

**MANONMANIAM SUNDARANAR UNIVERSITY,
TIRUNELVELI**

UG COURSES – AFFILIATED COLLEGES 2020-2021

B.Sc. FOOD SCIENCE & NUTRITION

(Choice Based Credit System)

Sem.	Pt (2)	Sub No. (3)	Subject Status (4)	Subject Title (5)	Contact Hrs / Wee k (6)	L (7)	T (8)	P (9)	C (10)
III	I	16	Language	Tamil/Other Language	6	6	0	0	4
	II	17	Language	English	6	6	0	0	4
	III	18	Core- Paper V	Essentials of Macronutrients	4	4	0	0	4
	III	19	Core Practical - III	Essentials of Macronutrients	2	0	0	2	1
	III	20	Allied - II - Paper III	Family Resource Management-I	4	2	2	0	3
	III	21	Allied Practical - III	Family Resource Management-I	2	0	0	2	1
	III	22	Skill Based core paper I	Food Processing and Preservation	4	4	0	0	4
	IV	23	Non-Major Elective-I	Food Preservation Techniques / Diet Therapy-I	2	2	0	0	2
	IV	24	Common	Yoga	2	2	0	0	2
	Subtotal					30+2	24+2	2	4

	I	25	Language	Tamil/Other Language	6	6	0	0	4
IV	II	26	Language	English	6	6	0	0	4
	III	27	Core - Paper VI	Essentials of Micronutrients	4	4	0	0	4
	III	28	Major Practical - IV	Essentials of Micronutrients	2	0	0	2	1
	III	29	Allied - II - Paper IV	Family Resource Management-II	4	2	2	0	3
	III	30	Allied Practical - IV	Family Resource Management-II	2	0	0	2	1
	IV	31	Skill Based II Core	Nutrition and health Communication	4	4	0	0	4
	IV	32	Non-Major Elective-II	Bakery / Diet Therapy-II	2	2	0	0	2
		33	Common	Computers for Digital Era	2	2	0	0	2
	V	34	Extension Activity	NCC, NSS, YRC, YWF	-	-		-	1
	Subtotal					30+2	24+2	2	4

V	III	35	Core - Paper VII	Nutrition through Life cycle	6	6	0	0	4
	III	36	Core – Paper VIII	Food Chemistry	6	6	0	0	4
	III	37	Major Elective - I	Food Service Management/ Hygiene and Sanitation	4	4	0	0	4
	III	38	Major Elective-II	Food Microbiology / Principles of Interior Decoration	4	4	0	0	4
	III	39	Major Practical - V	Nutrition through Life cycle					

	III	40	Major Practical - VI	Food Chemistry	8	0	0	8	4
	IV	41	Skill Based III Common	Personality Development/ Effective Communication/ Youth Leadership	2	2	0	0	2
	Subtotal				30	22	0	8	22
VI	III	42	Core IX	Dietetics	5	5	0	0	4
	III	43	Core X	Clinical Biochemistry	5	5	0	0	4
	III	44	Core XI	Fundamentals of Baking	5	5	0	0	4
	III	45	Major Elective III	Fundamentals of Textiles & Clothing / Concepts in Family Relation	4	4	0	0	4
	III	46	Major Practical -VII	Dietetics	4	0	0	4	2
	III	47	Project	Group Project	7	0	0	7	7
	Subtotal				30	19	0	11	25
Total			180		180+4	137+4	8	35	144

L: Lecture

T:Tutorials

P:Practical's

I. Objectives

1. The curriculum offers robust academic and experiential opportunities across the health spectrum to address the health of individuals and populations from prevention to palliation.
2. To divulge theoretical understanding and practical skills that reinforces the various arenas of Food Science and Nutrition.
3. The course is aimed to enable students to gain knowledge about interaction between food, body and health under normal and special circumstances.
4. This course will enable students to use current information technologies to locate and apply evidence-based guidelines and protocols and get imparted with critical thinking

to take leadership roles in fields of health, dietetics, special nutritional needs and nutritional counselling. Currently food industry is shifting its focus from taste to nutrition.

5. To expedite the undergraduates of Food Science and Nutrition to pursue higher studies which in turn offer career opportunities and research quests.
6. To apply the skills and knowledge gained through the subject to real life situations and face competitive examinations with self-confidence at National level.

II. Eligibility for Admission

The minimum eligibility conditions for admission to the **B.Sc Food Science and Nutrition** program are given below.

The candidates for admission of the **B.Sc Food Science and Nutrition** course will be required to have qualified the Higher Secondary Examination conducted by the Board of Higher Secondary Education, Government of TamilNadu or any other Examinations accepted by the syndicate of the ManonmaniamSundaranar University as equivalent there to in Science subject.

The candidate should have completed Higher Secondary (+2) with any of the three combinations of subjects Physics/ Chemistry/ Biology/ Home Science/ Mathematics/ Computer Science.

III. Duration of the Course

The students shall undergo the prescribed course of study for a period of not less than three academic years (Six semesters). The semester contains 90 working days.

IV. Elective Subject

One among the two given subjects will be selected.

V. Extension Program for the Department

- Apart from the curriculum, to enrich the skill development of the students following courses in their premises are conducted.
- Effective Communication Personality development Youth development.

VI. Internal Assessment

There is a separate passing minimum for the external and overall components.

Distribution of marks between External and Internal Assessment is

★ For Theory 75 :25

★ For Practical 50 :50

Pass minimum of 40% for external and overall components.

Internal Marks for **Theory** shall be allotted in the following:

The average of the best two from three compulsory tests. Each test is of one hour duration	20 Marks
Assignment	05 Marks
Total	25 Marks

Distribution of marks between External and Internal Assessment for Skill Based Elective - 75 :25.

The average of the best two from three compulsory tests. Each test is of one hour duration	20 Marks
Assignment	05 Marks
Total	25 Marks

Internal Marks for **Practical** shall be allotted in the following manner

Experimental Work	25 Marks
Regularity	25 Marks
Total	50 Marks

VII. Grading System

The performance of the students is indicated by the seven point scale grading system as per the UGC norms given below.

Grade	Grade Point	Percentage of Marks	Performance
O	9.5 and above	95 – 100	Outstanding
E	8.5 and above	85 – 94	Excellent
D	7.5 and above	75 – 84	Distinction
A	6.0 and above	60 – 74	Very Good
B	5.0 and above	50 – 59	Good
C	4.0 and above	40 – 49	Average
RA	0	Up to 39	Re-Appear

The overall performance level of the candidates will be assessed by the following formula :

$$\text{Cumulative weighted average of marks} = \frac{\sum (\text{Marks} \times \text{Credits})}{\sum \text{Credits}}$$

$$\text{Cumulative weighted average Grade Points} = \frac{\sum (\text{Grade Point} \times \text{Credits})}{\sum \text{Credits}}$$

VIII. Question Pattern

Section	Type of Question	No. of Question	Marks
Part A	Objective Type Questions (Two questions from each unit)	5 x 2 = 10	10 x 1 = 10

Part B	Internal Choice Questions (One question from each unit)	5 x 1 = 5	5 x 5 = 25
Part C	Internal Choice Questions (One question from each unit)	5 x 1 = 5	5 x 8 = 40
	Total		75 Marks

Programme Outcome, Programme Specific Outcome

Department of Home Science	After successful completion of three years degree program in B.Sc. (Food Science and Nutrition)
Programme Outcomes	<p>PO1- Developed problem-solving competencies in life skills</p> <p>PO2- Understood the role of interdisciplinary sciences in the development of individual, families and communities</p> <p>PO3-Enhanced the application of science and technologies in quality of life of individual</p> <p>PO4- Acquired professional and entrepreneurial skills for Economic empowerment of self in particular and community in general</p> <p>PO5- Trained students in professional skills</p> <p>PO6- Developed professional skills in foods and nutrition, textiles Science, housing, product making, communication technologies and human development</p> <p>PO7- Adopted and transfer the scientific innovations from lab to the community</p>

Programme Specific Outcome	<p>PSO1- Understood the concepts of different areas of home science</p> <p>PSO2- Produced knowledgeable and skilled human resources which is employable in food industries, hospitals and textile industries</p> <p>PSO3-Comprehended the current techniques in foods and nutrition</p> <p>PSO4- Produced entrepreneurs who developed customized solutions for small and medium Enterprises</p>
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III Semester

MSU/2020-21 /UG-Colleges/Part-III(B.Sc. Food Science & Nutrition)Semester-III /

Core

ESSENTIALS OF MACRONUTRIENTS

Objectives:

L T PC

4 0 0 4

1. To understand the role of nutrition in the maintenance of good health.
2. To study nutritional deficiencies and their prevention.

Unit I

Basic concepts of Nutrition

- a) Relation of good nutrition to normal physical development and sound health
- b) The process of digestion, absorption, transport, utilization of carbohydrate, lipids, proteins, minerals, vitamins & water in human body

Unit II

Carbohydrates

- a) Introduction, Functions, Classification, Food sources, , Consequences of inadequate and excessive intakes, Dietary fiber, Functions of dietary fiber, Side effect of dietary fiber, Recommended intake, Role In human nutrition, Glycemic Index, The chemical structure of carbohydrate
- b) The major 3 Classifications of carbohydrate
- c) RDA of carbohydrate
- d) Digestion, absorption process
- e) TCA Cycle.

Unit III

Protein

- a) The basic structure of protein, The composition of protein, The Classifications of protein

DA, Digestion, absorption process

- b) Protein Metabolism
- c) Difference between essential and non-essential amino acids
- d) The health effects of excess and inadequate intake of protein in diet, Deficiency – PEM (Kwashiorkor, Marasmus.)

(12L)

Unit IV

Fats (Lipids)

- a) The chemical structure of lipids, The Classifications of fats, RDA
- b) Digestion, absorption process
- c) Food sources
- d) The health effects of inadequate and excess of carbohydrate
- e) Difference between Saturated and unsaturated fats, Difference between fats and lipids

(12L)

Unit V Energy

- a) Definition, energy needs of the body,
- b) BMR, factors affecting BMR,
- c) determination of energy value - Bomb calorimetry method, determination of energy requirements –
- d) Direct calorimetry & indirect calorimetry method,
 - e) Specific Dynamic Action, determination of energy metabolism during work.

14L)

References:

1. Swaminathan, M. Advanced Text Book on Food and Nutrition, BAPPCO,1985.
2. ShakuntalaManay, N. and M. Shadaksharaswamy, Foods Facts and Principles, New Age International (P) Ltd. Publishers, Second Edition,2001.
3. SeemaYadav, Basic Principles of Nutrition, Anmol Publication Pvt. Ltd., First Edition, 1997.
4. Robinson, C.H. and Lawler, R.M., Normal and Therapeutic Nutrition, 17th edition Maxmillan Publication & Co., New York,1994.
5. Sri Lakshmi, B., Dietetics, New Age International Private Ltd., New Delhi,1995.
6. Mahtab, S. Bamji, PralhabRao, R and Vinodhini, Text Book of Human Nutrition, Oxford and IBH Publishing Co. Pvt. Ltd., New Delhi,1996.

Major practical - III

ESSENTIALS OF MACRONUTRIENTS

Objectives

L T PC

0 0 2 1

1. To understand the role of nutrition in the maintenance of good health.
2. To study nutritional deficiencies and their prevention.
3. Identify macro nutrients and the related chemical or environmental plant deficiencies

- a) Qualitative test for Sugar
- b) Qualitative test for Proteins
- c) Qualitative test for Fats and Oils
- d) Quantitative estimation of reducing sugar in Fruit Juices
- e) Quantitative estimation of reducing sugar in honey
- f) Quantitative estimation of Proteins
- g) Quantitative estimation of Fats in foods.

References :

1. Swaminathan, M. Advanced Text Book on Food and Nutrition, BAPPCO,1985.
2. ShakuntalaManay, N. and M. Shadaksharaswamy, Foods Facts and Principles, Newage International (P) Ltd. Publishers, Second Edition,2001.
3. SeemaYadav, Basic Principles of Nutrition, Anmol Publication Pvt. Ltd., First Edition, 1997.
4. Robinson, C.H. and Lawler, R.M., Normal and Therapeutic Nutrition, 17th edition, Maxmillan Publication & Co., New York,1994.
5. Sri Lakshmi, B., Dietetics, New Age International Private Ltd., New Delhi,1995.
6. Mahtab, S. Bamji, PralhabRao, R and Vinodhini, Text Book of Human Nutrition,.

FAMILY RESOURCE MANAGEMENT – I

Objectives

L T PC

2 2 0 3

1. To attain a thorough knowledge of understanding values and goals inhouse keeping
2. To gain a basic knowledge of planning and constructing a house
3. To understand basic designs and art.

Unit I Housing

- a. Functions of the house and its environment
- b. House planning – site selection, factors to be considered, features of a house contributing to livability, orientation, grouping, roominess, lighting and ventilation, storage facility, privacy, flexibility, sanitation and economy
- c. Kitchen planning – different types – work triangle
- d. House plans – low, middle and high income groups **(6L+6T)**

Unit II

Care and maintenance of house

- a. Care and maintenance of house and its surroundings.
- b. Daily, weekly and periodical cleaning to keep the house in good condition.
- c. Insect and pest control – preventive and remedial measures to be adopted. **(6L+6T)**

Unit III

Elements of Design I

- a. Elements of design, types of design, characteristics of a good design, principles of design.
- b. Harmony – meaning, types – repetition, contrast,transition

- c. Proportion – meaning – means of obtaining good proportion
- d. Balance – meaning – types and means of obtaining balance
- e. Emphasis – meaning – means of creating emphasis
- f. Rhythm – meaning – means of getting rhythm. **(6L+6T)**

Unit IV Colour

- a. Qualities of colour – hue, value, intensity of colours and emotions, advancing and receding colours.
- b. How to use colours – proportion, balance, harmony, and rhythm in colour.
- c. Use of colour in interior decoration **(6L+6T)**

Unit V

Accessories, Furniture, Flower Arrangement

- a. Selection, use and care of accessories, Picture and wall hangings, basic knowledge of flower arrangements – principles, types of flower arrangement.
- b. Selection and Use of Furniture – living room, bedroom and dining room – table setting.

(6L+6T)

References

1. Deshpande, R.S., Modern Ideal Homes for India – United Book Corporations, Poone. 1971.
2. StellaSoundararaj. A Textbook of House hold Arts, Orient Longmans, Bombay, 1968.
3. Margaret Kaye. A. A Students handbook of House wifery, J.M. Dent Sons Ltd., London.1986.
4. PaulenaNickell, Jean Muir Dorsey, Management in Family Living, Wiley Eastern Private Ltd., 1976.
5. Varghese A. Home Management New Age International,1985.

**MSU/2020-21 /UG-Colleges/Part-III (B.Sc. Food Science & Nutrition) Semester III /
/Allied Practical - III**

FAMILY RESOURCE MANAGEMENT – I

Objectives

1. To attain a thorough practical knowledge of understanding values and goals in housekeeping.
2. To understand the basic designs and art.
 - a) Draw the kitchen plan and house plan for various income groups.
 - b) Visit to hotels to obtain knowledge on interior decoration and housekeeping
 - c) Demonstration of different designs
 - d) Demonstration on mixing color

Visit to Artificial and fresh flowers company

- e) Demonstration on different types of flower arrangement, wall hangings, picture
- f) Preparation of time plan for college girl/homemaker and its evaluation.
- g) Determination of working height in vertical and horizontal planes
- h) Study of anthropometry and furniture sizes.
- i) Planning, organizing, implementing and evaluating a group activity
(Party/Exhibition/tour)

References

1. Deshpande, R.S., Modern Ideal Homes for India – United Book Corporations, Poone. 1971.
2. Stella Soundararaj. A Textbook of House hold Arts, Orient Longmans, Bombay, 1968.
3. Margaret Kaye. A. A Students handbook of House wifery, J.M. Dent Sons Ltd., London.1986.
4. PaulenaNickell, Jean Muir Dorsey, Management in Family Living, Wiley Eastern Private Ltd., 1976.
5. Varghese A. Home Management New Age International,1985.

MSU/2020-21 /UG-Colleges/ Part III (B.Sc. Food Science & Nutrition) Semester III /
Skill based Core - I

FOOD PROCESSING AND PRESERVATION

Objectives

L T PC

4 0 0 4

1. To understand the principles of food preservation
2. To develop skills for setting up production units
3. To acquire Knowledge of preservation techniques

Unit I

Objectives and principles of Food Preservation.

Food Preservation : Traditional and Modern Techniques.

(10L)

Unit II

a) Low Temperature - Refrigeration, Freezing

b) High Temperature – Canning, Dehydration, Drying.

(14L)

Unit III

Preservation by use of chemicals – preparation of crush, squashes, synthetic syrup

(13L)

Unit IV

Preservation by use of sugar – Jam, Jelly, Marmalade, Tuty-fruity

(12L)

Unit V

Pickling – Principle and methods

(11L)

References

1. PrakashTriveni, Food Preservation, Aadi publication, Delhi.2008.
2. ShafiurRahman. M. Hand Book Of Food Preservation, Marcel Dekker Inc, New York.2007.
3. McWilliams and Paine, Modern Food Preservation, Surjeet Publication.1996.
4. Fellows, P and Ellis H. Food Processing Technology: Principal and Practicals, New York.1990.
5. NPCS Board, Modern Technology on Food Preservation Second Edition, Asia Pacific Business Press, Inc2012.
6. Sivasankar; B. Food Processing and Preservation, Prentice Hall, India Learning Private Limited 2004.
7. Tanchev,&Stoyan. Methods of Food Preservation. Food Safety: A Practical and Case Study Approach.2007.

MSU/2020-21 /UG colleges/Part III (B.Sc. Food Science & Nutrition) Semester III /

Non-Major Elective - I

FOOD PRESERVATION TECHNIQUES

Objectives

L T PC

1. To understand the principles of food preservation
2. To develop skills for setting up production units
3. To acquire Knowledge of preservation techniques.

Unit I

Objectives and principles of food preservation. (6L)

Unit II

- a) Low temperature - refrigeration,freezing
- b) High temperature – canning,dehydration,drying. (7L)

Unit III

Preservation by use of chemicals – preparation of crush, squashes, synthetic syrup. (6L)

Unit IV

Preservation by use of sugar – Jam, Jelly,Marmalade,Tuty-fruity. (6L)

Unit –V

Pickling – Principlesandmethods. (5L)

References

1. PrakashTriveni, Food Preservation, Aadi publication, Delhi.2008.
2. ShafiurRahman. M. Hand Book of Food Preservation, Marcel Dekker Inc, New York.2007.
3. McWilliams and Paine, Modern Food Preservation, Surjeet Publication.1996.
4. Fellows, P and Ellis H. Food Processing Technology: Principal and Practicals, New York.1990.
5. NPCS Board, Modern Teshnology on Food Preservation Second Edition, Asia Pacific Business Press, Inc2012.
6. Sivasankar; B. Food Processing and Preservation, Prentice Hall, India Learning Private Limited2004.
7. Tanchev,&Stoyan. Methods of Food Preservation. Food Safety: A Practical and Case Study Approach.2007.

**MSU/2020-21 /UG colleges/Part IV (B.Sc. Food Science &
Nutrition) Semester III / Non-Major Elective
DIET THERAPY - I**

Objectives

L T PC

2 0 0 2

1. To gain insight into the national nutritional problems and their implications
2. To obtain knowledge about the methods of assessment of nutritional status
3. Develop skills in organizing and evaluating nutrition projects in the community

Unit I

Nutrition throughout lifecycle - I

- a) Basic principles of menu planning.
- b) Nutrition during pregnancy
- c) Nutrition during lactation **(6L)**

Unit II

Nutrition throughout lifecycle - II

- a) Nutrition during infancy
- b) Nutrition during preschoolers
- c) Nutrition during school going children **(7L)**

Unit III

Nutrition throughout lifecycle - III

- a) Nutrition during adolescents
- b) Nutrition during adulthood
- c) Nutrition during oldage **(6L)**

Unit IV

Concept of diet therapy -II

- a) Principles of the therapeutics diet
- b) Modification of maldiets **(6L)**

Unit V

Deficiency disorders

Nutrition for deficiency disorders – PEM, Anemia and Vitamin A deficiency. **(5L)**

References

1. Sri Lakshmi, Dietetics, New Delhi , 2019.
2. Corrine Robinson, and Lawler. Normal and Therapeutic Nutrition, Oxford and IBH publishers.1990
3. Swaminathan. M. Principles of Nutrition and Dietetics, BAPPCO publishers, Bangalore.2003
4. Gopalan, Balasubramanian and Ramasastrri., Nutritive value of Indian foods, NIN publication, Hyderabad 2016 .
5. BhavanaSabarwal. Principles and practices of Dietetics, Ajay Verma Common Wealth Publishers, New Delhi.1999.
6. Davidson Passmore. Human Nutrition and Dietetics, London Churchill

IV Semester

MSU/2020-21 /UG colleges/Part III (B.Sc. Food Science & Nutrition) Semester IV/Core

ESSENTIALS OF MICRONUTRIENTS

Objectives

L T PC

1. To understand the role of nutrition in the maintenance of good health.
2. To study nutritional deficiencies and their prevention.
3. Identify macro and micro nutrients and the related chemical and environmental plant deficiencies.

Unit I

Vitamins

- a. Introduction of vitamins, History, Chemistry, absorption, functions, requirements, effects of deficiency,
- b. Classification.
- c. Water soluble vitamins (Vit-B1, B2, B3, B5, B6, B7, B9, B12&Vit-C).
- d. Fat soluble vitamins (Vit-A,D,E& K).
- e. Functions of each vitamins, Food sources, RDA, Health consequences on deficiency and toxicity of any vitamins in the human body.

Unit II

Major Minerals

- a. Introduction of Macro (Na, K, Ca, Mg, P,) minerals.
- b. Functions of each classification of minerals
- c. Food sources
- d. RDA
- e. Health consequences on deficiency and toxicity of any mineral in the human body

Unit III

Trace Elements

- a. Introduction of Trace elements (Fe, I, F, Zn, Cu, Co, Se, Cr, Mn, Mo, Ni, Sn, Si, V)
- b. Functions of each classification of minerals
- c. Food sources
- d. RDA
- e. Health consequences on deficiency and toxicity of any mineral in the human body

Unit IV

Interrelationship between nutrients and water balance

- a) Interrelationship between carbohydrates, proteins, fat, vitamins and minerals
- b) Water balance
- c) Importance of water in human body
- d) Components of body fluid
- e) Various functions of water

Unit V Enzymes

- a. Enzymes – Classification (Oxidoreductases, Transferases, Hydrolases, Lyases, Isomerases, Ligases)
- b. Mechanism of reaction.
- c. factors affecting enzyme action.
- d. Function of enzymes.

References:

1. Swaminathan, M. Advanced Text - Book on Food and Nutrition, BAPPCO,1985.
2. ShakuntalaManay, N. and M. Shadaksharaswamy, Foods Facts and Principles, Newage International (P) Ltd. Publishers, Second Edition,2001.
3. SeemaYadav, Basic Principles of Nutrition, Anmol Publication Pvt. Ltd., First Edition, 1997.
4. Robinson, C.H. and Lawler, R.M., Normal and Therapeutic Nutrition, 17th edition, Maxmillan Publication & Co., New York,1994.
5. Sri Lakshmi, B., Dietetics, New Age International Private Ltd., New Delhi,1995.
6. Mahtab, S. Bamji, PralhabRao, R and Vinodhini, Text Book of Human Nutrition, Oxford and IBH Publishing Co. Pvt. Ltd., New Delhi,1996.

**MSU/2020-21 /UG colleges/Part III (B.Sc. Food Science &
Nutrition) Semester - IV / Major practical - IV
ESSENTIALS OF MICRONUTRIENTS**

Objectives

**L T PC
0 0 2 1**

1. To understand the role of nutrition in the maintenance of good health.
2. To study nutritional deficiencies and their prevention.
3. Identify micronutrients and the related chemical or environmental plant deficiencies.
 - a) Qualitative test for Minerals
 - b) Quantitative estimation of Vitamin C in Greens
 - c) Quantitative estimation of Vitamin C in Lime Juice
 - d) Quantitative estimation of Vitamin C in Curds
 - e) Quantitative estimation of Calcium
 - f) Quantitative estimation of Phosphorous

References

1. Swaminathan, M. Advanced Text Book on Food and Nutrition, BAPPCO, 1985.
2. Shakuntala Manay, N. and M. Shadaksharaswamy, Foods Facts and Principles, Newage International (P) Ltd. Publishers, Second Edition, 2001.
3. Seema Yadav, Basic Principles of Nutrition, Anmol Publication Pvt. Ltd., First Edition, 1997.
4. Robinson, C.H. and Lawler, R.M., Normal and Therapeutic Nutrition, 17th edition, Maxmillan Publication & Co., New York, 1994.

**MSU/2020-21 /UG colleges/Part III (B.Sc. Food Science &
Nutrition) Semester IV / Allied - IV
FAMILY RESOURCE MANAGEMENT – II**

Objectives:

L T PC

2 2 0 3

To enable the students to understand the importance of home management in family and personalliving

1. To improve their ability in family resource management.
2. To understand and apply basic principles of art in interior designing.

Unit I

Management

- a. Definition and meaning of management – characteristics of a good home maker - management process – planning, organizing, controlling and evaluating.
- b. Motivating factors in management – values, goals and standards. Decision making – steps in decision making **(6L+6T)**

Unit II

RESOURCES

- a. Resources – classification and characteristics
- b. Time and Energy Management – Importance of time management, guidelines in planning time schedule, fatigue - types and overcoming fatigue – work simplification –Mundess Law. **(6L+6T)**

Unit III

Standard of living

Constituents – factors affecting, causes for low living standards in India. **(5L+5T)**

Unit IV

Money Management

- a. Family Income – types, sources methods of augmenting family income.
- b. Family expenditure – budget – meaning – types of budget-planning a family budget – steps in planning, advantages of budgeting – Engel's law of consumption.
- c. Savings – meaning – need, saving institutions – Bank – Post office – Insurance – Chit fund – Unit trust of India. (6L+6T)

Unit V

Consumer Rights and Protection

- a. Consumer Rights : The home maker as a wise consumer – rights of a consumer – consumer education – consumer aids – advertisement – standards-labels – price tag.
- b. Consumer protection – need – measures adopted to provide consumer protection – consumer laws – consumer courts – consumer movement.
- c. Residence course – need, objectives planning, organization and evaluation of the course – role of supervisor and staff adviser (7L+7T)

References:

1. Deshpande, R.S. Modern Ideal Homes for India – United Book corporations, Pune, 1971.
2. Paulena Nickell, Jean Muir Dorsey – Management in Family Living, Wiley Eastern Private Ltd., 1976.
3. Van Dommolen, D.B. Designing and Decorating Book, John Wiley & Sons. 1991.
4. Mann, M. Home Management for Indian families, New Delhi Kalyan Publishers. 1980.
5. Stella Soundararaj. A Textbook of Household Arts, Orient Longmans, Bombay, 1968.
6. Margaret Kaye. A. A Students handbook of Housewifery, J.M. Dent Sons Ltd., London. 1986.
7. Paulena Nickell and Jean Muir Dorsey, Management in Family Living, Wiley Eastern Private Ltd., 1976.
8. Varghese A. Home Management, New Age International, 1985.

**MSU/2020-21 /UG colleges/Part III (B.Sc. Food Science &
Nutrition) Semester - IV / Allied Practical - IV
FAMILY RESOURCE MANAGEMENT – II**

Objectives

L T PC

0 0 2 1

1. To attain a thorough practical knowledge of understanding values and goals in house keeping
2. To understand the basic designs and art.
 - a. Study of expenditure pattern of your family and preparation of a model family budget/ budget suitable for various categories.
 - b. Study of waste management practices in your house/locality
 - c. Development of an art object from household waste materials.
 - d. Development and evaluation of labels and advertisements for consumer products
 - e. Preparation of a consumer complaint for any consumer product.
 - f. Residence stay for a week incorporating principles of management. (A record of the entire practical should be maintained with preliminary preparation report and evaluation report).

References:

1. Deshpande, R.S. Modern Ideal Homes for India – United Book corporations, Pune. 1971.
2. Paulena Nickell, Jean Muir Dorsey – Management in Family Living, Wiley Eastern Private Ltd., 1976.
3. Van Dommolen, D.B. Designing and Decorating Book – John Wiley & Sons. 1991
4. Mann, M. Home Management for Indian families, New Delhi Kalyan Publishers. 1980.
5. Stella Soundararaj. A Textbook of House hold Arts, Orient Longmans, Bombay, 1968.

MSU2020-21 /UG colleges/Part III (B.Sc. Food Science & Nutrition)

Semester IV/ Skill based –II Core

NUTRITION AND HEALTH COMMUNICATION

Objectives:

**L T PC
4004**

This Course enable the students to –

- Understand thought diffusion processes of the individual and the Community
- Know effective communication techniques / methods
- Be able to plan and develop health/ nutrition education communication messages strategies
- Be able to communicate on various issues related to health and nutritional status of individual and the community

Unit I: Concept of Nutrition and Health Education

- a) Objectives
- b) Principles and scope of nutrition and health education and promotion

Unit II: Development in India- rural and urban

- a) Philosophy, Strategies, achievements and problems with reference to 5 year plans and various Governmental and Non-Governmental Schemes.
- b) Communication in Urban areas, Diversity in India's Population

Unit III: Communication and Social Development

- a) Education, Health and Nutrition
- b) Hygiene, Family Planning and Environment.

Unit IV: Teaching Methods

- a) Formal and Non Formal Methods.
- b) Individual, Group and mass approach . Expository, Discovery, Participatory, evaluative Simulation Games, Brain Storming.

Unit V: Concept of Poverty

- a) Conceptualizing poverty.
- b) Difference between Absolute and Relative poverty
- c) Concepts of poverty line and poverty trap.
- d) Poverty alleviation programmes and projects

Referances

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2. R K Sharma, 1997, Rural Sociology, New Delhi: Atlantic
3. J B Chitambar, 3rd Ed 2018, Introductory Rural Sociology, New Delhi: New Age Publishers
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5. Dhingra IC and Garg VK, 2010, Introductory Economic Theory. Sultan Chand & Sons
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7. Hinton, S and Larissa, H. (2013) Understanding Social Media, Sage Publications India

MSU/2020-21 /UG colleges/Part IV (B.Sc. Food Science & Nutrition)

Semester IV / Non-Major Elective

IIBAKERY

Objectives:

L T P C
2 0 0 2

This course will enable the students to

1. understand basic concepts of baking
2. Acquaint with the role of various major and minor ingredients in bakery products
3. Familiarize with baking process and operations.
4. Learn the quality parameters of bakery products

Unit I

Introduction

- a. Introduction to baking
- b. Principles of baking
- c. Equipment needed – ovens, dough mixer and eggbeater. **(6L)**

Unit II

Role of ingredients in baking – I

- a. Wheat
- b. Fats and oils
- c. Egg **(7L)**

Unit III

Role of ingredients in baking-II

- a. Milk, Sugar, Salt and Water
- b. Flavoring agents
- c. Leavening agents – physical, biological **(7L)**

Unit IV

Preparation of cakes – rich cakes, plum cakes, pineapple upside cake. (5L)

Unit V

- a. Cookies – ingredients and mixing methods, types of process
- b. Bread rolls.

References

1. Kent.N.L.: Technology of cereals – with special reference to wheat, pergamon Press, New York, USA.1975.
2. France.W.J: The student Technology of Bread making and flour confectionery,Routledge and Kegan Paul Ltd., London, UK.1974.
3. Sultan.W: Practical baking manual – for students and instructors, AVI Publishing Co.INC, West Port, Connecticut.1976.
4. Matz S.A.: Bakery Technology, packaging, nutrition, product development and quality assurance, Elsevier Science Publisher Ltd., New York, USA. 1989.
5. Malik. R.K. and Dhingra.K.C.: Technology of Bakery Industries. Small Industry Research Institute, New Delhi, India.1981.
6. Pomeraz, Y.: Wheat Chemistry and Technology, Vol. 1 and II American Assn. of Cereal Chemists, 3rd Ed. St. Paul Minnesota, USA.1988.
7. Matz. S.A. Technology for the Materials of Baking, Elsevier Science Publishers.Baking, England.1989.
8. Yogambal and Ashok kumar, Theory of Bakery and Confectionary, PHT learning Private Limited, New Delhi.2009.

**MSU/2020-21 /UG colleges/Part IV (B.Sc. Food Science &
Nutrition) Semester IV/33/Non-Major Elective II
DIET THERAPY - II**

Objectives

L T PC

1. To gain insight into the national nutritional problems and their implications
2. To obtain knowledge about the methods of assessment of nutritional status
3. Develop skills in organizing and evaluating nutrition projects in the community

Unit I

Therapeutic diets for

- a) Obesity and underweight
- b) Diabetes Mellitus (7L)

Unit II

Therapeutic diets for

- a) Peptic ulcer
- b) Cirrhosis and Hepatitis (7L)

Unit III

Therapeutic diets for

- a) Atherosclerosis
- b) Hypertension (6L)

Unit IV

Therapeutic diets for

Febrile condition - Typhoid, TB and Malaria. (5L)

Unit V

Therapeutic diets for

Renal failure, Cancer, Burns. (5L)

Reference:

1. Sri Lakshmi, B. Dietetics, Wiley Eastern publishers. 2004.
2. Corrine Robinson and Lawler. Normal and Therapeutic Nutrition, Oxford and IBH publishers. 1990.
3. Swaminathan. M. Principles of Nutrition and Dietetics, BAPPCO publishers, Bangalore. 2003.
4. Gopalan, Balasubramaniam & Ramasastri Nutritive Value of Indian foods, NIN publication, Hyderabad. 1996.
5. Bhavana Sabarwal. Principles and practices of Dietetics, Ajay Verma common wealth publishers, New Delhi. 1999.
6. Davidson Passmore. Human Nutrition and Dietetics, London Churchill and Livingstone publishers. 1989.

Core

NUTRITION THROUGH LIFECYCLE

Objectives

L T PC

1. To help students to understand the basis of meal planning.
2. To obtain knowledge on various nutritional deficiency disorders.
3. To understand the nutritional needs of members at different age levels.

Unit I

Requirements for infancy and preschool age

- a) Infancy – Growth and development, nutritional requirements, breast feeding, weaning practices, diet supplements

Preschool age – nutritional requirements, factors affecting nutritional status, problem related to nutrition

Unit II

Balanced diets for school going children and adolescence

- a) Balanced diet – meaning, basic principles of meal planning
- b) Planning meals for different socio economic conditions – low income, middle income & high income groups
- c) School age – nutritional requirements, food requirements, packed lunches, school lunch programmes
- d) Adolescence – Nutritional requirements, food habits, fast food, nutritional problems

(20L)

Unit III

Balanced diets for adults, pregnant women, lactating mother

- a. Adult – nutritional requirements, food requirements, principles involved in planning of meals.
- b. Pregnant woman – Physical changes, nutritional requirements, food requirements, problems related to nutrition, during pregnancy complications & dietary problems
- c. Lactating mothers – nutritional requirements, food management
- d. Geriatric Nutrition – Process of aging, physiological and biochemical changes, considerations in feeding elderly **(22L)**

Unit IV Modification of Diet

- a. Definition, importance, modification of normal diet – clear fluid, full fluid & soft diet.
- b. Tube feeding, parenteral feeding.
- c. Pre and post-operative diets **(14L)**

Unit V

Diet for Deficiency conditions

- a. Nutritional deficiency diseases – PEM, Vitamin A and Anemia
- b. Lactose Intolerance, Phenylketonuria, Alkaptonuria, Galactossemia and Sickle Cell Anemia **(18L)**

Reference:

1. Sri Lakshmi, B. Dietetics, Wiley Eastern publishers.2004.
2. Corrine Robinson and Lawler. Normal and Therapeutic Nutrition, Oxford and IBH publishers.1990.
3. Swaminathan. M. Principles of Nutrition and Dietetics, BAPPCO publishers, Bangalore.2003.
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5. BhavanaSabarwal. Principles and practices of Dietetics, Ajay Verma common wealth publishers, New Delhi.1999.
6. Davidson Passmore. Human Nutrition and Dietetics, London Churchill and Livingston publishers. 1989.

MSU/2020-21 /UG colleges/Part III (B.Sc. Food Science & Nutrition)

Semester V / Core

FOOD CHEMISTRY

Objectives

L T PC

6 0 0 4

1. Understand the meaning and chemical preparation of carbohydrates in foods
2. Explain the role of lipids and protein in foods
3. Acquire knowledge on the chemical changes occurring in foods

Unit I

Carbohydrates - definition, classification, structure and properties of:

- a) Monosaccharides – Glucose, Fructose, galactose
- b) Disaccharides – maltose, lactose, sucrose
- c) Polysaccharides- dextrin, starch, glycogen

(18L)

Unit II

Protein – definition, classification, structure and properties of

- a) Amino acids- essential and non essential amino acid
- b) Definition, classification, structure, properties and function of proteins **(18L)**
- c) **Unit III**

Lipids – definition, classification, Types and properties of

- a) Fatty acids, composition and properties of fats, significance of acid value, iodine value, saponification value.
- b) Classification and structure of phospholipids, structure of glycolipids, types and structure of sterols.

(18L)

Unit IV

Enzymes - – definition, classification, structure and properties of

- a) Types and classification of enzymes, definition, types of co enzymes, specificity of enzymes, isozymes, enzyme kinetic including factors affecting velocity of enzymes catalyzed reactions, enzyme inhibition **(19L)**

Unit V

Vitamins and Minerals

- a) Vitamins – Chemistry and biochemical role of fat soluble vitamin, water Soluble vitamins
- b) Minerals – Biochemical role of inorganic elements.

(17L)

References:

1. SeemaYadav, Food Chemistry, Anmol Publications Pvt. Ltd, New Delhi1997.
2. Meyer. L.H, Food Chemistry, common wealth publishers, NewDelhi.2001.
3. Srilakshmi. B, Food Science, New Age International (P) Ltd, New Delhi 2002.
4. ShankuntalaManay, Food Principles, New Age International (P) Ltd, NewDelhi 2001.
5. Damordaran, S. Parkin, K O. Fennema“s Food Chemistry, FennemaEds.CRC Press. 4th Edition,2007.
6. David. S. Robinson, Food biochemistry and Nutritive Value. LongmanGroup, U.K. 1987.
7. Sadasivam.S.A, Manickam, Biochemical methods for agricultural sciences.New Age International Publishers.1996.
8. John DeMan, Principles of Food Chemistry, 3rd Edition. Aspen Publishers,New York.1999.

**MSU/2020-21 /UG colleges/Part II (B.Sc. Food Science & Nutrition) Semester V/
Major Elective - I(A)**

FOOD SERVICE MANAGEMENT

Objectives

L T PC

4 0 0 4

1. Gain knowledge about various types of foodservice.
2. Understand the principles and functions of management.
3. Realise the importance of sanitation.

Unit I

Origin of Restaurant

Origin of restaurant and commercial food services, Types of institutional food service operation. **(14L)**

Unit II

Management Process

Management and organization - Definition, principles and tools of management. **(14L)**

Unit III

Personnel Management

Recruitment, selection, orientation, training, motivation and supervision. (15L)

Unit IV

Financial Management

Book keeping, account maintenance, balance sheet (14L)

Unit V

Hygiene and Sanitation

- a. Definition and importance of hygiene and sanitation in food handling
- b. Personal hygiene
- c. Pest and rodent control in food service institutions
- d. Causes and prevention of accidents and safety education. (18L)

References:

1. Mohini Sethi and – Surjeet Malhan. Catering Management an integrated approach Wiley Eastern Ltd., New Delhi. 2007.
2. Malhotra. R.K. Food Service Management, Anmol Publisher, New Delhi. 2005.
3. Kinton and Ceserani. V. The Theory of Catering, 11th Edition Dynamic Learning Network Edition, Hodder Education, 2007.
4. Peet L, and Thye L. S. „Household Equipment,“ John Wiley and Sons., New York, 1961.
5. Glow G. Edition, „Catering Equipment and systems Design“ Applied Science Publishers Ltd. London 1977.
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8. Unklebay N.S. Unklebay K. “Energy Management in food Service. Ellis

HorwoodLtd., England,1982.

9. Palan E.R. Sc. Steadler, J.A. „Preparing for the food service Industry- „An introductory approach” AVI Publishing Co., West Port,1986.

10. West, B.B., Wood, L., Harger, V.F. and Schugart - Food Service in Institutions, John Wiley & Sons., N.Y.,1972.

MSU/2020-21 /UG colleges/Part I (B.Sc. Food Science & Nutrition) Semester V/ Major Elective II – (A)

FOOD MICROBIOLOGY

Objectives

L T PC

4 0 0 4

1. To instruct students who are having their first experience with microbiology on the nature of microorganisms
2. To outline the source of contamination and their aspects of foods
3. To understand the principles of food preservation
4. To gain knowledge of the methods to prevent contamination.

Unit I

General characteristics:

General characteristics of main group of microorganisms – Bacteria, fungi, yeast. **(10L)**

Unit II

Microorganisms of soil, water, sewage & atmosphere:

- a) Soil – Nitrogen cycle, Carbon cycle, Sulphur cycle & Phosphorus cycle
- b) Water – methods of water purification, types of microorganisms
- c) Sewage – Sewage treatment methods, types of microorganisms
- d) Air – microbial pollution, control measures

(13L)

Unit III

Contamination of Cereals and cereals products:

- a) Contamination and prevention of spoilage of cereals and cereals products
- b) Contamination and prevention of spoilage of vegetables and fruits (13L)

Unit IV

Contamination of milk, fish, meats:

- a) Contamination and prevention of spoilage of milk and milk product
- b) Contamination and prevention of spoilage of meats, fish and other seafoods (12L)

Unit V

Contamination of egg and poultry:

- a) Contamination and prevention of spoilage of eggs
- b) Contamination and prevention of spoilage of poultry (12L)

References:

1. Anna .K.Joshua, Microbiology, Popular Book Depot, Madras.2000.
2. Martein Probisher, Fundamentals of microbiology. Fifth edition. Saunders Publishers.2007.
3. Goss, R.C., Experimental Microbiology. Guide laboratory, Kalyani publishers.1995.
4. Frazier, W.C. Food Microbiology, Tata McGraw Hill Book Company, Bombay, 1988.
5. Adams, M.R and Moss M.O. Food Microbiology Royal Society of Chemistry, Cambridge,1995.
6. Banwart, G.T, Baric Food Microbiology CSS Publishers, New Delhi.1987.
7. Atlas, M.Ronald Principles of Microbiology, 1st Edition, Mosby-Year Book, Inco Missouri, U.S.A.1995.
8. Frazier, W.C. Food Microbiology, McGraw Hill Inc, 4th Edition.1998.

**MSU/2020-21 /UG colleges/Part I (B.Sc. Food Science &
Nutrition) Semester V/ Major Elective II – (B)
PRINCIPLES OF INTERIOR DECORATION**

Objectives

L T PC

4 0 0 4

1. To learn the basic principles of art.
2. To develop the skill of applying the principles of art in decorating the house.

Unit - I

Family Housing

- a. Need and importance of Housing.
- b. Factors influencing selection of site.
- c. Factors to be considered for good housing, Ventilation. **(12L)**

Unit-II

Elements of Design :

Design – Definition – Kinds of design. Elements of design line – Direction –
Shape, Size, Texture and color. **(13L)**

Unit- III

Principles of Design :

Harmony, Balance, Rhythm, Proportion, Emphasis. **(13L)**

Unit-IV

Use of Color in Interior :

- a. Classifications of colors – primary, binary, intermediate, tertiary and quaternary.

Qualities of color, Hue value, intensity, Prang color system, color and emotion, use of color in interior decoration. **(12L)**

Unit - V

Furniture selection

Care and selection of furniture in dining room, office, bed room, living room. **(10L)**

References

1. Nickel, P. and Dorsey, J.M. – Management in Family living, Tohn Wiley and Sons, Inc, New York 1986.
2. Varghese and Oglae, Home Management, Wiley Eastern Ltd., New Delhi 1994.
3. Butt, H.H., Home Furnishings, John Wiley and Sons, New York, 1971.
4. Deshpande, R.S., Modern Ideal Homes for India – United Book Corporations, Pune, 1971.
5. Stella Soundararaj. A Textbook of House hold Arts, Orient Longmans, Bombay, 1968.
6. Margaret Kaye. A. A Students hand book of House wifery, J.M. Dent Sons Ltd., London. 1986.
7. Paulena Nickell, Jean Muir Dorsey – Management in Family Living, Wiley Eastern Private Ltd., 1976.
8. Varghese A. Home Management, New Age International, 1985.

MSU/2020-21 /UG colleges/Part III (B.Sc. Food Science & Nutrition)
Semester V/ Major Practical-V

NUTRITION THROUGH LIFE CYCLE

Objectives

L T PC

0 0 8 4

1. To gain deep insight in the basis of meal planning.
2. To obtain practical knowledge on various nutritional deficiency disorders.
3. To understand the nutritional needs of members at different age levels.
 - i. Basic principles of menu planning
 - ii. Nutrition during pregnancy- preparation of high energy, iron – rich recipes for use by pregnant women. Preparation of high energy, protein rich and iron rich recipes to be used in supplementary feeding for pregnant and lactating women. Assessment of existing diets- pregnancy, lactation, improvement of the existing diets.
 - iii. Nutrition during lactation
 - iv. Nutrition during infancy suffering from low weight
 - v. Nutrition during infancy suffering from lactose intolerance
 - vi. Nutrition during preschool age suffering from PEM
 - vii. Nutrition during preschool age suffering from lactose intolerance
 - viii. Nutrition during preschool age suffering from anemia
 - ix. Nutrition during school age suffering from anemia

Nutrition during school children suffering from VitaminA

deficiency

xi. Nutrition during adolescence

xii. Nutrition for adult sedentary male and female workers

xiii. Nutrition for adult moderate male and female workers

xiv. Nutrition for adult heavy male and female workers

xv. Nutrition during old age - male and female

References

1. Sri Lakshmi, B. Dietetics, Wiley Eastern publishers.2004.
2. Corrine Robinson and Lawler. Normal and Therapeutic Nutrition, Oxford and IBH publishers.1990.
3. Swaminathan. M. Principles of Nutrition and Dietetics, BAPPCO publishers, Bangalore. 2003.
4. Gopalan, Balasubramaniam&Ramasastri Nutritive Value of Indian foods, NIN publication, Hyderabad. 1996.
5. BhavanaSabarwal. Principles and practices of Dietetics, Ajay Verma common wealth publishers, New Delhi.1999.
6. Davidson Passmore. Human Nutrition and Dietetics, London Churchill and Livingston publishers. 1989.

**MSU/2020-21 /UG colleges/Part III (B.Sc. Food Science &
Nutrition) Semester V/ 42/Major Practical VI**

FOOD CHEMISTRY

Objectives

L T PC

0 0 8 4

1. Understand the meaning and chemical preparation of carbohydrates in foods
2. Explain the role of lipids and protein in foods
3. Acquire knowledge on the chemical changes occurring in foods
 - a. Determination of gluten content
 - b. Preparation of colloid, gel, foam, emulsion
 - c. Determination of acidity in flour
 - d. Determination of acid value and free fatty acids
 - e. Determination of peroxide value in fat and oil
 - f. Purity in fat and oil
 - g. Evaluation of milk samples

References

1. Miller D.D., Food Chemistry: A Laboratory Manual. Wiley Eastern Ltd., New York, 1998.
2. Damordaran, S. Parkin, K O. Fennema's Food Chemistry, Fennema Eds. CRC Press. 4th Edition, 2007.
3. Belitz.W. grosch. Food Chemistry. Springer VerleyBelin Heidelberg, New York. 1986.
4. David. S. Robinson, Food biochemistry and Nutritive Value. Longman Group, U.K. 1987.
5. Leslie Hart.F and Harry Johnstone Fisher, Modern Food Analysis. Spinger – Verlag, New York.1971.
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7. Potter H.N: Food Science, the AV Publishing Co., Inc., Wet poet, Connectcut1968.
8. John DeMan, Principles of Food Chemistry, 3rd Edition. Aspen Publishers, New York.1999.

MSU/2020-21 /UG colleges/Part II (B.Sc. Food Science & Nutrition) Semester VI/

Core

DIETETICS

Objectives

L T PC

5 0 0 4

1. To gain insight into the national nutritional problems and their implications
2. To obtain knowledge about the methods of assessment of nutritional status
3. Develop skills in organizing and evaluating nutrition projects in the community.

Unit I

Diseases of GIT

- a. Etiological factors, Symptoms, diagnostic tests and management of upper GI tract disease- Diseases of Oesophagus and dietary management Diseases of stomach and dietary management. Gastric and duodenal ulcer and dietary management.
- b. Etiology, symptoms, diagnostic test and management of Intestinal Diseases – Diarrhoea, steatorrhoea, Constipation
- c. Diet in diseases of liver and biliary tract– hepatitis, cirrhosis, gall bladder diseases.

(15L)

Unit II

Febrile and Diabetes Mellitus

- a. Diet in Febrile conditions, causes, types, metabolic changes, diet modification in Influenza, Malaria, typhoid, tuberculosis, Covid-19

- b. Diet in disease of the endocrine pancreas- diabetes mellitus. Classification, symptoms, diagnosis, management of diabetes mellitus- clinical vs. chemical control. Insulin therapy, oral hypoglycemic agents, glucose monitoring at home. Dietary care and nutritional therapy, meal plan (with and without insulin) Special dietetics foods, sweetens and sugar substitutes. Diabetes in pregnancy, elderly, surgery, illness, diabetic coma, insulin reaction. Juvenile diabetes. Patient education. (16L)

Unit III

Diseases of the Cardiac Vascular system and allergies

- a. Atherosclerosis – etiology and risk factors
- b. Hyperlipidemias- brief review of lipoprotein and their metabolism, classification of Hyperlipidemias. Clinical and nutritional aspects of Hyperlipidemias. Dietary care . Ischemic heart disease – nutritional management Congestive heart disease and nutritional management.
- c. Hypertension- etiology, prevalence, nutritional management and prevention. Cerebrovascular disease and diet.
- d. Allergies- Definition, symptoms, diagnosis and dietary management. Food selection. Food allergy in infancy (15L)

Unit IV

Renal diseases- Review of physiology and function of normal kidney and Burns

- a. Diseases of kidney- Classification, etiology, characteristics symptoms and dietary management in Glomerulonephritis- Acute and Chronic, Nephrotic syndrome, Renal Failure and Uremia, acute and chronic renal failure. Dietary management in renal dialysis and renal transplant. Chronic renal failure in patients with diabetes mellitus and children, Nephrolithiasis. Use of sodium and potassium exchange lists.
- b. Surgery, trauma and burns- Physiological changes in relation to trauma. Assessment of the nutritional status in surgical and burns patients.
- Pre – operative and Post – operative nutritional care. Nutritional care in trauma. Nutritional management of burns patients.

UnitV

Cancer – Nutritional and non – nutritional etiological factors , Energy modifications and nutritional care for weight management.

- a. Management of cancer patient in relation to the clinical treatment and cachexia
- b. Identifying the over weight and obese, etiological factors contributing to obesity , prevention and treatment, low energy diets balanced energy reduction and behavioral modification. Under weight – aetiology and assessment , high energy diets for weight gain, anorexia nervosa and bulimia.

References

1. Sri Lakshmi, Dietetics, Wiley Eastern publishers.2004.
2. Corrine Robinson, and Lawler. Normal and Therapeutic Nutrition, Oxford and IBH publishers.1990.
3. Swaminathan. M. Principles of Nutrition and Dietetics, BAPPCO publishers, Bangalore.2003.
4. Gopalan, Balasubramaniam and Ramasastrri., Nutritive value of Indian foods, NIN publication, Hyderabad.1996.
5. BhavanaSabarwal. Principles and practices of Dietetics, Ajay verma common wealth publishers, New Delhi.1999.
6. Davidson Passmore. Human Nutrition and Dietetics, London Churchill and Livingston publishers. 1989.

CLINICAL BIOCHEMISTRY

Objectives:

L T PC

5 0 0 4

1. To study different tests for diseases
2. To know the biochemical composition of bloods and different parts of the body.

Unit I

Blood Sugar

Level of blood glucose in normal and abnormal conditions, Ketosis, Diabetic coma.

(15L)

Unit II

Inborn Errors of carbohydrate metabolism

Pentosuria, Galactosemia, Glucosuria, Glycogen storage diseases, Glucose tolerance test.

(15L)

Unit III Blood Lipids

Types and level of lipids in blood disorder of lipoproteins – Hypo and Hypercholesterolemia, Atherosclerosis, Inborn errors of fat metabolism

(15L)

Unit IV Plasma

Protein

Plasma – Types, Functions

- a. Inborn errors of amino acid metabolism – Phenylketonuria, Albinism, Alkaptonuria and Maple Syrup Urine Disease.

(13L

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Unit V

Gastric disorders

- a. Bile Salt – Functions, formation of bile acids and bile salts, bile pigments from hemoglobin.
- b. Tests for kidney function-clearance tests, dye and concentration tests

(17L)

References

1. Cantrow A and Trumper, Clinical Bio-Chemistry, M.W.B. Saundersco-1975.
2. Swaminathan, M. Bio-Chemistry for Medical teachers. BAPPCO publishers, Bangalore.2001.
3. Reghuramulu, N. Nair, K.M., Kalyanasundaram, S.A., Manual of laboratory Techniques, National Institute of Nutrition, ICMR, Silver Prints, Hyderabad. 2nd ed.2003.
4. Hoffman, W.W., The Biochemistry of Clinical Medicine, 4th Edition, Year Book Medical Publishers,1970.
5. Varley H. Gowenlock. A. H. and Bell M. Practical clinical biochemistry. William Heinemann medical books limited. Vol. 1. 5th Ed., 1980.
6. Sadasivam, S. and Manickam, A., Biochemical Methods, New Age International Pvt. Ltd., Publishers, II edition, New Delhi.1996.
7. Jayaraman, J. Laboratory Manual in Biochemistry, New Age International Ltd., Publishers, V Print. New Delhi.1996.
8. BhavanaSabarwal, Principles and Practices of Dietetics, Ajay Verma Common Wealth Publishers, New Delhi.1999.

FUNDAMENTALS OF BAKING

Objectives: L T P C 5 0 0 4

This course will enable the students to

1. Understand basic concepts of baking
2. Acquaint with the role of various major and minor ingredients in bakery products
3. Familiarize with baking process and operations.
4. Learn the quality parameters of bakery products

Unit – I Introduction to baking and confectionary- Aims and objectives, historical perspective.

- a) Introduction of baking
- b) Principles of baking.
- c) Equipment needed – ovens, dough mixer, egg beater. (16L)

Unit -II Wheat flour and its role in bakery and confectionery products -

- a) Wheat – type, grading, varieties, structure, composition, principles of flour milling, Air classification
- b) Flour- types of flour (Bakers, biscuits, cake, pastries, self mixing flour, whole wheat flour) – Composition, role of constituents, quality assessment.
- c) Egg – Composition, function in bakery and confectionary. (15L)

Unit -III Other ingredients and their function in baking

- a) Yeast – Types, function, uses, effects of over and under fermentation
- b) Sugar- types, different forms use.
- c) Fats- composition, classification, function effect of cooking.
- d) Milk Products, emulsifiers, dried fruits, enzymes, Cream, other leavening agents (17L)

Unit – IV

Preparation of bakery products-I

- b) Preparation of cakes – rich cakes, plum cakes, pineapple upside cake.
- c) Preparation of pastries and Yeast roll
- d) Preparation of cookies, bread rolls

Unit – V Baking Process and Equipment

- a) Basic concepts, batch/ continuous, dough mixing, dividing, moulding, panning, proofing and baking
- b) Bakery machinery and equipment- Bulk handling, mixers, forming, moulding, wire cut and deposit

equipment, laminating, cutting, embossing, ovens, packaging, auxiliary equipments. (13L)

References

1. Kent.N.L.: Technology of cereals – with special reference to wheat, pergamon Press, New York, USA. 1975.
2. France.W.J: The student Technology of Bread making and flour confectionery, Routledge and Kegan Paul Ltd., London, UK. 1974.
3. Sultan.W.J.: Practical baking manual – for students and instructors, AVI Publishing Co.INC, West Port, Connecticut. 1976.
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MSU/2020-21 /UG colleges/Part III (B.Sc. Food Science & Nutrition)
Semester VI / Major Elective – III (A)

FUNDAMENTALS OF TEXTILES AND CLOTHING

Objectives:

L T P C

4 0 0 4

1. To understand, develop, and apply the major concepts related to clothing construction.
2. To provide a broad foundation of clothing design fundamentals and apply them to projects to meet individual needs.
3. To increase awareness of the economic and environmental influences on clothing decisions.
4. To provide opportunities to use the decision making process in clothing selections.

Unit I

a. Fibers:

Definition, classification, general characteristics of cellulose, protein, thermoplastic and mineral fibers.

b. Major textile fibers:

Manufacturing process, properties, use and care of textile fibers (eg) cotton, silk, rayon.

c. Minor textile fibers Study of minor fibers- jute, hemp, Coir.

(11L)

Unit II

a. Yarn construction:

Definition, twist, types and counts.

b. Fabric construction

Weaving-definition, Types of weave-basic weaves – plain, twill, satin and decorative weaves (Jacquardweave).(12L)

Unit III

Fabricfinis

hes

Definition: Boiling, scouring, sizing, carbonizing, bleaching, shearing, singering, calendaring, tendering,weighting,mercerizing. (12L)

Unit IV

Dyeing, Printing and Embroidery

- a. Dyeing – initial dyeing – stock, yarn, piece, cross dyeing tie and dye, batikmethods.
 - b. Printing – types block, stencil andscreen.
 - c. Parts and function of sewing machines, use andcare.
 - Tools for clothingconstruction.
 - Basic handstitches.
 - d. Temporary – basting-even, uneven,diagonal.
 - e. Permanent – hemming, back stitch, whipping, overcasting, runstitch.
 - f. Embroidery – stem, chain, cross, bullion, lazy – Daisy, fly, wheel, couching,blanket.
- (13L)

Unit V

Seams, Neck Line, Plackets, Gathers, Fasteners, Bias.

- a. Seams – definition,types.
- b. Bias – uses,types.
- c. Neck line – facing, binding, collar, Peter Pancollar.
- d. Fasteners – Types, uses &disadvantages.
- e. Plackets – uses,types.
- f. GarmentConstructions
- g. Drafting – panty, A – line frock, six goreskirt,blouse.

(12L)

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2. Gohl E.P.G. & L.D. Vilensky, Textile Science, 2nd edition, CBS Publishers and Distributors, New Delhi – 110002 (India),1985.
3. Klein, W.D. Technology of spinning, Textile Institute, Manchester.1998
4. Eric Oxtoby, Spun yarn Technology, Butter worth pub, U.K. 1987.
5. Shenai, V.A. Textile printing- Sevak publications, Mumbai.1991.
6. Mary Mathews, Practical clothing construction – part I and II, cosmic Press, Chennai 1986.
7. Wingate I.B. Textile Fabrics and their selection, Allied publishers Pvt. Ltd., Chennai. 1990.
8. Dantyagi. S. Fundamental of Textiles and their care, Orient Longman Ltd., New Delhi,1980.

**MSU/2020-21 /UG colleges/Part III B.Sc. Food Science &
Nutrition) Semester VI / Major Practical VII
DIETETICS**

Objectives

L T PC

0 0 4 2

1. To gain insight into the national nutritional problems and their implications
2. To obtain knowledge about the methods of assessment of nutritional status
3. To develop skills in organizing and evaluating nutrition projects in the community.

1. High – Risk Management (Hospital Based) – Nutrition Assessment.

Review of existing practices in hospital. Oral supplements indigenous / home based and commercial for stressed patients – burns, surgery, cancer, debilitated patients. Management of patients with feeding problems. Tube feeds – all forms, elemental and parenteral.

2. Diabetes mellitus- planning and preparation of diet. Without insulin, with insulin, adult and juvenile, diabetes in pregnancy, diabetes and illness.
3. Managing, patient with hypoglycemic conditions.
4. Disease of Cardiovascular System- Formulation of low cholesterol and low sodium recipes, planning and preparation of diets for hypertension, CHD, congestive heart failure during acute, chronic and convalescent condition. Progressive dietary management for cardiac transplantation and cardiac surgery.
5. Protein and mineral modification for patients with renal disease- Planning and preparation of diet for glomerulonephritis- acute and chronic, nephritic syndrome, nephrolithiasis, renal failure- acute and chronic, dialysis.
6. Elimination diet for allergy
7. Planning and preparation of diet for following condition: overweight and obesity, underweight, fevers, Covid 19, Peptic Ulcer, Diarrhoea, Constipation, Hepatitis, liver cirrhosis and tuberculosis.

References

1. Sri Lakshmi, B. Dietetics, Wiley Eastern publishers.2004
2. Corrine Robinson and Lawler. Normal and Therapeutic Nutrition, Oxford and IBH publishers.1990
3. Swaminathan. M. Principles of Nutrition and Dietetics, BAPPCO publishers, Bangalore.2003
4. Gopalan&Ramasastri Nutritive value of Indian foods, NIN publication, Hyderabad. 1996
5. BhavanaSabarwal. Principles and practices of Dietetics, Ajay Verma Common Wealth Publishers, New Delhi.1999
6. Davidson Passmore. Human Nutrition and Dietetics, London Churchill and Livingston publishers.1989.
7. Williams S. R.: Essentials of Nutrition and Diet Therapy, 4th ed., Mosby College Pub. S. Louis,1986.

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Group Project

**L T PC
0 0 7 7**

Students are encouraged to work on Mini group projects to get acquaintance to real life problem solving and hands -on experience. The outcomes of the projects would be submitted as report and viva voce shall be conducted for individual student and not in a group.