

MANONMANIAM SUNDARANAR UNIVERSITY

TIRUNELVELI – 627012

B.Sc. Nutrition and Dietetics Degree

(CHOICE BASED CREDIT SYSTEM)

Learning Outcome Based Curriculum

Major & Allied Nutrition and Dietetics

(Effective from the academic year 2021-2022 onwards)

MANONMANIAM SUNDARANAR UNIVERSITY, TIRUNELVELI

UG COURSES – AFFILIATED COLLEGES

B.Sc. NUTRITION AND DIETETICS

(Choice Based Credit System)

(Effective from the academic year 2021-2022 onwards)

1. Vision of the University

"To provide quality education to reach the un-reached"

2. Mission of the University

- To conduct research, teaching and outreach programmes to improve conditions of human living
- To create an academic environment that honours women and men of all races, caste, creed, cultures and an atmosphere that values intellectual curiosity, pursuit of knowledge, academic freedom and integrity
- To offer a wide variety of off-campus educational and training programs, including the use of information technology, to individuals and groups.
- To develop partnership with industries and government so as to improve the quality of the workplace and to serve as catalyst for economic and cultural development
- To provide quality / inclusive education, especially for the rural and un-reached segments of economically downtrodden students including women, socially oppressed and differently abled

3. Vision of the Department

To empower students to become lifelong learners by providing a comprehensive education in Nutrition and Dietetics. Inspiring students in professional excellence, Research and extension. Creating a leader to serve in the global community.

4. Mission of the Department

- To create progressive, educational experiences that enable learners to be knowledgeable, skillful and competent in Nutrition and Dietetics professionals.
- To pursue, excel and maintain a leadership role in the quest of knowledge by way of quality research, capacity building, consultancy and innovative.
- To educate and inspire students to become passionate healers who demonstrate integrity, caring and excellence.

5. Preamble

Nutrition and Dietetics is a multi-disciplinary field involving chemistry, biochemistry, nutrition, microbiology and engineering to give one the scientific knowledge to solve real problems associated with the many facts of the food system. The B.Sc. Degree programme aims at providing in-depth knowledge and understanding of the Food and Health and their practical aspects in order to pursue higher studies and employment. The Learning Outcome Based Curriculum Framework (LOCF) for B.Sc. Nutrition and Dietetics programme has been framed as per the guidelines prescribed by University Grants Commission (UGC) under Choice Based Credit System (CBCS).

Programme Structure

6. Programme Educational Objective(PEOs)

The B.Sc Nutrition and Dietetics proposed to

PEO1: The curriculum offers robust academic and experiential opportunities across the health spectrum to address the health of individuals and populations from prevention to palliation.

PEO2: To divulge theoretical understanding and practical skills that reinforces the various arenas of Nutrition and Dietetics.

PEO3: The course is aimed to enable students to gain knowledge about interaction between food, body and health under normal and special circumstances.

PEO4: 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 counseling. Currently food industry is shifting its focus from taste to nutrition.

PEO5: To apply the skills and knowledge gained through the subject to real life situations and face competitive examinations with self-confidence at National level.

7. Programme Outcomes (POS)

The students graduating with the Degree B.Sc will be able to:

PO 1: Disciplinary Knowledge

- Discover scientific knowledge and understanding of basic concepts and principles.

PO 2: Creative Thinking and Practical Skills / Problem Solving Skills

Develop problem-solving competencies in life skills

- Apply problem-solving competencies in life skills to draw logical inferences from scientific experiments/ programming and skills of creative thinking to develop novel ideas.

- Discover professional and entrepreneurial skills for Economic empowerment of self and community

PO 3: Sense of inquiry and Skill development

- Connect professional skills in foods and nutrition, textiles Science, housing, product making, communication technologies and human development and to plan, execute and express the results of experiments / investigations
- Correlate the scientific innovations from lab to the society

PO 4: Ethical Awareness / Team Work

- Appraise them for conducting work as an individual / as a member, or as a leader to ensure academic integrity.
- Prioritize the team work for the well-being of future generation.

PO 5: Usage of Science and Technology in Empowering Individuals

- Invent the application of science and technologies in improving the quality life of the individuals

8. Programme Specific Outcomes (PSO)

PSO	Upon completion of B.Sc. Food Science & Nutrition Degree Programme, the students will be able to:	PLOs Mapped
PSO - 1	Understand the fundamental concepts and principles relating Nutrition and Dietetics.	PLO-1
PSO - 2	Acquire practical skills in food industries, hospitals and textile industries	PLO-2
PSO - 3	Examine and develop skills in food and nutrition, dietetics, textiles Science, housing, extension education and product making.	PLO-3
PSO - 4	Mark entrepreneurial skills in small and medium Enterprises	PLO-4
PSO - 5	Build knowledge in emerging areas and to enhance necessary aptitude and confidence to become professionals in various fields	PLO-5

9. Eligibility for admission to the course and examination

- The minimum eligibility conditions for admission to the **B.Sc Nutrition and Dietetics** program are given below.
- The candidates for admission of the **B.Sc Nutrition and Dietetics** 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 Manonmaniam Sundaranar University as equivalent there to in Science subject. The candidate should have completed Higher Secondary with any of the three combinations of subjects Physics/ Chemistry/ Biology/ Home Science/ Mathematics/ Computer Science.

10. 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). Each semester contains 90 working days.

11. Medium of instruction and examination

The medium of instruction as well as examination will be in English.

12. Theory examination

The external evaluation will be based on the examination to be conducted by the university at the end of each semester.

13. Practical examination

Practical examinations will be conducted at the end of each semester.

14. Evaluation

- A. Each paper carries an internal component
- B. There is a pass minimum of 40% for external and overall components

Theory External: Internal Assessment = 75:25

Practical External: Internal Assessment = 50:50

C. Internal Assessment

Internal marks for Theory shall be allocated in the following manner.

The average of the best two tests from three compulsory tests	20 Marks
Assignment	05 Marks
Total	25 Marks

Note: Each test will be of one hour duration.

D. Practical

Internal marks for Practical shall be allotted in the following manner.

Experimental work	20 Marks
Record	10 Marks
Model Test	20 Marks
Total	50 Marks

E. Project Work

Components	Marks
Project Report	75 Marks
Viva -Voce	25 Marks
Total	100 Marks

Note:

- i) Students should carry out group project in major subject.
- ii) Project report will be evaluated by Central valuation and Viva-Voce will be conducted by both the External examiner and the Guide at the end of the 6th semester.

15. Grading System

The performance of the student is indicated by the Seven Points 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	7 and above	70-74	Very Good
B	6 and above	60-69	Good
C	5 and above	50-59	Average
RA	0	Up to 49	Re-Appear

F. The overall performance level of the candidates will be assessed by the following formulae:

$$\text{Cumulative weighted average of marks} = \frac{\Sigma(\text{marks} + \text{credits})}{\Sigma \text{credits}}$$

$$\text{Cumulative weighted average grade points} = \frac{\Sigma(\text{Grade points} \times \text{credits})}{\Sigma \text{credits}}$$

16. The question paper pattern for all theory papers shall be as follows.

Duration of Exam: 3 Hours

Section	Type of questions	Mark
Part-A	Multiple choice question (Two question from each unit compulsory)	1×10=10 Marks
Part-B	Internal Choice questions (One question from each unit: either/or)	5×5=25 marks
Part-C	Internal Choice questions (One question from each unit: either/or)	8×5=40 marks
	Total	75 Marks

17. The question paper pattern for all practical papers shall be as follows.

Duration of Practical Exam: 3 hours

1	Experimental Work	25 Marks
2	Regularity	15 Marks
3	Record	10 Marks
	Total	50 Marks

Model Question Paper

NUTRITION THROUGH LIFE CYCLE

Time: Three hours

Maximum: 75 marks

10 × 1 = 10 marks

Answer ALL questions.

Choose the correct answer:

PART A

1. Birth to one year of life is known as
a. Preschool age (b) childhood (c) infancy (d) adolescence
2. Weaning foods can be given after _____ months
a. 2 (b) 5 (c) 6 (d) 1
3. A supplement containing _____ is essential during pregnancy
a. Iron (b) iron and folic acid (c) potassium(d) phosphorus
4. Which of the following is a clear fluid food?
a. porridge (b) egg nog (c) custard (d) barley water
5. The calcium requirement for a pregnant woman is
a. 900 mg (b) 600 mg (c) 1000 mg (d) 1200 mg
6. Passing a tube into the stomach or duodenum through the nose is _____
(a) Parenteral Feeding (b) TPN (c) Tube Feeding (d) Nasogastric Feeding.
7. TPN Solution contains _____ % dextrose
(a)10 (b) 25 (c) 50 (d) 100
8. Fish liver oil is a good source of vitamins
(a) A and K (b) A and E (c) A and D (d) A and C
9. Bitot spot is the deficiency symptom of _____.
(a) Calcium (b) Vitamin A (c) Iron (d) Vitamin K
10. Osteoporosis is primarily found in
(a) adolescent boys (b) preschool children (c) elderly post menopausal women (d) nursing mother.

5 × 5 = 25 Marks

Answer ALL questions, choosing either (a) or (b),

PART B

11. a) Enumerate the basic principles of meal planning.

OR

b) Describe the physical changes during pregnancy

12. a) Highlight the benefits of breast feeding.

OR

b) What are the factors to be considered while planning meals for different income groups? Give examples.

13. a) Highlight the importance of proper nutrition during pregnancy

OR

b) State the factors affecting nutritional status of a preschool child

14. a) Bring out the food habits of adolescents.

OR

b) Plan a suitable list of foods to prevent vitamin A deficiency

15. a) What is meant by parenteral feeding? When is it recommended?

OR

b) Compare clear and full fluid diets

PART - C

5 × 8 = 40 marks

Answer ALL questions, choosing either (a) or (b),

16. a) 'Breast milk is the best milk'. Justify the statement?

OR

b) Discuss on the nutritional requirements of a school going boy of eight years.

17. a) Discuss on the various nutritional problems of preschool children.

OR

b) Define obesity. Plan a day's menu for an obese adolescent girl.

18. a) Give the nutritional importance of school going children

OR

b) Give reasons for the changes in water soluble vitamins for an expectant mother

19. a) Give an account on pre and post operative diet.

OR

b) Explain the complications and nutritional requirements of old age

20. a) Brief notes on PEM.

OR

b) Briefly explain on nutritional problem during Adolescent period.

Part I/II/III I/IV/V	Sub. No	Subject Status	Subject Title	Contact hrs/ week	L hrs/ week	T hrs/ week	P hrs/ week	C Credits
Semester – I								
I	1	Language	Tamil/Other Languages	6	6	0	0	4
II	2	Language	Communicative English-I	6	6	0	0	4
III	3	Core -1	Food Science	4	4	0	0	4
III	4	Major Practical-1	Food Science	2	0	0	2	2
III	5	Add on Major (Mandatory)	Professional English for Life Sciences – I	4	4	0	0	4
III	6	Allied I - 1	Human Development	4	3	0	0	3
III	7	Allied I - Practical 1	Human Development	2	0	0	2	2
IV	8	Common	Environmental Studies	2	2	0	0	2
			Subtotal	30	25	0	4	25
Semester – II								
I	9	Language	Tamil/Other Languages	6	6	0	0	4
II	10	Language	Communicative English-II	6	6	0	0	4
III	11	Core-2	Principles of Nutrition	4	4	0	0	4
III	12	Major Practical-2	Principles of Nutrition	2	0	0	2	2
III	13	Add on Major (Mandatory)	Professional English for Life Sciences – II	4	4	0	0	4
III	14	Allied I - 2	Human Physiology	4	3	0	0	3
III	15	Allied I - Practical 2	Human Physiology	2	0	0	2	2
IV	16	Common	Value Based Education/ சமூக ஒழுக்கங்களும் பண்பாட்டு விழுமியங்களும் / Social Harmony	2	2	0	0	2
			Subtotal	30	25	0	4	25
Semester – III								
I	17	Language	Tamil/Other Languages	6	6	0	0	4
II	18	Language	English	6	6	0	0	4
III	19	Core-3	Nutrition through life cycle	4	4	0	0	4
III	20	Major Practical – 3	Nutrition through life cycle	2	0	0	2	2
III	21	Allied II - 1	Food Microbiology	4	2	0	0	3
III	22	Allied II - Practical 1	Food Microbiology	2	0	0	2	2
III	23	Skill Based Subject	Food Service Management I	4	4	0	0	4
	24	Non-Major Elective	Principles of Interior Decoration / Food Microbiology	2	2	0	0	2
IV	25		Common	Yoga*	2	2	0	0
			Subtotal	30+2	24+2	0	4	27

Semester – IV

I	26	Language	Tamil/Other Languages	6	6	0	0	4
II	27	Language	English	6	6	0	0	4
III	28	Core-4	Food Chemistry	4	4	0	0	4
III	29	Major Practical – 4	Food Chemistry	2	0	0	2	2
III	30	Allied II - 2	Food Processing and Preservation	4	2	0	0	3
III	31	Allied II - Practical 2	Food Processing and Preservation	2	0	0	2	2
III	32	Skill Based Subject	Food Service Management II	4	4	0	0	4
IV	33	Non-Major Elective	Principles of Interior Decoration / Food Microbiology	2	2	0	0	2
IV	34	Common	Computers for Digital Era	2	2	0	0	2
V	35	Extension Activity	NCC/NSS/YRC/YWF	-	-	-	-	1
			Subtotal	30+2	24+2	0	4	27+1

Semester – V

III	36	Core-5	Dietetics	6	6	-	-	4
III	37	Core-6	Bakery and Confectionery	6	6	-	-	4
III	38	Elective 1	Family Resource Management	4	4	-	-	4
III	39	Elective 2	Functional Foods and Nutraceuticals / Food Quality Control	4	4	-	-	4
III	40	Major Practical-5	Dietetics	4	-	-	-	2
III	41	Major Practical-6	Bakery and Confectionery	4	-	-	-	2
IV	42	Skill Based Subject (Common)	Personality Development/Effective Communication/Youth Leadership	2	2	-	-	2
			Subtotal	30	22	0	0	22

Semester – VI

III	43	Core-7	Health, Fitness and Sports Nutrition	5	5	-	-	4
III	44	Core-8	Food Product Development and Entrepreneurship	5	5	-	-	4
III	45	Core -9	Clinical Biochemistry	5	5	-	-	4
III	46	Elective 3	Food Packaging / Fundamentals of Textiles and Clothing	4	4	-	-	4
III	47	Major Practical-8	Clinical Biochemistry	4	-	-	4	2
III	48	Group Project		7	-	-	7	7
			Subtotal	30	19	0	11	25
			Total	180+4	137+4	0	35	144

NUTRITION THROUGH LIFE CYCLE

Objectives:

L T PC

1. To help students to understand the basis of meal planning **4 0 04**
2. To obtain knowledge on various nutritional deficiency disorders
3. To understand the nutritional needs of members at different agelevels

UNIT-I

MEAL PLANNING

(13hrs)

Basic Principles of Meal Planning –Basic Principles and factors to be consider while planning menu for different age groups Recommended allowance-RDA for Indians, basis for requirement, energy allowance for different growth pattern of children, energy allowance for various activities.

Unit:2

PREGNANCY AND LACTATION

(12hrs)

Nutritional needs during Pregnancy – Stages of pregnancy Normal growth and weight change, complications, Nutritional requirements, and meal planning Nutrition during Lactation - physiology of lactation, hormonal control and relaxation, nutritional components of colostrum and mature milk. Nutritional requirements of lactating women. Meal planning.

Unit:3

INFANCY, PRESCHOOL AND SCHOOLGOINGCHILDREN (13hrs)

Nutrition during Infancy - Growth and development- advantages of breast feeding, factors to be considered in bottle feeding. Weaning foods. Growth chart, Problems of feeding in normal and premature infants. Nutritional needs of toddlers (1-5 year) and School going children - Nutritional requirements of toddlers. Factors to be considered while planning meals for school going children.Eating problems of children and their management, packed lunch.

Unit:4**NUTRITION DURING ADOLESCENT****(11hrs)**

Nutrition during Adolescence - Physical Growth- changes, Nutritional requirements and problems in adolescence- anemia, obesity, anorexia nervosa and bulimia nervosa.

Unit:5**NUTRITIONAL NEEDS OF ADULT AND OLD AGE****(11hrs)**

Nutritional needs of adults (men and women) – In relation to occupation, Nutrition in Menopausal women, hormonal changes, Low cost balanced food. Nutrition during Old Age - Physiological changes in ageing- psycho-social and economic factors affecting eating behaviour. Nutritional problems of aged and their management.

Reference:

1. Sri Lakshmi, B.Dietetics, Wiley Easternpublishers.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&Ramasastry Nutritive Value of Indian foods, NIN publication,Hyderabad.1996.
5. BhavanaSabarwal. Principles and practices of Dietetics, Ajay Verma common wealth publishers, NewDelhi.1999.
6. Davidson Passmore. Human Nutrition and Dietetics, London Churchill and Livingstonpublishers.1989.
7. Manay,S. and Shadaksharaswamy. M (2017) Foods, Facts and Principles, New Age, 2nd Edition, International Pvt LtdPublishers.
8. Vinodhini Reddy, PrahladRao, GovmthSastry and Kashinath (1993) Nutrition Trends in India, NIN,Hyderabad.
9. Shills, E.M. Olson, A.J. and Shike, Lea and Febiger (2001) Modern Nutrition in Health and Diseases, 9thEdition,
10. Chandrasekhar, U. (2002) Food Science and applications in Indian Cookery Phoenix Publishing House, NewDelhi
11. Krause, M.V. and Hunesher, M.A. (2013) Food, Nutrition and Diet Therapy, 14th Edition, W.B. Saunders Company, Philadelphia,London

Course Outcomes:

On completion of the course, the students will be able to

CO. No	Core -NUTRITION THROUGH LIFE CYCLE Course Outcomes	Cognitive level
CO-1	Explain the basic concepts of Nutrition	K2 - Understanding
CO-2	Analyze why an individual's nutrient needs to change during each stage of the life cycle	K3 - Applying
CO-3	Identify nutritional risk factors that may lead to chronic disease at various stages of the life cycle	K4 - Analyzing
CO-4	Apply appropriate nutritional interventions for a variety of diseases/disorders that can occur throughout a person's life cycle	K5 - Evaluating
CO-5	Create appropriate nutritional plans for the different phases of a person's life cycle based on current nutritional guidelines	K6 - Creating

Mapping

Core -NUTRITION THROUGH LIFE CYCLE											
CO	PO					PSO					
	1	2	3	4	5	1	2	3	4	5	6
1	3	3	3	3	2	3	3	3	3	3	3
2	3	3	3	3	2	3	3	2	3	3	2
3	3	3	3	3	1	3	3	2	3	3	2
4	3	3	3	3	2	3	3	1	3	3	1
5	3	3	3	3	1	3	3	2	3	3	2

Strongly Correlated (3); Moderately Correlated (2); Weakly Correlated (1); No Correlation (0)

MSU/2021 - 22/UG colleges/Part III (B.Sc. Nutrition & Dietetics)
Semester III/ 20/Major Practical III

NUTRITION THROUGH LIFE CYCLE

L T PC

Objectives:

0 0 2 1

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

1. Menu planning, preparation and evaluation for a preschool child
2. Menu planning, preparation and evaluation for schoolage
3. Menu planning, preparation and evaluation for adolescence boys & girls
4. Menu planning, preparation and evaluation for a pregnant woman
5. Menu planning, preparation and evaluation for a lactating mother
6. Menu planning, preparation and evaluation for aged
7. Planning and preparing of low, medium, and high cost food items for sedentary, Moderate and heavy worker adults.

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. BhavanaSabarwal. Principles and practices of Dietetics, Ajay Verma common wealth publishers, NewDelhi.1999.
6. Davidson Passmore. Human Nutrition and Dietetics, London Churchill

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On completion of the course, the students will be able to

CO. No	Core -NUTRITION THROUGH LIFE CYCLE Course Outcomes	Cognitive level
CO-1	Explain the basic concepts of Nutrition	K2 - Understanding
CO-2	Analyze why an individual's nutrient need to change during each stage of the life cycle	K3 - Applying
CO-3	Identify nutritional risk factors that may lead to chronic disease at various stages of the life cycle	K4 - Analyzing
CO-4	Apply appropriate nutritional interventions for a variety of diseases/disorders that can occur throughout a person's life cycle	K5 - Evaluating
CO-5	Create appropriate nutritional plans for the different phases of a person's life cycle based on current nutritional guidelines	K6 - Creating

Mapping

Core -NUTRITION THROUGH LIFE CYCLE											
CO	PO					PSO					
	1	2	3	4	5	1	2	3	4	5	6
1	3	3	3	3	2	3	3	3	3	3	3
2	3	3	3	3	2	3	3	2	3	3	2
3	3	3	3	3	1	3	3	2	3	3	2
4	3	3	3	3	2	3	3	1	3	3	1
5	3	3	3	3	1	3	3	2	3	3	2

Strongly Correlated (3); Moderately Correlated (2); Weakly Correlated (1); No Correlation (0)

FOOD MICROBIOLOGY

Objectives

L T PC

2 2 0 3

- To instruct students to have their first experience with microbiology on the nature of microorganism
- To outline the source of contamination and their aspects of foods
- To understand the principles of food preservation
- To gain knowledge of the methods to prevents contamination

UNIT –I

Introduction toBasicMicrobiology

(11Hrs)

Definition – History – scope of Microbiology –Application, Microscopy – principles, applications and its types, Basic principles and methods of - sterilization, tyndallisation, pasteurization, control of micro organism by physical and chemical method.

UNIT–II

(13Hrs)

General Morphology of Microorganisms, Microbiology of water and food

Structure, Classification and General Morphology of Microorganisms -Bacteria, Fungi, Algae, Yeast, Virus and protozoa, Water – sources of contamination, methods of water purification, typesof microorganisms. Air – microbial pollution controlmeasures, Sources of microorganism in food – food contamination -food preservation – food spoilage.

UNIT–III

(13Hrs)

Microbiology of Non-Perishable Foods

Outline of Contamination- Spoilage and Preservation of Cereal and Cereal Products, Contamination – spoilage and preservation of Sugar and SugarProducts, canned foods – causes of spoilage – types ofspoilage.

UNIT– IV

(12Hrs)

Microbiology of Perishable Foods

Outline of Contamination- Spoilage and Preservation of Vegetables andFruits, Contamination –

spoilage and preservation of meat and Meat Products, Contamination – spoilage and preservation of milk and milk products

UNIT – V

Food –borne disease

(11Hrs)

Food poisoning – chemical poisoning – intoxications – botulism, food infection – enterotoxin, cytotoxin, Physiology and mechanism of action, modification, Prevention and control of toxin contamination.

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-YearBook,

Course Outcomes

On completion of the course, the students will be able to

CO. No	Course Outcomes	Cognitive level
CO-1	To understand Food microbiology dealing with monitoring, types of microorganisms, preservation of food, etc.	K2 - Understanding
CO-2	To study in detail the growth of micro organisms and impact of environment on the growth in food	K3 - Applying
CO-3	To know the food borne diseases and their control	K4 - Analyzing
CO-4	To highlight the microorganisms present in food.	K5 - Evaluating
CO-5	To learn about the different types of fermentation processes, equipments used and microbiological processes involved	K6 - Creating

Mapping

FOOD MICROBIOLOGY											
C O	PO					PSO					
	1	2	3	4	5	1	2	3	4	5	6
1	3	3	3	3	2	3	3	3	3	3	3
2	3	3	3	3	2	3	3	2	3	3	2
3	3	3	3	3	1	3	3	2	3	3	2
4	3	3	3	3	2	3	3	1	3	3	1
5	3	3	3	3	1	3	3	2	3	3	2

Strongly Correlated (3); Moderately Correlated (2); Weakly Correlated (1); No Correlation (0)

Objectives

- To instruct students to have their first experience with microbiology on the nature of microorganism
 - To outline the source of contamination and their aspects of foods
 - To understand the principles of food preservation
 - To gain knowledge of the methods to prevent contamination
1. Identify different types of microorganisms
 2. Methylene blue reduction tests of milk samples
 3. Observe and note the spoilage in cereal products
 4. Observe & note the spoilage in fruits
 5. Observe & note the spoilage in vegetable
 6. Observe and note the spoilage in milk
 7. Observe and note the spoilage in fish
 8. Observe and note the spoilage in egg
 9. Observe and note the spoilage in meat and poultry.
 10. Bacteriological examination of curd.
 11. Staining method – simple, negative, gram staining.

References:

1. Joshua. A.K. Microbiology, India printingworks
2. MarteinProbisher, Fundamentals of micro–biology
3. Goss, R.C., ExperinmentalMicrobiology . Guide laboratory, Kalyani publishers
4. Frazier, W.C. Food Microbiology, TaTa Mc. Graw Hill Book Company, Bombay. 1948
5. Adams, M.R. and Moss M.O. Food Microbiology Royal Societyof Chemistry, Cambridge,1955
6. Banwart, G.T. Baric food Microbiology CSS Publishers, New Delhi.1987

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FOOD MICROBIOLOGY											
C O	PO					PSO					
	1	2	3	4	5	1	2	3	4	5	6
1	3	3	3	3	2	3	3	3	3	3	3
2	3	3	3	3	2	3	3	2	3	3	2
3	3	3	3	3	1	3	3	2	3	3	2
4	3	3	3	3	2	3	3	1	3	3	1
5	3	3	3	3	1	3	3	2	3	3	2

Strongly Correlated (3); Moderately Correlated (2); Weakly Correlated (1); No Correlation (0)

MSU/2021 -22/UG colleges/Part III (B.Sc. Nutrition& Dietetics)

Semester III/ 23/Skilled based – 1 Core

FOOD SERVICE MANAGEMENT -I

Objectives:

L T PC

1. Gain knowledge about various types of food service.
2. Understand the principles and functions ofmanagements
3. Realise the importance ofsanitation

4 0 04

UNIT-I

(11Hrs)

Food service Institutions and Management

History and Development, Definition and Importance, Factors affecting development of food service Institutions, Principles, tools and functions of organization, Recent trends in food service Institutions, Types of institutional food service operations, Commercial and Non commercial food service Institutions

UNIT- II

(11Hrs)

Menu planning and services

Types of menu, techniques of menuwriting, Importance, principles of menu planning in food service Institutions, Foodservice, Formal and Informal type, Styles of foodservices, Centralised and decentralised system ofservice, Self services, tray services, waiterservices, Vending and portal services

UNIT– III**(12Hrs)****Quantity and quality control**

Principles of food cost control, elements of food cost, labour cost and over head expenses, Quantity food production, standardization of Receipes, food cost and portion control, Factors responsible for losses in a food service industry, Methods of controlling food cost leading to profit, Costing of dishes, meals and events, methods of pricing

UNIT– IV**(13Hrs)****Food service unit Layout and Design**

Steps and different types of planning, Various phases of layout and various factors influencing layoutdesign, Pointing work centres, Work pattern, Equipment - classification, selection and design, Factors influencing selection of various equipments, Base Materials and finishes in food industries

UNIT –V**(13Hrs)****Food storage and purchasing**

Types of storage, maintenance of food quality in storage, store record, Maintenance of record, Inventory management - Assessing requirements and receiving and release of stocks, Food purchase - principles, selection, methods of buying and receiving, Marketing - Definition, functions, marketing mix, sales promotion, selling techniques and advertisement.

Reference:

1. MohiniSethiandSurjeetMaljan. Catering Management an integrated approachWiley Eastern Ltd., NewDelhi.
2. Malhotra – Food Service Management – Anmol Publisher, NewDelhi.
3. The theory of catering, Kinton andCeasarani

Course Outcomes**On completion of the course, the students will be able to**

CO. No	Course Outcomes	Cognitive level
CO-1	Developing objectives and goals -Definition, importance, types of goals, Policies, procedures, rules.	K2 - Understanding
CO-2	Principles and procedures of management-Definition of management, organization & interaction at work.	K2 - Understanding
CO-3	Principles of management, functions of management , Managerial roles & responsibilities, the manager & leadership quality	K3 - Applying

CO-4	Hygiene and sanitation in preparation and serving area	K5 - Evaluating
CO-5	Financial management-Definition, scope of financial management, financial accounting, management accounting, budgeting, costing, cost control, accounting.	K6 - Creating

Mapping

FOOD SERVICE MANAGEMENT -I											
CO	PO					PSO					
	1	2	3	4	5	1	2	3	4	5	6
1	3	3	3	3	2	3	3	3	3	3	2
2	3	3	3	3	2	3	3	2	3	3	3
3	3	3	3	1	2	3	3	2	2	2	3
4	3	3	3	1	2	3	3	2	2	2	2
5	3	3	3	3	1	3	3	2	3	3	2

Strongly Correlated (3); Moderately Correlated (2); Weakly Correlated (1); No Correlation (0)

MSU2021 - 22/UG colleges/Part IV (B.Sc. Nutrition& Dietetics)

Semester III/ 24/Non Major Elective -I

PRINCIPLES OF INTERIOR DECORATION – 1

Objectives:

L T PC

1. To learn the basic principles of art **2 0 0 2**
2. To develop the skill of applying the principles of art in decorating the house.

UNIT – I

FamilyHousing:

(7Hrs)

Need and importance of Housing, Factors influencing selection of site, Factors to be considered for good housing, Ventilation.

UNIT – II

ElementsOfDesign:

(6Hrs)

Design –Definition – Kinds of design. Elements of design line – Direction –Shapes. Size ,Texture and Colour.

UNIT –III

PrinciplesofDesign:

(5Hrs)

Harmony, Balance, Rhythm, Proportion, Emphasis.

UNIT –IV

(6Hrs)

Use of colour In Interior:

Classification of colour – primary, binary, intermediate, tertiary and quaternary. Qualities of colour, Hue value, intensity ,Prang colour system , colour and emotion, use of colour in interior decoration.

UNIT –V

(6Hrs)

Furniture selection:

Care and selection of furniture in dining room, office, bed room, living room.

References

1. Nickel, P. and Dorsey, J.M. – Management in Family living, Tohn Wiley and Sons, Inc, New York1986.

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 Household Arts, Orient Longmans, Bombay, 1968.
 6. Margaret Kaye. A Student's handbook of Housewifery, J.M. Dent Sons Ltd., London. 1986.
 7. Paulena Nickell, Jean Muir Dorsey – Management in Family Living, Wiley Eastern Private Ltd., 1976.
- Varghese A. Home Management, New Age International, 1985

Course Outcomes

On completion of the course, the students will be able to

CO. No	Course Outcomes	Cognitive level
CO-1	Understand efficient management skills with good managerial potentials and Identify human and non-human resources for efficient management of the family	K2 - Understanding
CO-2	Face challenges put forth by recent trends in availability of resources	K3 - Applying
CO-3	Identify elements needed for appropriate designing to achieve visual effect	K4 - Analyzing
CO-4	Apply theme based color harmonies in interiors.	K5 - Evaluating
CO-5	Analyze type of lighting and the lighting requirements for various rooms.	K6 - Creating

Mapping

PRINCIPLES OF INTERIOR DECORATION – 1											
C O	PO					PSO					
	1	2	3	4	5	1	2	3	4	5	6
1	3	3	3	3	2	3	3	3	3	3	3
2	3	3	3	3	2	3	3	2	3	3	2
3	3	3	3	3	1	3	3	2	3	3	2
4	3	3	3	3	2	3	3	1	3	3	1
5	3	3	3	3	1	3	3	2	3	3	2

Strongly Correlated (3); Moderately Correlated (2); Weakly Correlated (1); No Correlation (0)

MSU/2021- 22/UG colleges/Part IV (B.Sc. Nutrition& Dietetics)

Semester III/ 24/Non Major Elective -I

FOOD MICROBIOLOGY – I

Objectives

To instruct students to have their first experience with microbiology on the nature of micro organism

To outline the source of contamination and their aspects of foods

To understand the principles of food preservation

To gain knowledge of the methods to prevent contamination

UNIT –I

General characteristics: (6Hrs)

General characteristics of main group of microorganisms – Bacteria, fungi, yeast.

UNIT –II

Microorganisms of soil, water, sewages and atmosphere: (6Hrs)

Soil- Nitrogen cycle, carbon, cycle, Sulphur cycle and phosphorus cycle, Water – methods of water purification, types of microorganisms, Sewage- Sewage treatment methods, types of microorganisms, Air – microbial pollution- control measures.

UNIT –III

Contamination of cereals and cereals products: (7 Hrs)

Contamination and Prevention of spoilage of cereals and cereals products, Contamination and Prevention of spoilage of vegetables and fruits.

UNIT – IV

Contamination of milk, fish, meats: (6Hrs)

Contamination and Prevention of spoilage of milk and milk products, Contamination and Prevention of spoilage of meats, fish and other sea foods.

UNIT – V

Contamination of egg and poultry: (5Hrs)

Contamination and Prevention of spoilage of eggs, Contamination and Prevention of spoilage of poultry.

References

1. Joshua .A. K. Microbiology, India printingworks
2. MarteinProbisher, Fundamentals ofmicrobiology
3. Gross , R. C., Experimental Microbiology ,Guide laboratory , kalyanipublishers
4. Frazier, W.C. Food Microbiology, Tata Mc, Graw Hill Company, Bombay1988

Course Outcomes

On completion of the course, the students will be able to

CO. No	Course Outcomes	Cognitive level
CO-1	To understand Food microbiology dealing with monitoring, types of microorganisms, preservation of food, etc.	K2 - Understanding
CO-2	To study in detail the growth of microorganisms and impact of environment on the growth in food	K3 - Applying
CO-3	To know the food borne diseases and their control	K4 - Analyzing
CO-4	To highlight the microorganisms present in food.	K5 - Evaluating
CO-5	To learn about the different types of fermentation processes, equipments used and microbiological processes involved	K6 - Creating

Mapping

FOOD MICROBIOLOGY											
C O	PO					PSO					
	1	2	3	4	5	1	2	3	4	5	6
1	3	3	3	3	2	3	3	3	3	3	3
2	3	3	3	3	2	3	3	2	3	3	2
3	3	3	3	3	1	3	3	2	3	3	2
4	3	3	3	3	2	3	3	1	3	3	1
5	3	3	3	3	1	3	3	2	3	3	2

Strongly Correlated (3); Moderately Correlated (2); Weakly Correlated (1); No Correlation (0)

MSU/2021- 22/UG colleges/Part III (B.Sc. Nutrition& Dietetics)

Semester IV/ 28/ Core paper -VI

FOOD CHEMISTRY

L T PC

Objectives:

4 0 04

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

(13Hrs)

Carbohydrates in food:

Introduction to food chemistry, Monosaccharide – structure , properties & derivatives

Oligosaccharides – structure, properties & derivatives, Polysaccharides – structure, properties & derivatives

UNIT–II

(13Hrs)

Starch and sugar in food:

Components of Starch. Swelling of Starch Granules. Gel Formation.

Retrogradation, Syneresis. Agents on Starch, Effect of Sugar, Acid, Alkali, Fat and Surface Active, Stages of Sugar Cookery, Crystal Formation and factors affecting it, Chemistry of Milk Sugar.

UNIT –III Lipids in food

(14Hrs)

Classification and composition of lipids, Physical and Chemical Properties of Fats and Oils, functional properties, Shortening Power of Fats, Changes in Fats and Oils during Heating. Factors Affecting Fat Absorption in Foods, Rancidity, Hydrogenation, Winterization, Decomposition of Triglycerides

UNIT– IV

(10Hrs)

Functional role of proteins

Components of Wheat Proteins, Structure, Gluten Formation, Effect of Soaking, Fermentation and Germination on Pulse Proteins, Properties of Egg Protein. Chemistry of Milk Protein. Changes in Milk. Egg and Meat Proteins during Heating, Denaturation of proteins, Foam formation of proteins, Functional role in foods

UNIT –V

(10Hrs)

Functional role of vitamins and minerals

Fruits and vegetables – structure, composition, Pectin and plantacids, Types of pigments, Effect of cooking on colour and texture of vegetables, Browning reaction – enzymatic and non enzymatic and its prevention.

Course Outcomes

On completion of the course, the students will be able to

CO. No	Course Outcomes	Cognitive level
CO-1	To know properties and reactions of carbohydrates, lipids and proteins during storage and processing of food and how these influence the quality and properties of food.	K2 - Understanding
CO-2	Explain the importance of water for stability and quality of foods.	K3 - Applying
CO-3	Have knowledge on and be able to use food regulations.	K4 - Analyzing
CO-4	knowledge on important sources of vitamins and minerals in food and how these affect other quality aspects of food.	K5 - Evaluating
CO-5	Analyze the importance of water for stability and quality of foods.	K6 - Creating

Mapping

FOOD CHEMISTRY											
C O	PO					PSO					
	1	2	3	4	5	1	2	3	4	5	6
1	3	3	3	3	2	3	3	3	3	3	3
2	3	3	3	3	2	3	3	2	3	3	2
3	3	3	3	3	1	3	3	2	3	3	2
4	3	3	3	3	2	3	3	1	3	3	1
5	3	3	3	3	1	3	3	2	3	3	2

Strongly Correlated (3); Moderately Correlated (2); Weakly Correlated (1); No Correlation (0)

MSU/2021- 22/UG colleges/Part III (B.Sc. Nutrition& Dietetics)

Semester IV/ 29/ Major Practical - IV

FOOD CHEMISTRY

L T PC

Objectives:

0 0 2

1

- Acquire Knowledge on the chemical changes occurring in foods
- Explain the role of lipids and protein in foods
- Understand the meaning and chemical preparation of carbohydrates in food

1. Evaluation of food grains for their character
2. Qualitative test for carbohydrate.
3. Estimation of reducing sugar.
4. Determination of gluten content
5. Determination of acidity in flour
6. Evaluation of milk samples

References:

1. Seema Yadav, 1997, Food Chemistry, Anmol Publications Pvt.Ltd, New Delhi
2. Meyer .L.H. Food Chemistry
3. Srilakshmi B. Food Science, New Age International (P) Ltd. New Delhi.2002.
4. Shankuntala Manay, 2001, Food Principles, New Age International (P) Ltd. New Delhi

Course Outcomes

On completion of the course, the students will be able to

CO. No	Course Outcomes	Cognitive level
CO-1	To know properties and reactions of carbohydrates, lipids and proteins during storage and processing of food and how these influence the quality and properties of the food.	K2 - Understanding

CO-2	Explain the importance of water for stability and quality of foods.	K3 - Applying
CO-3	Have knowledge on and be able to use food regulations.	K4 - Analyzing
CO-4	knowledge on important sources of vitamins and minerals in food and how these affect other quality aspects of food.	K5 - Evaluating
CO-5	Analyze the importance of water for stability and quality of foods.	K6 - Creating

Mapping

FOOD CHEMISTRY											
C O	PO					PSO					
	1	2	3	4	5	1	2	3	4	5	6
1	3	3	3	3	2	3	3	3	3	3	3
2	3	3	3	3	2	3	3	2	3	3	2
3	3	3	3	3	1	3	3	2	3	3	2
4	3	3	3	3	2	3	3	1	3	3	1
5	3	3	3	3	1	3	3	2	3	3	2

Strongly Correlated (3); Moderately Correlated (2); Weakly Correlated (1); No Correlation (0)

Objectives:

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

Unit-I

(11Hrs)

Objectives and principles of food preservation -method of food preservation, removal of microorganism – maintenance of anaerobic condition, food dehydration -irradiation

Unit-II

(13Hrs)

Low temperature – Cold preservation and processing – freezing-Chilling-hydro cooling-Additional developments, High temperature – Heat preservation and processing Degrees of preservation - Selecting heat treatments- Heat resistance of microorganisms-heat transfer boiling- pasteurization-HTST-UHT, Canning – drying.

Unit-III

(12Hrs)

Preservation by use of chemicals – Developed preservatives, Preservations by food additives - Classification and food additives – Nature and characteristics of additives in foods, antimicrobial preservation Added preservatives, Smoking – spices -antibiotics – alcohol –formal dehyde.

Unit-IV

(13Hrs)

Preservation by use of salt - pickling – principles and methods –curing, Preservation by use of sugar – Jam, Jelly, Marmalade, Tuity – Fruity, Preparation of crush, squashes, synthetic syrup.

Unit-V

(11Hrs)

Beneficial Effects of Microorganisms, Microbiology of Fermented Foods - Curd, production of Cheese, Sauerkraut,Meat,Soy Based Foods, Alcoholic, Beverages and Vinegar,SCP, Production of bread - other fermented foods, Microbial Biomass

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, SurjeetPublication.1996.
4. Fellows, P and Ellis H. Food Processing Technology: Principal and Practicals, NewYork.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 Limited2004.
7. Tanchev,&Stoyan. Methods of Food Preservation. Food Safety: A Practical and Case Study Approach.2007.

Course Outcomes

On completion of the course, the students will be able to

CO. No	Course Outcomes	Cognitive level
CO-1	Prioritize the importance and principles of food preservation.	K2 - Understanding
CO-2	Understand the method of food preservation by using sugar	K2 - Understanding
CO-3	Formulate the preservation of foods at low temperature	K3 - Applying
CO-4	Interpret the use of chemical preservatives and fermentation technology	K5 - Evaluating
CO-5	Discover the characters of chemical additives in foods.	K6 - Creating

Mapping

FOODPROCESSINGANDPRESERVATION											
CO	PO					PSO					
	1	2	3	4	5	1	2	3	4	5	6
1	3	3	3	3	2	3	3	3	3	3	2
2	3	3	3	3	2	3	3	2	3	3	3
3	3	3	3	1	2	3	3	2	2	2	3
4	3	3	3	1	2	3	3	2	2	2	2
5	3	3	3	3	1	3	3	2	3	3	2

Strongly Correlated (3); Moderately Correlated (2); Weakly Correlated (1); No Correlation (0)

FOOD PROCESSING AND PRESERVATION

L T PC

Objectives:

0 0 21

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

1. Preparation of jam – Pine apple, Multi fruits, Papaya.
2. Preparation of squashes – Mango, Grapes, Pineapple, Lime and ketchup.
3. Preparation of sauces
4. Preparation of pickle - Mixed vegetables, Mango, Garlic, Lemon, Chilies, Fish and Mutton.
5. Visiting a food preservation factory
6. One week training in Food Preservation Unit.

References

1. Prakash Triveni, Food Preservation, Aadi publication, Delhi.2008.
2. Shafiur Rahman. 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 Limited2004.
7. Tanchev, & Stoyan. Methods of Food Preservation. Food Safety: A Practical and Case Study Approach.2007.

Course Outcomes

On completion of the course, the students will be able to

CO. No	Course Outcomes	Cognitive level
CO-1	Prioritize the importance and principles of food preservation.	K2 - Understanding
CO-2	Understand the method of food preservation by using sugar	K2 - Understanding
CO-3	Formulate the preservation of foods at low temperature	K3 - Applying
CO-4	Interpret the use of chemical preservatives and fermentation technology	K5 - Evaluating
CO-5	Discover the characters of chemical additives in foods.	K6 - Creating

Mapping

FOOD PROCESSING AND PRESERVATION											
CO	PO					PSO					
	1	2	3	4	5	1	2	3	4	5	6
1	3	3	3	3	2	3	3	3	3	3	2
2	3	3	3	3	2	3	3	2	3	3	3
3	3	3	3	1	2	3	3	2	2	2	3
4	3	3	3	1	2	3	3	2	2	2	2
5	3	3	3	3	1	3	3	2	3	3	2

Strongly Correlated (3); Moderately Correlated (2); Weakly Correlated (1); No Correlation (0)

MSU/2021- 22/UG colleges/Part IV (B.Sc. Nutrition& Dietetics)

Semester IV/ 32/ Skilled Based – II Core

FOOD SERVICE MANAGEMENT - II

Objectives

L T PC

1. Gain knowledge about various types of food service **4 0 0 4**
2. Understand the principles and functions of management
3. Realise the importance of sanitation

UNIT –I

(13Hrs)

ORGANIZATION POLICY & SAFETY PROCEDURE IN OPERATION

Standardized recipe system format, Maintain IPR, Occupational health and safety requirements, standards and objectives of hygiene standards, Sanitation guidelines at workplace, Maintain safety at work place, identification of equipment, Handling and uses, cleaning procedure of equipment, Food laws - National PFA, Essential commodities Act, ISO, WTO and consumer protection Act, Concept of TQM

UNIT– II

(13Hrs)

PERSONAL MANAGEMENT

Definition, Development and policies, Sources of Recruitment, selection, Induction, Training, Development, promotion, motivation and leadership, Wages and other welfare benefits for personal, Labour laws and other legal aspects, Importance of good human relations

UNIT– III

(12Hrs)

MATERIAL MANAGEMENT

Principles of quantity food purchase, Selection, methods of buying and receiving, Methods of delivery and accounting of different foods, Inventory management - Assessing requirements and Receiving and release of stocks, Types of storage, maintenance of food quality in storage and store record Maintenance, Marketing - Definition, functions, marketing mix, sales promotion, selling techniques and advertisement

UNIT– IV

(11Hrs)

FINANCIAL MANAGEMENT

Definition - Book keeping, account maintenance, Balancesheet, Application of Management, Account of catering operators, cost concepts, Systems of book keeping, inventor budgetary control, Types of budget, Record for purchase, Receiving, storage and production, Service and income and expenditure record, Costing and costcontrol, Factors affecting cost control, Importance and components of costing, Break even analysis, Determining selling price of food check list for costcontrol

UNIT –V
HYGIENE AND SANITATION

(11Hrs)

Personal hygiene, Types and sources of contamination, Causes and prevention of accidents and safety education, Methods of controlling infestation, Methods of dishwashing, Definition and Importance of hygiene and sanitation in food handling

REFERENCES

1. Mohiniseti and –SurjeetMalhan
2. Catering management an integrated approach , Wiley Eastern Ltd., NewDelhi
3. Malhotra – Food service management - Anmol Publishers, NewDelhi
4. The theory of catering, Kinton andCeasarani

Course Outcomes

On completion of the course, the students will be able to

CO. No	Course Outcomes	Cognitive level
CO-1	Developing objectives and goals -Definition, importance, types of goals, Policies, procedures, rules.	K2 - Understanding
CO-2	Principles and procedures of management-Definition of management, organization & interaction at work.	K2 - Understanding
CO-3	Principles of management, functions of management , Managerial roles & responsibilities, the manager& leadership quality	K3 - Applying
CO-4	Hygiene and sanitation in preparation and serving area	K5 - Evaluating
CO-5	Financial management-Definition, scope of financial management, financial accounting, management accounting, budgeting, costing, cost control, accounting.	K6 - Creating

Mapping

FOOD SERVICE MANAGEMENT -I											
CO	PO					PSO					
	1	2	3	4	5	1	2	3	4	5	6
1	3	3	3	3	2	3	3	3	3	3	2
2	3	3	3	3	2	3	3	2	3	3	3
3	3	3	3	1	2	3	3	2	2	2	3
4	3	3	3	1	2	3	3	2	2	2	2
5	3	3	3	3	1	3	3	2	3	3	2

Strongly Correlated (3); Moderately Correlated (2); Weakly Correlated (1); No Correlation (0)

MSU/2021- 22/UG colleges/Part IV (B.Sc. Nutrition& Dietetics)

Semester IV/ 33/Non major Elective – II

PRINCIPLES OF INTERIOR DECORATION - II

Objectives:

L T P C

- 1 To learn the basis principles of art 2 0 02.
- 2 To development the skill of applying the principles of art in decorating the house

UNIT –I

(7Hrs)

Decors:

Furnishings – selection, use and care. Draperies and curtains, floor coverings. Hanging Pictures. Table settings.

UNIT– II

(6Hrs)

Flower Arrangements:

Requirements of flower arrangement. Treatment of flower styles in flower arrangement (traditional oriented and modern), Types of flower arrangement. Steps in making flower arrangement.

UNIT– III

(6Hrs)

Household Equipment and cleaning:

- a. Study about various house hold equipment. Need for house hold cleaning.
- b. Reagents, Equipment, Methods of cleaning.
- c. Principles followed in cleaning
- d. Furniture cleaning and polishing. care doing cleaning

UNIT– IV

(5Hrs)

Household Pests:

Common house hold pests mode of infection, methods of eradication, pest control common natural and artificial

UNIT –V

(6Hrs)

Illumination

Sources-Types-methods- uses

Reference:

1. Nickel, P. and Dorsey, J.M. – Management in Family living, Tohn Wiley and Sons, Inc, New York1986.
2. Varghese and Oglae, Home Management, Wiley Eastern Ltd., New Delhi1994.
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. StellaSoundararaj. A Textbook of House hold Arts, Orient Longmans, Bombay, 1968.
6. Margaret Kaye. A. A Students hand book of House wifery,J.M. Dent SonsLtd.,

London.1986.

- PaulenaNickell, Jean Muir Dorsey – Management in Family Living, Wiley Eastern Private Ltd., 1976.
- Varghese A. Home Management, New Age International, 1985

Course Outcomes

On completion of the course, the students will be able to

CO. No	Course Outcomes	Cognitive level
CO-1	Understand efficient management skills with good managerial potentials and Identify human and non-human resources for efficient management of the family	K2 - Understanding
CO-2	Face challenges put forth by recent trends in availability of resources	K3 - Applying
CO-3	Identify elements needed for appropriate designing to achieve required visual effect	K4 - Analyzing
CO-4	Apply theme based color harmonies in interiors.	K5 - Evaluating
CO-5	Analyze type of lighting and the lighting requirements for various rooms.	K6 - Creating

Mapping

PRINCIPLES OF INTERIOR DECORATION – II											
C O	PO					PSO					
	1	2	3	4	5	1	2	3	4	5	6
1	3	3	3	3	2	3	3	3	3	3	3
2	3	3	3	3	2	3	3	2	3	3	2
3	3	3	3	3	1	3	3	2	3	3	2
4	3	3	3	3	2	3	3	1	3	3	1
5	3	3	3	3	1	3	3	2	3	3	2

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MSU/2021- 22/UG colleges/Part IV (B.Sc. Nutrition& Dietetics)

Semester IV/ 33/Non major Elective – II

FOOD MICROBIOLOGY - II

Objectives: **L T PC**

To study the cereals and cereals products **2 0 02**

To know contamination and prevention of fruits and vegetables

UNIT –I **(6Hrs)**

Cereals and cereals products:cereals products:

Contamination and prevention of spoilage of cereals and cereals products

UNIT– II **(6Hrs)**

Fruits & Vegetables:

Contamination and prevention of spoilage of vegetables and fruits

UNIT– III **(7Hrs)**

Contamination of milk

Contamination and prevention of spoilage of meats, fish, and others sea foods

UNIT – IV Contamination of fish, meats: **(6Hrs)**

Contamination and prevention of spoilage of meats, fish and other sea foods

UNIT–V: **(5Hrs)**

Contamination of eggs and poultry

Contamination and prevention of spoilage of poultry

Reference

1. Joshua. A,K. Microbiology, India printingworks
2. MarteinProbisher, Fundamentals of micro –biology
3. Goss, R.C., Experimental Microbiology. Guide laboratory, Kalyani publishers
4. Frazier, W.C. Food Microbiology, Tata Mc. Graw Hill Book Company, Bombay,1988
5. Adams, M.R. and Moss M.O. Food Microbiology Royal Society ofChemistry
Cambridge.1995
6. Banwart, G.T. Basic Food Microbiology CSS Publishers, New Delhi.1987.

7. Course Outcomes

8. On completion of the course, the students will be able to

CO. No	Course Outcomes	Cognitive level
CO-1	Understand on Food microbiology dealing with monitoring, types of microorganisms, preservation of food, etc.	K2 - Understanding
CO-2	To study in detail the growth of microorganisms and impact of environment on the growth in food	K3 - Applying
CO-3	To know the food borne diseases and their control	K4 - Analyzing
CO-4	To highlight the microorganisms present in food.	K5 - Evaluating
CO-5	To learn about the different types of fermentation processes, equipments used and microbiological processes involved	K6 - Creating

Mapping

FOOD MICROBIOLOGY - II											
C O	PO					PSO					
	1	2	3	4	5	1	2	3	4	5	6
1	3	3	3	3	2	3	3	3	3	3	3
2	3	3	3	3	2	3	3	2	3	3	2
3	3	3	3	3	1	3	3	2	3	3	2
4	3	3	3	3	2	3	3	1	3	3	1
5	3	3	3	3	1	3	3	2	3	3	2

Strongly Correlated (3); Moderately Correlated (2); Weakly Correlated (1); No Correlation (0)

