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# SHIVAJI UNIVERSITY, KOLHAPUR.

Faculty of Science

Revised Syllabus of

B.F.T.M

# Part - I (Sem - I & II)

to be implemented from the academic year 2010-11

(i.e. from June 2010) onwards.

(Subject to the modifications will be made from time to time)

# SHIVAJI UNIVERSITY, KOLHAPUR.

# BACHELOR OF FOOD TECHNOLOGY AND MANAGEMENT (B.F.T.M.)

Three years Degree course in Food Technology & Management. This Course is full time course

# **COURSE STRUCTURE**

# BFTM - I ( SEMESTER – I )

		ΤΟΤΑ	AL MA	ARKS	τοτλι	DEDIAD DED WEEK		
SR.	SUBJECTS	Theo	ory	Prac	IUIAL	DURA		
NO.				tical	Theory	Practical (per batch)	FOR	
		Uni	Int				EXAM.	
1	Communication for self employed professional - I	40	10		4		Theory (2 Hrs.)	
2	Applied Mathematics & Statistics I	40	10		4		Theory (2 Hrs.)	
3	Applied Physics – I	40	10		4		Theory (2 Hrs.)	
4	Food Chemistry – I	40	10		4	4	Theory (2 Hrs.)	
5	Principles of Food Preservation - I	40	10		4		Theory (2 Hrs.)	
6	Human Physiology – I	40	10		4	4	Theory (2 Hrs.)	
7	Human Nutrition – I	40	10		4	4	Theory (2 Hrs.)	
8	Introduction to Computer - I	40	10		4	4	Theory (2 Hrs.)	
	Total Marks	320	80					
	Grand Total	40	0					
	Total workload		-		32	16		
	Total workload (Theory & Practical)	48						

CD		TOTAL MARKS		ΤΟΤΑΙ	PERIOD PER WEEK	DUDATION	
SK. NO.	SUBJECTS	The	orv	Prac	IOTAL		FOR
				tical	Theory	Practical ( per batch)	
		Uni	Int				EXAM.
1	Communication for self	40	10		4		Theory
	employed professional - II	10	10		4		(2 Hrs.)
2	Applied Mathematics &	40	10		4		Theory (2 Hara)
					4		(2 Hrs.)
3	Applied Physics – II	40	10		4		Theory
							(2 Hrs.)
					4		(2  Hrs)
4	Food Chemistry – II	40	10	50	4	4	$(2 \Pi IS.)$
							$(2 \text{ Hr}_{0})$
	Principles of Food				1		(3 IIIS.) Theory
5	Preservation - II	40	10		4		(2  Hrs)
							Theory
					4		(2  Hrs)
6	Human Physiology – II	40	10	50	т	4	Practical
							(3 Hrs.)
							(Theory
_		10			4		(2  Hrs.)
1	Human Nutrition – II	40	10	50		4	Practical
							(3 Hrs.)
							Theory
0	Introduction to Computer II	40	10	50	4	4	(2 Hrs.)
0	Introduction to Computer - II	40	10	50			Practical
							(3 Hrs.)
	Total Marks	320	80	200			
	Grand Total		600				
	Total workload				32	16	
	Total workload (Theory & Practical)	48	48				

# BFTM-I: FIRST YEAR DEGREE COURSE (SEMESTER – II)

# BFTM – II (SEMESTER –III )

SR. NO.	SUBJECTS	TOT MA		TOTAL MARKS		PERIOD EK	DURATION FOR
		Theo	ry	Practical	Theory	Practical (per	Theory EXAM.
		Uni	Int			batch)	
1	Advanced Human Nutrition-I	40	10		4	4	(2 Hrs.)
2	Cereal, legume & oil seed Technology- I	40	10		4	4	(2 Hrs.)
3	Food Microbiology- I	40	10		4	4	(2 Hrs.)
4	Food Hygiene, Sanitation & Food Packaging - I	40	10		4		(2 Hrs.)
5	Analytical Techniques - I	40	10		4	4	(2 Hrs.)
6	Food Biochemistry- I	40	10		4		(2 Hrs.)
7	Bio- technology - I	40	10		4		(2 Hrs.)
8	Human Resource Management-I	40	10		4		(2 Hrs.)
	Total Marks	320	80		4		
	Grand Total	40	0				
	Total workload				32	16	
	Total workload	48	3				

# BFTM – II (SEMESTER –IV)

		TOT MAI		TOTAL MARKS		L PERIOD WEEK	DURATION FOR EXAM.		
SR. NO.	SUBJECTS	Theory		Theory		Practical		Practical	
		Uni	Int		Theory	(per batch			
	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	60	0						
	Total workload				32	16			
	Total workload (Theory & Practical)	48	3						

CD		T	OTAL	MARKS	TOTAI PER	L PERIOD WEEK	DURATION FOR
SK.	SUBJECTS	Theory					EXAM.
NU.		Uni	Int	Practical	Theory	Practical per batch	
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 Management - I	40	10		4		
	Total Marks	320	80				
	Grand Total	400					
	Total workload				32	16	
	Total workload (Theory & practical)	4	8				

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

# BFTM -: III SEMESTER – VI

SR. NO.		ТО	TAL	MARKS	TOTAL PER WE	PERIOD EK	
	SUBJECTS	The	ory	Practical	Theory	Practical per batch	DURATION FOR EXAM.
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	70	0			2	
	Total workload				32	18	
	Total workload(Theory & Practical)	50	0				

# STANDARD OF PASSING

- 1] A candidate must obtain minimum 40% of the marks in each university head, internals, practical, and project.
- 2] There will be separate head of passing for university theory exam, internals, practical, and project. & Study Tours
- 3] a) The Candidates obtaining 50% but less than 60% marks in the final year examination be declared to have passed the B.F.T.M. examination in Second Class.
  - b) Those obtaining 60% but less than 70% marks in the final Year shall be declared to have passed the B.F.T.M. examination in FIRST CLASS.
  - c) Those obtaining 70% or above in the final Year shall be declared to have passed the B.F.T.M. examination in FIRST CLASS with distinction.
- 4] A candidate who pass in at least TEN papers of the B.F.T.M. Part-I (Sem.-I & II) examination shall be allowed to keep terms for B.F.T.M. Part-II (Sem.-III & IV)
- 5] A candidate who pass in at least TEN papers of the B.F.T.M. Part-II (Sem.-III & IV) & have cleared first year B.F.T.M.I examination shall be allowed to keep terms for B.F.T.M. Part-III (Sem.-V & VI).
- 6] B.F.T.M. degree will be awarded on the basis of total marks of final year (B.F.T.M. Part-III) examination and as per point 3 a, b, c.
- 7] If a candidate fail or remain absent in semester I, semester III & semester- V examination then she will be allowed to perform for the next higher semester

# PREFACE

#### Objectives of this course are -

- 1. To increase the employability of women in the food processing sector of Indian Economy which has been accorded priority in policy making.
- 2. To expose the participants to the basic essentials of food technology & preservation so that they become capable of independently handling food processing units.
- 3. To make them understand the nutritional sides which may help inoculate the scientific view regarding dietary habits of population.
- 4. To enable the participants to keep themselves at least of recent changes in Food Technology & Management
- 5. To appreciate the management & marketing perspective of food processing industry.
- 6. Finally to cerate necessary awareness regarding the factors affecting food processing & preservation.
- 7. The need for qualified nutrition expert is very important, as he/she understand the importance of nutrition & its relation to health .

#### **INTAKE AND MIGRATION:**

The sanctioned intake of the candidates at the First Year level shall not exceed a maximum of 60 candidates in a class. If more than 60 candidates are admitted, separate classes shall be organized.

# PROJECT & STUDY TOURS

The Institution shall, as an integral part of Food Technology & Management education curriculum & as a part of teaching programme arrange for study tours, implant training & other project facilities.

# **APPENDIX 'E' TEACHING STAFF STRUCTURES**

- The institution/college shall appoint required faculty as per workload approved by shivaji university. The students strength for practical batch shall be 20.
- Teachers Qualification will be as per the UGC.norms

# **UNIVERSITY EXAMINATION:**

- 1 The University shall conduct the theory examination at the end of Semester.
- 2 Internal examination
  - a] BFTM- I :- There will be home assignment of 10 marks each in first & second semester.
  - b] BFTM- II :- There will be one mid term test of 10 marks each. (based on objective type / multiple choice based questions) in third & fourth semester.
  - c] BFTM- III :- There will be one seminar / project / tutorial of 10 marks each in fifth & sixth semester.
- 3. The University practical examination will be at the end of the year.

#### BACHELOR OF FOOD TECHNOLOGY AND MANAGEMENT

#### FIRST YEAR (SEMESTER- I)

#### SUBJECT-COMMUNICATION SKILL - PAPER - I

- 1. Communication process, barriers changing dimensions
- 2. Report writing,, types, format s & methods
- 3. Technology based communication -email -web-mobile- telephones
- 4. Internet, Netiquettes, Social networks Net behavior

#### **References :-**

- 1. Write better, speak better (Reader's digest Publication)
- 2. Building your Vocabulary John G. Gilmartin
- 3. Instant Vocabulary Gopal K. Puri.
- 4. Contemporary English Grammer, Structure & Composition. David Green (Macmillan & Co Ltd.)
- 5. Tiger's Eye Alan Mc Connell Duff. (Oxford University Press)
- 6. J. D. O. Connor UBS Better English Pronunciation.
- Dianna Booher Ewriting 21<sup>st</sup> century Tools for effective communication pocket books.

Sinon & Schuster inc. JSBN - O 7434- 1258-3

- 8. Ashi Hi Ingragi ( Marathi) Prof. N. D. Apte Rajhans Prakashan Pune.
- 9. Osborn Michael/ Osborn Suzane. Public Speaking, Biztantra, New Delhi.
- 10. Durodula Sahrolyn P. Learn Reading- Anmol Publications Pvt. Ltd., New Delhi.
- 11. Narula Uma, Business Communication Practices- Modern Trends, Atlantic Publishing House, Mumbai.
- 12. Kumar Keval. J, Mass Communication In India, Jaico Publishing House, Mumbai.
- 13. Information and Communication Technology by Abdul Mannan Himalaya Publishing House, Mumbai.

#### FIRST YEAR (SEMESTER-I)

#### SUBJECT- APPLIED MATHEMATICS AND STATISTICS – PAPER - II

1] SET

Definition, Theory, Union, Intersection

2] Quadratic Equation Solution of  $ax^2+bx+c = 0$ , Roots & their sum & products. Formation & Equation when roots are given.

3] Determinants & Matrix Determinant of 2<sup>nd</sup> & 3<sup>rd</sup> order, Cramer Rule for solving equations, Addition, Subtraction, Multiplication of Matrix, solution of simultaneous Equation using matrix

4] Progressions Arithmetic Progression (A.P.), Geometric Progression (G.P.)

#### **References:**

- 1. Business Statistics J. S. Chandan, Jagjit Singh & K.K. Khanna
- 2. Statistical method S. P. Gupta
- 3. Statistics G. V. Kumbhojkar
- 4. Practical Statistics S. P. Gupta
- 5. A new approach Mathematics & Statistics S. G. Chitale, N. A. Joshi, Siddhanath Mishra, Chandrakant Patel

6.	A Textbook of Mathematics -	M. L. Vaidya, M. K. Kelkar,
		P.S. Chirptkar, Mrs. Usha Deo

#### FIRST YEAR (SEMESTER I)

#### **SUBJECT- APPLIED PHYSICS – PAPER- III**

#### 1. Mechanics

Scalars & vectors Work, Power & energy

# 2. Properties of matter

Elasticity Viscosity

#### 3. Sound

Waves & Oscillations Sound waves

**4. Heat** Thermodynamics Heat transfer

# References

1] A textbook of Physics (XI std) by S.Y. Gambhir

2] A textbook of Physics( XII std.) by S.Y. Gambhir

3] Practical Physics by S. Y. Gambhir

4] A textbook of Physics by K.M. Naragude

5] A textbook of Applied Physics by K.L. Bhandarkar

6] Physics – Seth Publication (XI & XII std.)

7] Engineering Physics (Text Book)

#### FIRST YEAR (SEMESTER I) -

#### SUBJECT- FOOD CHEMISTRY – PAPER- IV

#### **THEORY:**

#### 1. Water in food: -

Types of water in food & their specific functions, classification of foods on the basis of water, water content of various Foods. Recent concepts in water technology

#### 2. Carbohydrates in food :-

Chemistry, classification, sources & functions of carbohydrates, Properties of carbohydrates,

3 Lipids in food :-Chemistry, classification, sources & functions of fatty acids & lipids, Properties of lipids

#### 4 **Proteins in food** :

Chemistry, classification sources, physico-chemical properties of proteins & amino-acids

#### **References:**

- 1. Food chemistry I By Fennama O. R.
- 2. Food chemistry By Meyer
- 3. Food & Nutrition By Swaminathan
- 4. Food science By Potter.
- 5. Food Chemistry By Seema Yadav
- 6. Biochemistry Dr. U. Satyanarayan

#### FIRST YEAR (SEMESTER I)

# SUBJECT- FOOD CHEMISTRY – PAPER- IV

#### PRACTICAL

- 1] Browning in fruits And Vegetables
- 2] Effects of heat on fruits & vegetables
- 3] Testing pectin strength in fruit & vegetable extracts.
- 4] Natural acidity of milk
- 5] Isolation of starch
- 6] Isolation of casein

#### FIRST YEAR(SEMESTER I)

#### SUBJECT- PRINCIPLES OF FOOD PRESERVATION – PAPER- V

# Principles of Food Preservation Theory

- 1. Scope and Importance of food processing, National and International perspectives,
- 2. Principles of preservatives, methods of food preservation.
- 3. Food preservation by low –temp: Refrigeration, freezing and freeze drying
- 4. Food preservation by heating: Drying and dehydration, pasteurization, sterilization, blanching, extrusion cooking of food.

#### References: -

- 1. Fruit & Vegetable Preservation-Srivastava R.P
- 2. The Technology of Fruits & Vegetables 4th edition- Desroier N.W
- 3. Food composition & Preservation-Sabarwal
- 4. Food Processing & Preservation-Subbulaxmi .G.
- 5. Food Processing & Preservation-Sivasankar .G.

#### FIRST YEAR(SEMESTER I )

#### SUBJECT- HUMAN PHYSIOLOGY - VI

#### 1. Cells, Tissues & Organisation of body,

Structures & functions of cell Types of Tissues Different systems Axial Skeleton Appendicular Skeleton Cavities of the body

#### 2. Blood

Composition & Function of Blood Blood group systems ABO & Rh Blood group system Haemostasis

#### 3 Cardiovascular system

Structure & Functions of Heart Cardiac cycle Heart Rate Blood Pressure Lymphatic system

#### 4 **Respiratory System**

Organs of respiratory system & their functions External respiration Internal respiration Lung Volumes & capacities

#### **References :-**

- 1 Human physiology by Chatterjee vol I/ II
- 2 Textbook of Medical physiology A.C. Guygton
- 3 Concise medical physiology Sujit Choudhari
- 4 Basic clinical physiology- J.H. Green
- 5 Ross & Wilson's Anatomy & Physiology in Health & illness-Anne Waugh& Allison Grant
- 6 Physiology –Vijaya Joshi

#### FIRST YEAR (SEMESTER I)

#### SUBJECT- HUMAN PHYSIOLOGY – PAPER- VI

# PRACTICAL – I (Semester – I)

- 1] Study of Microscope
- 2] Collection of Blood
- 3] Hemoglobin estimation
- 4] Total WBC Count
- 5] Determination of Blood Group
- 6] Determination of ESR
- 7] Study of Respiratory System

## FIRST YEAR (SEMESTER I )

#### SUBJECT- HUMAN NUTRITION - PAPER -VII

#### 1. Introduction to Nutrition

Types of Nutrition, , Principles of Nutrition, Food groups, Classification of food groups.

#### 2. Diet :

Balanced diet, Meal planning, Classification of diet, factors affecting meal planning

#### 3 Meal Pattern

Definition of Kilo calories, BMR and factors affecting BMR, Dietary habits and meal pattern

#### 4. Nutritional and food requirements for infants.

#### <u>References</u> :-

- 1 Food & Nutrition Volume I & II By M. Swaminathan
- 2 Normal & thearapeutic nutrition By Robinson
- 3 Nutrition & Dietetics –By Shubhagini Joshi
- 4 Food Science By Shri Laxmi

#### FIRST YEAR (SEMESTER I )

#### SUBJECT- HUMAN NUTRITION - PAPER -VII

# Practical (Semester I)

Weights & Measures

Plan & prepare water-soluble vitamin rich dish for low cost, moderate cost& high cost & calculate the nutritive value

Plan & prepare fat-soluble vitamin rich dish for low cost, moderate cost& high cost & calculate the nutritive value

Plan & prepare water-soluble vitamin rich dish for low cost, moderate cost& high cost & calculate the nutritive value

#### FIRST YEAR (SEMESTER I)

#### SUBJECT: INTRODUCTION TO COMPUTER - PAPER- VIII

- Unit 1 :- Introduction to the computer-characteristics of a computer
- **Unit 2 :- Block diagram**, to illustrate basic organization of a computer system, function of various units.
- Unit 3 :-Input device, output device, Types of memory-primary and secondary memory
- Unit 4 :- Concept of hardware and software, types of software.

## FIRST YEAR (SEMESTER I)

#### SUBJECT: INTRODUCTION TO COMPUTER - PAPER- VIII

#### PRACTICAL – I (Semester – I)

- 1] Introduction to Microsoft Word
- 2] Creating folder, New document, save the file,
- 3] Page Set up, format features, Header & Footer
- 4] Insert a table, Mail merge, Print
- 5] Introduction to Microsoft Excel, Creating folder, Create a new excel workbook, save the file,
- 6] Alignment of cell, Format Cells, font size, height of row, width of column

#### FIRST YEAR (SEMESTER II)

#### SUBJECT-COMMUNICATION SKILL – PAPER- I

- 1. Professional correspondence various drafts of letters, applications & requests
- 2. Oral communication speech seminar, group discussion, web cast
- 3. Public communication, speech ,presentation ,video-conferencing
- 4. Ethical communication, counseling communication, diet counseling

#### **References :-**

Write better, speak better (Reader's digest Publication) Building your Vocabulary – John G. Gilmartin Instant Vocabulary – Gopal K. Puri. Contemporary English Grammer, Structure & Composition. David Green (Macmillan & Co Ltd.) Tiger's Eye – Alan Mc Connell Duff. (Oxford University Press) J. D. O. Connor UBS Better English Pronunciation. Dianna Booher – Ewriting - 21<sup>st</sup> century Tools for effective communication pocket books. Sinon & Schuster inc. JSBN – O 7434- 1258-3 Ashi Hi Ingragi (Marathi) Prof. N. D. Apte Rajhans Prakashan Pune.

Osborn Michael/ Osborn Suzane. Public Speaking, Biztantra, New Delhi. Durodula Sahrolyn P. Learn Reading- Anmol Publications Pvt. Ltd., New Delhi. Narula Uma, Business Communication Practices- Modern Trends, Atlantic Publishing House, Mumbai.

Kumar Keval. J, Mass Communication In India, Jaico Publishing House, Mumbai.

Information and Communication Technology by Abdul Mannan Himalaya Publishing House, Mumbai.

#### FIRST YEAR (SEMESTER-II)

#### SUBJECT- APPLIED MATHEMATICS AND STATISTICS - PAPER - II

1] Statistics -

Introduction, Origin, Growth of Statistics, Collection of data – Sampling methods Primary & secondary data, methods of collecting primary data.

2] Classification & Tabulation, Representation of data Objects, Types & classification, Tabulation of data

3] Representation of data Graph, Histogram, Frequency Polygon Curve, Ogive Curve & its types, Pie Diagram.

4] Measures & Central tendencies, Measures of Dispersion Range Mean, Median & Mode, Range, Standard Deviation, Variance.

#### **References:**

Business Statistics - J. S. Chandan, Jagjit Singh & K.K. Khanna

Statistical method – S. P. Gupta

Statistics – G. V. Kumbhojkar

Practical Statistics - S. P. Gupta

A new approach Mathematics & Statistics - S. G. Chitale, N. A. Joshi, Siddhanath Mishra, Chandrakant Patel

A Textbook of Mathematics -

M. L. Vaidya, M. K. Kelkar, P.S. Chirptkar, Mrs. Usha Deo

#### FIRST YEAR (SEMESTER II)

#### **SUBJECT- APPLIED PHYSICS – PAPER- III**

#### 1. Light

Dispersion of light Wave theory of light Interference of light

**2. Electricity** Electrostatics Current electricity

#### **3. Magnetism** Introduction Magnetic effects of electric current

4. Modern Physics X-rays Electromagnetic Spectrum

#### References

- 1] A textbook of Physics (XI std) by S.Y. Gambhir
- 2] A textbook of Physics( XII std.) by S.Y. Gambhir
- 3] Practical Physics by S. Y. Gambhir
- 4] A textbook of Physics by K.M. Naragude
- 5] A textbook of Applied Physics by K.L. Bhandarkar
- 6] Physics Seth Publication (XI & XII std.)
- 7] Engineering Physics (Text Book)

# FIRST YEAR (SEMESTER II)

#### SUBJECT- FOOD CHEMISTRY- PAPER- IV

#### **THEORY:**

# 1 Minerals :-

Definition classification, sources, functions, & deficiency of minerals.

#### 2 Vitamins :-

classification, sources, functions & deficiency of vitamins

#### 3 Pigments :-

Definition classification Physical & Chemical properties of pigments, effect of processing on pigments use in food Processing.

#### 4 Food Additives: -

Definition & Types -Preservatives, anti-oxidants, flavouring agents, stabilizers, emulsifying agents, leavening agents, chelating agents, food enrichers & food fortifiers ,thickeners.

#### **References:**

Food chemistry I – By Fennama O. R. Food chemistry - By Meyer Food & Nutrition – By Swaminathan Food science - By Potter. Food Chemistry – By Seema Yadav Biochemistry – Dr. U. Satyanarayan

# FIRST YEAR (SEMESTER II)

# SUBJECT- FOOD CHEMISTRY- PAPER- IV

PRACTICAL – I (Semester – II)

- 1] Acid value of fat /oil
- 2] lodine value of fat / oil
- 3] Changes on heating at starches / gelatinization properties of starchs
- 4] Smoking points at fats & oils
- 5] Effect of acid & alkali on colour of fruits & veg.
- 6] Effect of sugar on boiling point of water.

#### FIRST YEAR(SEMESTER II)

#### **SUBJECT- PRINCIPLES OF FOOD PRESERVATION – PAPER- V**

- 1. Food preservation by Nonthermal method: Chemical preservation, irradiation, membrane technology.
- 2. Fermentation methods for food preservation
- Food preservation by irradiation & membrane technology.
  Recent methods for food preservation: Pulsed electric field processing, High pressure processing, processing by using ultrasound, dielectric, ohmic and infrared heating.

#### References: -

- 6. Fruit & Vegetable Preservation-Srivastava R.P
- 7. The Technology of Fruits & Vegetables 4<sup>th</sup> edition- Desroier N.W
- 8. Food composition & Preservation-Sabarwal
- 9. Food Processing & Preservation-Subbulaxmi .G.
- 10. Food Processing & Preservation-Sivasankar .G.

#### FIRST YEAR (SEMESTER II )

#### SUBJECT- HUMAN PHYSIOLOGY- PAPER- VI

#### 1. Digestive System

Organs of Digestive system & their functions Digestive glands Absorption of digested food

#### 2. Urinary System

Organs of Urinary system & their functions Normal & Abnormal constituents of urine

#### 1. Nervous system

Organs of Nervous system & their functions Peripheral Nervous system Autonomous system

#### 2. Endocrine System

Endocrine glands, their functions & related disorders

#### **References: -**

Human physiology by Chatterjee vol I/ II Textbook of Medical physiology A.C. Guygton Concise medical physiology – Sujit Choudhari Basic clinical physiology- J.H. Green Ross & Wilson's Anatomy & Physiology in Health & illness-Anne Waugh& Allison Grant Physiology –Vijaya Joshi

#### BACHELOR OF FOOD TECHNOLOGY AND MANAGEMENT

#### FIRST YEAR (SEMESTER II)

#### SUBJECT- HUMAN PHYSIOLOGY- PAPER- VI

#### PRACTICAL – I (Semester – II)

- 1] Determination of BT
- 2] Determination of CT
- 3] Determination of BP
- 4] Determination of Recording of Pulse
- 5] Peak Flow Measurement
- 6] Study of Digestive system
- 7] Study of Excretory System

#### FIRST YEAR (SEMESTER II )

#### SUBJECT- HUMAN NUTRITION -PAPER- VII

**1.** Nutritional and food requirements for preschool children. (1 – 6 years)

2. Nutritional and food requirements for School Children. (6-12 years)

3. Nutritional and food requirements during Adolescence. & old age

4 Nutritional and food requirements for Expectant Mothers & Lactating Women.

#### **References** :-

Food & Nutrition – Volume I & II – By M. Swaminathan Normal & thearapeutic nutrition – By Robinson Nutrition & Dietetics –By Shubhagini Joshi Food Science – By Shri Laxmi

#### **BACHELOR OF FOOD TECHNOLOGY AND MANAGEMENT**

#### FIRST YEAR(SEMESTER II )

#### SUBJECT- HUMAN NUTRITION –PAPER- VII

PRACTICAL :-

Plan & calculate nutritive value of diet for the following according to socio- economic status.

Infant, Preschool children, School going children, Adolescent, Adult man, Adult women, Pregnant women, Lactating women, Old person

#### FIRST YEAR (SEMESTER II) – PAPER- VIII

#### SUBJECT: INTRODUCTION TO COMPUTER

#### **1** :- Importance of computerizing in food processing

Computer applications in stimulating and modeling

2:- Introduction to word processor-

Basics features of MS.WORD, formatting, creating tables, mail merge, Introduction to PowerPoint, creating presentation-using PowerPoint.

#### 3: - Introduction to excel-

Worksheet, cell, workbook, creating formulas, built in function of excel

#### **4** :- Introduction to Internet

Internet application email, Protocols, Browsers, URL

#### **REFERENCE BOOKS:**

- 1. Fundamental of computer Rajaraman
- 2. Computer Fundamental-P.K.Shina
- 3. M.S. office-Kannan C.N.
- 4. Notes for computer course-Phadake Prakashan
- 5. Internet complete-BPB.
- 6. System stimulation with digital computer Narsingh Dev

#### **BACHELOR OF FOOD TECHNOLOGY AND MANAGEMENT (BFTM)**

#### FIRST YEAR (SEMESTER II)

#### SUBJECT: INTRODUCTION TO COMPUTER – PAPER- VIII

#### PRACTICAL – II (Semester – II)

- 1. Create a slides in the MS- PowerPoint, Add new slides
- 2. View presentation through slide sorter view, note page view,
- 3. Add special character, insert text box
- 4. Introduction to Internet
- 3. Creating a e-mail ID, send, receive e-mail
- 4. Download the information from Internet.

# • **PRACTICAL** 50 marks each duration 3 hours.

•	Distri	bution of 50 I	Marks	5		
	*	Journal	-	10	Marks	
	*	Viva	-	10	Marks	
	*	Practical	-	30	Marks	
	PROJ	ЕСТ				
	*	Implant Trai	ning R	leport	- 25 marks	
	*	Implant Trai	ning V	/iva	- 25 marks	
	*	Submission	of the	project	- 25 marks	•
	*	Project viva			- 25 marks	

# EQUVALANCE FOR B.F.T.M. Course

Sr.No.	Old Course	Sr.No.	New Course (Semester I & II)
1.	Communication Skills		Communication for self employed
			professional – I
			Communication for self employed
			professional - II
2.	Applied Mathematics & Statistics		Applied Mathematics & Statistics I
			Applied Mathematics & Statistics II
3.	Applied Physics		Applied Physics – I
			Applied Physics – II
4.	Food Chemistry		Food Chemistry – I
			Food Chemistry – II
5.	Principles Food Science		Principles of Food Preservation -I
			Principles of Food Preservation -II
6.	Human Physiology		Human Physiology – I
			Human Physiology – II
7.	Human Nutrition		Human Nutrition – I
			Human Nutrition – II
8.	Human Resource Management		Introduction to Computer – I
			Introduction to Computer - II

# B.F.T.M. First Year

# 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		Cereal, legume & oil seed
	Technology		Technology- I
			Cereal, legume & oil seed
			Technology- II
3.	Food Microbiology		Food Microbiology- I
			Food Microbiology- II
4.	Food Hygiene, Sanitation & Food		Food Hygiene, Sanitation & Food
	Packaging		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

# EQUVALANCE FOR B.F.T.M. Course

# B.F.T.M. Third Year

Sr.No.	Old Course (Annual Pattern)	Sr.No.	New Course (Semester V & VI)
1.	Clinical &		Clinical &
	Community Nutrition		Community Nutrition – I
			Clinical &
			Community Nutrition - II
2.	Processing and Preservation of Fruits		Processing and Preservation of Fruits and
	and Vegetables		Vegetables- I
			Processing and Preservation of Fruits and
			Vegetables- II
3.	Animal Product Technology		Animal Product Technology- I
			Animal Product Technology- II
4.	Dairy Technology		Dairy Technology- I
			Dairy Technology- II
5.	Bakery & Confectionery		Technology of Bakery & Confectionery- I
			Technology of Bakery & Confectionery- II
6.	Quality Control, Management of		Food Quality, Safety & Waste management- I
	Industrial and Agricultural by		Food Quality, Safety & Waste management - II
	products & waste		
7.	Production, Packaging and Marketing		Agri-business Management – I
	of Food Products		Agri-business Management - II
8.	Project		Industrial Management – I
			Industrial Management – II
9.	Seminar		Project

Nature of Question Paper for all (Theory) papers U.G. Courses under Under Faculty of Science.

टीप: बी.ए./बी.कॉम - भूगोल, एस.टी.डी. तसेच बी.ए. गृहशास्त्र या अभ्यासकमांना अनुकमे सामाजिकशास्त्रे / वाणिज्य व सामाजिकशास्त्रे विद्याशाखांनी निश्चित केल्याप्रमाणे प्रश्नपत्रिकेचे स्वरूप राहील.

	Nature of Question Paper							
Q.No.1	Multiple Choice based objective type question (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						
		40 Marks						
	Total							