & Food Packaging - I	40	10	-----	4	---	**Theory** (2 Hrs.)
5	Analytical Techniques - I	40	10	---	4	4	**Theory** (2 Hrs.)

6	Food Biochemistry- I	40 10	-----	4	--	**Theory** (2 Hrs.)
7	Bio- technology - I	40 10	-----	4	--	**Theory** (2 Hrs.)
8	Human Resource Management-I	40 10	-----	4	--	**Theory** (2 Hrs.)
	Total Marks	320 80	-----	4	---	----
	Grand Total	**400**	-------	-----	-----	------
	Total workload	-----	-----	32	16	---
	Total workload	48	---	---	---	---

BFTM – II : SECOND YEAR DEGREE COURSE (SEMESTER –IV)

SR. NO.	SUBJECTS	TOTAL MARKS			TOTAL P ERIOD PER WEEK		DURATION FOR EXAM.
		Theory		Practical	Theory	Practical per batch	
		Uni	Int				
1	Advanced Human Nutrition-II	40	10	50	4	4	**Theory** (2 Hrs.) (Practical 3 Hrs.)
2	Cereal, legume & oil seed Technology- II	40	10	50	4	4	**Theory** (2 Hrs.) (Practical 3 Hrs.)
3	Food Microbiology- II	40	10	50	4	4	**Theory** (2 Hrs.) (Practical 3 Hrs.)
4	Food Hygiene, Sanitation & Food Packaging - II	40	10	-----	4	---	**Theory** (2 Hrs.)
5	Analytical Techniques – II	40	10	50	4	4	**Theory** (2 Hrs.) (Practical 3 Hrs.)
6	Food Biochemistry- II	40	10	-----	4	--	**Theory** (2 Hrs.)

7	Bio- technology - II	40 10	-----	4	--	**Theory** (2 Hrs.)
8	Human Resource Management - II	40 10	-----	4	--	**Theory** (2 Hrs.)
	Total Marks	320 80	200	4	---	----
	Grand Total	**600**	----	---	----	---
	Total workload	-----	-----	32	16	---
	Total workload (Theory & Practical)	48	-----	-----	----	-----

BACHELOR OF FOOD TECHNOLOGY AND MANAGEMENT
SECOND YEAR (SEMESTER- III)

SUBJECT- ADVANCED HUMAN NUTRITION-I
PAPER – I
Objectives :-
To enable students to:
1] Know the importance of therapeutic diet.
2] Knowledge about dietary control of different diseases.

Theory:-
Unit 1:- **Introduction to the Nutritional role of**
Carbohydrate and fibre
Protein
Lipid
Vitamins
Minerals
Unit 2 :- Body composition
Definition
Importance
Classification
Methods of assessment of body composition
Energy value of food
Determination of Energy value of food
Unit 3 :- **Introduction to therapeutic diets.**
Basic concepts
Principles,
Factors considered,
Classification,
Feeding methods.
Food exchange list
Importance
Types
Classification
Unit 4 :- **Diet in**
Fever
Typhoid
Tuberculosis
Influenza
Rheumatic fever

References :-

Reference: -
1. Joshi S. A. 'Nutrition and Dietetics', New Delhi, Tata Mc Graw Hill Publishing Co. Ltd.
2. Robinson 'Normal and Therapeutic Nutrition' New Delhi, Tata Mc Graw – Hill Publishing Co. Ltd.
3. Crampton E.W. and L. E. Lloyd (1915), 'Fundamentals of Nutrition', San Francisco W. H. Freeman
4. Davidson S.R, Passmore and J.F. Brock (1986), 'Human Nutrition and Dietetics' London Churchill, Livingstone
5. Antia F.P (1986), 'Clinical Dietetics and Nutrition', Bombay, 3rd edition, Oxford University Press.
6. Jelliffee B.B. 'Assessment of Community Nutriion Status'
7. B. Srilakshmi. ' Dietetics' 5th edition

BACHELOR OF FOOD TECHNOLOGY AND MANAGEMENT
SECOND YEAR (SEMESTER- III)

SUBJECT- ADVANCED HUMAN NUTRITION

PRACTICALS

1. Weights and measures
2. Preparation of therapeutic diets – liquid diet, full fluid, solid and semisolid diet.
3. Diet in fever and diet in influenza,
4. Diet in diabetes

BACHELOR OF FOOD TECHNOLOGY AND MANAGEMENT
SECOND YEAR (SEMESTER-III)

SUBJECT- CEREAL LEGUME AND OIL SEED TECHNOLOGY –I
PAPER – II

Objectives :-
To enable students to:
1] Develop protein concentrate, novel food stuff
2] Make them aware of importance of cereal legume and oil seed technology.

Theory-

Unit 1 :- Importance of cereals
- Types of cereals
- Varieties
- Morphology
- Composition
- Nutritive value
- Physiochemical properties

Unit 2 :- Milling and Procesing of cereals
- different methods of milling of different cereals
- bran seperation
- processing of cereal products
- production of starch
- mart
- flakes
- popcorn
- preparation of dextrins

Unit 3 :- Importance of legumes
Types of legumes
Composition
Nutritive value
Physiochemical properties

Unit 4 :- Milling and processing of Legumes

- methods of milling of pulses
- cooking quality and factors affecting cooking quality
- puffing, roasting and parching
- processing methods
- dehulling losses
- effect of dehulling on nutritive value.
- Cooking quality
- Grading methods

References:

Cereal Technology - Kent
Post harvest technology of cereals, Legumes and oil seeds - Chakrawarti
Post harvest Biotechnology of cereals - D.K.Salunkhe
Processing protein stuff - Altschule
Cotton seed chemistry processing technology - A.E.Bailey
Rice production and utilization - Ber Sluh
Primary cereal processing - Bernard Godas, Claude William
Technology and refining of oils and fats - T.L.Mahata
Cottonseed chemistrty and technology - K.S.Murti
Post harvest Biotechnology of oilseeds - K.T.Aachaya

BACHELOR OF FOOD TECHNOLOGY AND MANAGEMENT
SECOND YEAR (SEMESTER-III)

SUBJECT- CEREAL LEGUME AND OIL SEED TECHNOLOGY –I
PAPER – II

PRACTICALS:

1 To study the cooking quality of rice
2 Malting
3 Flaking
4- Puffing
5 soaking and sprouting

BACHELOR OF FOOD TECHNOLOGY AND MANAGEMENT
SECOND YEAR (SEMESTER III)

SUBJECT- FOOD MICROBIOLOGY -I
PAPER- III

Objectives :-
To enable students to:
1] Acquire knowledge regarding food microbiology.
2] To know the importance of microbes in food processing

Theory
Unit 1 :- General Microbiology
- Importance of Microorganisms in food
- General classification
- Study of morphology of bacteria
- Cultural characteristics and biochemical activity of bacteria.

Unit 2 :- Bacterial Growth curves
- Physical and chemical factors affecting growth of bacteria
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Unit 3 :- Destruction of microorganism
- Control of microorganism by physical and chemical agent
- Preservation of microbial culture

Unit 4 :- .Food preservation
principles of preservation
- Asepsis
-Use of temperature and sterilization
- Controlled water activity
- Drying
- Radiation
- Pressure

References

1. Fundamentals of microbiology - Frobisher Martin
2. Bacteriology - A.S. Salle
3. Introduction to Microbiology – Edward J.C. and Singh R.B.
4. Microbiological Application – Bensen, Harold J.
5. Biology of Microorganism – R.D. Crock
6. Food Microbiology – W.C. Frasier
7. Modern food microbiology- James Jay
8. Basic food Microbiology- G.J. Banwart

BACHELOR OF FOOD TECHNOLOGY AND MANAGEMENT
SECOND YEAR (SEMESTER III)

SUBJECT- FOOD MICROBIOLOGY

PRACTICALS

1. Microbiology
2. Sterilization of glasswares
3. Preparation of nutrient media
4. Techniques of inoculation

BACHELOR OF FOOD TECHNOLOGY AND MANAGEMENT
SECONDYEAR (SEMESTER III) –
SUBJECT:FOOD HYGIENE ,SANITATION & FOODPACKAGING-I
PAPER- IV

Objectives :-

:] Gain knowledge of hygienic handling of food.
2] Apply basic principles of sanitation in the maintenance of food processing plant

THEORY:

Unit 1 :- General principles of food hygiene in rural and urban areas in relation to food

Importance, personal hygiene during food preparation, Hygiene during processing, packaging and storage pf food

Unit 2 :- Water

- Sources
- Purity requirement
- Physical and chemical methods of treatment and storage

Unit 3 :- Sanitation

- Definition
- Terminology related to sanitation
- Types of sanitation
- Properties of detergents and sanitizing agents
- Sanitation facilities and procedures in food plant operation
- Rural and urban area
- Fairs and festivals
- Plant sanitation
- Layout construction
- Design of plants machineries

Unit 4-Packaging of Food

Importance
Packaging material used
Types of packages
Special packaging methods
Storage of packaging material

REFERENCE BOOKS:

Guide to improving food hygiene - Ed Gaston and Tiffney
Practical food microbiology and Technology (2nd edition) - Harry H.Weiser
Food poisoning and food hygiene (3rd edition)- Betty C. Hobbi
Principles of food sanitation - Marriott, Norman G

BACHELOR OF FOOD TECHNOLOGY AND MANAGEMENT
SECOND YEAR(SEMESTER III)
SUBJECT: ANALYTICAL TECHNIQUES-I
PAPER V
Objectives-
To enable students to:
1] Understand the different techniques in food analysis.
2] Develops skill in analysis
Theory-
Unit 1 :- Proximate analysis of food
Preparation of sample
Methods of preparation of sample
Moisture estimation
Protein estimation
Fat estimation
Fibre estimation
Ash estimation
Carbohydrate estimation
Unit 2:- Types of Solutions
Molar Solution
Normal solution
Colloidal solutions
Buffer solutions
Measurement of pH
Unit 3 :-Colorimetry and spectrophotometry
- Principle
- Beer's - Lambert's law
- Construction
- Working
- Care of colorimeter

Unit 4 :-.Atomic absorption spectroscopy
Principles ,instrumentation & applications

REFERENCE BOOKS:
Food analysis theory and practice - Pomeranz and Meloan
Methods in food analysis - Maynard
Elementary principles of laboratory instrument - Lee L.W, C.W.Mosly
Principles and Technology of practical biochemistry - E.D.William, K.Watson and Edward, Amold Pub.
Pearson's composition & analysis of foods

BACHELOR OF FOOD TECHNOLOGY AND MANAGEMENT
SECOND YEAR(SEMESTER III)

SUBJECT: ANALYTICAL TECHNIQUES

PRACTICALS:

1 Principle and working of analytical instrument such as colorimeter, balances, oven, muffle furnace,,incubator, centrifuge

2. Estimation of Moisture from food sample

3 Estimation of Protein from food sample

4 Estimation of Fat from food sample

BACHELOR OF FOOD TECHNOLOGY AND MANAGEMENT
SECOND YEAR(SEMESTER III)
SUBJECT: FOOD BIOCHEMISTRY -I
PAPER VI
Objectives :-
To enable students to:
1] Understand the chemistry of food
2] To know the importance of biochemisty in nutrition.
Theory-
Unit 1:- Introduction to metabolism
Catabolism& Anabolism
Unit 2 :- Carbohydrate metabolism
Digestion and absorption of carbohydrates,
- Glycolysis / EMP
- Kreb's cycle / TCA
- HMP
- Electron transfer chain and oxidative phosphorylation
- Glyeogenesis
- Glycogenolysis
- Cori's cycle
- Inborn errors of carbohydrate metabolism

Unit 3 :- Hormones
- Definition
- Classification
- Metabolic functions
- Mechanism of action of hormones

-Hormonal disorders
Unit 4:- Acid – Base balance of body

REFERENCE BOOKS:

1.Outlines of Biochemistry - Hawk
2. Text book of Biochemistry - West and Todd
3. Osner Hawk's practical Physiological Chemistry - Hawk
4.Principles of Biochemistry - Lehninger
5.Principles of Biochemistry - Voet
6.Practical Biochemistry – Thamian
7. Text book of Biochemistry – Satyanaraya

BACHELOR OF FOOD TECHNOLOGY AND MANAGEMENT
SECOND YEAR (SEMESTER III)

SUBJECT- BIOTECHNOLOGY –I
PAPER -VII

Objectives :-
To enable students to:
1] Obtain knowledge ,recent advances in molecular biology.
2] To make the students aware of applications of biotechnology in food
Industries

Theory-
Unit 1 :- DNA- structure, experimental evidence as proof of genetic material ,
prokaryotic & eukaryotic DNA , chromosomal & extrachromosomal DNA.
Unit 2 :- RNA Structure ,types and functions
Unit 3 :- General overview of replication ,transcription and traansslation, regulation
of gene expression
Unit 4 :- Recombinant DNA technology-enzymes involved ,vectors - plasmids ,
cosmids
isolation of gene, cDNA library

REFERENCES :-
1.Biotechnology –B.D.Singh
2.Food microbiology-William C Frazier
3.Principles of biochemistry-Albert Lehninger
4.Microbial genetics –Maloy

BACHELOR OF FOOD TECHNOLOGY AND MANAGEMENT (BFTM)
SECOND YEAR (SEMESTER III)

SUBJECT:HUMAN RESOURCE MANAGEMENT–I
PAPER- VIII
THEORY

UNIT 1 Definition & meaning of personnel management, scope of personnel management, Development of personnel management, personnel policies.
UNIT 2 Functions of personnel management, Line & staff function Recruitment, selection procedure, induction & placement.
UNIT 3 Transfer,promotion,Demotion,separation, Retrenchment, Discharge, Disposal, Lay- off, Retirement.
UNIT 4 Labor Welfare- Meaning, concept, statutory regulations, industrial hygiene, other welfare services.

REFERENCES :-

1. Human Resources & personnel Management- K Aswathappa-
   By – Tata McGraw Hill Publishing Ltd.

2. Principles & Techniques of personnel management & Human resource
   management by- S. K. Bhatia & Nirmal Singe.
   Deep & Deep publications Pvt. Ltd.

3. Personnel management – Arun Monappa & Mirza Shiyadas – Tata McGrow
   Till publishing Ltd.

4 Human Resource & Personnel management by Reeta Mathur- Wide Vision.

5 An introduction to Industrial relation by Michael P. Jackson.

BACHELOR OF FOOD TECHNOLOGY AND MANAGEMENT

SECOND YEAR (SEMESTER IV)

SUBJECT- ADVANCED HUMAN NUTRITION-II
PAPER – I

Theory-.
Unit 1 :- Diet in
Diseases of metabolic disorders
Arthritis
Diabetic mellitus
Gout
Unit 2:- Diet in
Diseases of endocrine disorder
Unit 3 :- Diet in
dental diseases
Unit 4 :-Diet in
Gastro intestinal Diseases
Indigestion
References :-
Reference: -
1. Joshi S. A. 'Nutrition and Dietetics', New Delhi, Tata Mc Graw Hill Publishing Co. Ltd.
2. Robinson 'Normal and Therapeutic Nutrition' New Delhi, Tata Mc Graw – Hill Publishing Co. Ltd.
3. Crampton E.W. and L. E. Lloyd (1915), 'Fundamentals of Nutrition', San Francisco W. H. Freeman
4. Davidson S.R, Passmore and J.F. Brock (1986), 'Human Nutrition and Dietetics' London Churchill, Livingstone
5. Antia F.P (1986), 'Clinical Dietetics and Nutrition', Bombay, 3rd edition, Oxford University Press.
6. Jelliffee B.B. 'Assessment of Community Nutriion Status'
7. B. Srilakshmi. ' Dietetics' 5th edition

BACHELOR OF FOOD TECHNOLOGY AND MANAGEMENT

SECOND YEAR (SEMESTER IV)

SUBJECT- ADVANCED HUMAN NUTRITION

PRACTICALS

1 Diet in Gout

2 Diet in typhoid and tuberculosis

3 Diet in endocrine disorder

4. Diet in Gastro intestinal Diseases

BACHELOR OF FOOD TECHNOLOGY AND MANAGEMENT
SECOND YEAR (SEMESTER-IV)

SUBJECT- CEREAL LEGUME AND OIL SEED TECHNOLOGY –II
PAPER – II

Theory-
Unit 1:- Importance of oil seed

- types of oil seed
- chemical composition
- nutritive value
- antinutritional factors

Unit:-2 Oil seed processing
- natural sources of oil extraction
- physiochemical properties
- oil processing machinery
- solvent extraction
- factors influencing extraction
- types of solvents
- refining of oil
- hydrogenation
- changes during storage
- oil for fortification
- non edible oil and their purification
- oil seed flour concentrates and isolate
- protein rich food

Unit 3 :- **Antinutritional factors in cereals , legumes & pulses**

Unit 4 :- **Recent developments in cereal, legume & oilseed technology**

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References:

Cereal Technology - Kent
Post harvest technology of cereals, Legumes and oil seeds - Chakrawarti
Post harvest Biotechnology of cereals - D.K.Salunkhe
Processing protein stuff - Altschule
Cotton seed chemistry processing technology - A.E.Bailey
Rice production and utilization - Ber Sluh
Primary cereal processing - Bernard Godas, Claude William

Technology and refining of oils and fats - T.L.Mahata
Cottonseed chemistrty and technology - K.S.Murti
Post harvest Biotechnology of oilseeds - K.T.Aachaya

BACHELOR OF FOOD TECHNOLOGY AND MANAGEMENT
SECOND YEAR (SEMESTER-IV)

SUBJECT- CEREAL LEGUME AND OIL SEED TECHNOLOGY

Practicals

1 Extraction of oil

2 food grade cake

3 Production of protein rich food

4 Formulation & design of new instant products

BACHELOR OF FOOD TECHNOLOGY AND MANAGEMENT
SECOND YEAR (SEMESTER IV)
SUBJECT- FOOD MICROBIOLOGY– II
PAPER- III

Theory

Unit 1 :- **Spoilage of different groups of food**
- Cereal and cereal product
- Milk and milk product

- Meat and meat product
- Fish and fish product
- Poultry and egg product
- Sugar and sugar product

Unit2 :- Contamination
- Food poisoning
- Food born infections
- Food born intoxication
- Myco toxins
- Waterborne diseases
- Immunology and vaccination

Unit 3 :- Industrial Microbiology
Role of microbes in production of
Fermented food
Vinegar
Pickles
Acid

Unit4 :-. Indicators of Food safety & quality

References-
1. Fundamentals of microbiology - Frobisher Martin
2. Bacteriology - A.S. Salle
3. Introduction to Microbiology – Edward J.C. and Singh R.B.
4. Microbiological Application – Bensen, Harold J.
5. Biology of Microorganism – R.D. Crock
6. Food Microbiology – W.C. Frasier
7. Modern food microbiology- James Ja8. Basic food Microbiology- G.J. Banwart

BACHELOR OF FOOD TECHNOLOGY AND MANAGEMENT
SECOND YEAR (SEMESTER IV)
SUBJECT- FOOD MICROBIOLOGY– II

PRACTICALS

1. Staining methods
2 Determination of microbial number
3 Mold examination in food
4 Microbial examination of fish, egg, milk and milk product

BACHELOR OF FOOD TECHNOLOGY AND MANAGEMENT
SECOND YEAR (SEMESTER IV)
SUBJECT- FOOD MICROBIOLOGY– II

SUBJECT: FOOD HYGIENE ,SANITATION AND PACKAGING–II

PAPER- IV

THEORY
:
Unit 1:- **Disposal of Sewage**
- Night soil
- Sewage treatment
- Microbial standards for foods

- Layout and sanitation in vegetable processing
- Dairy
- Meat
- Poultry
- Cereal
- Bakery

Unit 2 :- **Waste disposal**
- Terminology viz.
- Industrial waste
- Sewage
- Influence
- Waste water
- Sludge
- Dissolved oxygen
- B.O.D
- C.O.D
- Waste disposal and treatment
- Pollution hazards
- Solid and liquid wastes
- Physical, chemical and biochemical methods

-**Unit 3** :- **Gobar gas**
- Introduction
- Merits and demerits
- Chemistry of fermentation
- Factors affecting gas production
- Properties of biogas and its use.

Unit 4 :- **Legal aspects of waste disposal & treatment**

REFERENCE BOOKS:

Guide to improving food hygiene - Ed Gaston and Tiffney
Practical food microbiology and Technology (2nd edition) - Harry H.Weiser
Food poisoning and food hygiene (3rd edition)- Betty C. Hobbi
Principles of food sanitation - Marriott, Norman G

BACHELOR OF FOOD TECHNOLOGY AND MANAGEMENT
SECOND YEAR (SEMESTER- IV)

SUBJECT: ANALYTICAL TECHNIQUES - II
PAPER V

Theory
Unit 1:-Electrophoresis
- Principle
- Types of electrophoresis
- Moving boundary electrophoresis
- Zone electrocphoresis
- Isoelectric focusing
- Factors affecting electrophoresis
- Applications

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Unit 2 :-Flame photometer

- Principle
- Construction
- Working
- Applications

Unit 3:- Fluorimetry

- Principle
- Working
- Applications
- Fluorimetric determination of thiamin & Riboflavin

Unit 4 :-Chromatographic Techniques

- Principle
- Classification
- Partition chromatography
- Adsorption chromatography
- Gel chromatography
- Ion exchange chromatography
- Affinity chromatography
- Paper chromatography
- Column chromatography
- HPLC

REFERENCE BOOKS:

Food analysis theory and practice - Pomeranz and Meloan
Methods in food analysis - Maynard
Elementary principles of laboratory instrument - Lee L.W, C.W.Mosly
Principles and Technology of practical biochemistry - E.D.William, K.Watson and
Edward, Amold Pub.
Pearson's composition & analysis of foods

BACHELOR OF FOOD TECHNOLOGY AND MANAGEMENT
SECOND YEAR (SEMESTER- IV)

SUBJECT: ANALYTICAL TECHNIQUES

PRACTICALS

1 Estimation of Ash from food sample

2 Estimation of Fiber from food sample

3 Determination of acidity of honey sample

4 Determination of gluten content from the wheat flour

BACHELOR OF FOOD TECHNOLOGY AND MANAGEMENT
SECOND YEAR (SEMESTER IV)

SUBJECT: FOOD BIOCHEMISTRY -II

PAPER VI

Theory

Unit 1 :- Nucleic acid

structure
classification
metabolic function

Unit2 :- Enzymes

- Definition
- Occurrence
- Nomenclature

- Classification
- Mechanism of enzyme action
- Factors affecting enzyme activity
- Coenzymes
- Prosthetic groups
- Enzyme kinetics

Unit 3:- Protein metabolism

Protein Digestion
- Absorption
- Transamination
- Deamination
- Urea cycle
- Decarboxylation of amino acid
- NPU
- NPN
- Inborn error of protein metabolism

Unit 4 :- Lipid metabolism

Digestion and absorption of fats
B-oxidation of fatty aids
- W oxidation
- Inborn errors of fat metabolism

REFERENCE BOOKS:

1.Outlines of Biochemistry - Hawk
2. Text book of Biochemistry - West and Todd
3 Principles of Biochemistry – Lehninger
4 Text book of Biochemistry - Satyanarayan

BACHELOR OF FOOD TECHNOLOGY AND MANAGEMENT
SECOND YEAR (SEMESTER IV)

SUBJECT- BIOTECHNOLOGY –II
PAPER –VII

Theory-

Unit 1 :- Microbial production of citric acid ,vinegar and other substances added to
Foods

Unit 2 :- Use of enzymes in food industry
Use of proteases in food processing

Use of lactase in dairy industry
Use of glucose oxidase & catalase
Enzymes in fruit juices & brewing industry
Unit 3 :- Mushrooms
Unit 4:- Geneticaly modified foods & space foods

REFERENCES :-
1.Biotechnology –B.D.Singh
2.Food microbiology-William C Frazier
3.Principles of biochemistry-Albert Lehninger
24
4.Microbial genetics –Maloy

BACHELOR OF FOOD TECHNOLOGY AND MANAGEMENT (BFTM)
SECOND YEAR (SEMESTER IV)

SUBJECT:HUMAN RESOURCE MANAGEMENT–II
PAPER- VIII

Theory

1 Industrial relation – concept, Definitions, Industrial Relations in India.

2 Standing orders, Grievance, Code of discipline.

3 Industrial dispute, collective bargaining & Industrial Democracy.

4 Trade Union – Types & structure Role & importance, Recent trends in trade union.

REFERENCES :-

4. Human Resources & personnel Management- K Aswathappa-
By – Tata McGraw Hill Publishing Ltd.

5. Principles & Techniques of personnel management & Human resource
management by- S. K. Bhatia & Nirmal Singe.
Deep & Deep publications Pvt. Ltd.

6. Personnel management – Arun Monappa & Mirza Shiyadas – Tata McGrow
Till publishing Ltd.

7. Human Resource & Personnel management by Reeta Mathur- Wide Vision.

8. An introdiction to Industrial relation by Michael P. Jackson.

EQUVALANCE FOR B.F.T.M. Course

B.F.T.M. Second Year

Sr.No.	Old Course (Annual Pattern)	Sr.No.	New Course (Semester III & IV)
1.	Advanced Human Nutrition		Advanced Human Nutrition-I Advanced Human Nutrition-II
2.	Cereal, legume & oil seed Technology		Cereal, legume & oil seed Technology- I Cereal, legume & oil seed Technology- II
3.	Food Microbiology		Food Microbiology- I Food Microbiology- II
4.	Food Hygiene, Sanitation & Food Packaging		Food Hygiene, Sanitation & Food Packaging - I Food Hygiene, Sanitation & Food Packaging - II
5.	Techniques in Food Analysis		Analytical Techniques – I Analytical Techniques - II
6.	Biochemistry		Food Biochemistry- I Food Biochemistry- II
7.	Bio- technology		Bio- technology - I Bio- technology - II
8.	Introduction to Computer		Human Resource Management-I Human Resource Management-II

	Nature of Question Paper	
Q.No.1	Multiple Choice based objective type (four options for each question be given)	8 Marks
Q.No. 2	Attempt any two of the following out of three	16 Marks
Q.No. 3	Shot notes (4 out of 6)	16 Marks
	Total	40 marks