MANONMANIAM SUNDARANAR UNIVERSITY

TIRUNELVELI

B.Sc NUTRITION & DIETETICS SYLLABUS

(For affiliated colleges)

ACADEMIC YEAR 2026-2027

MANONMANIAM SUNDARANAR UNIVERSITY, TIRUNELVELI

OUTCOME BASED EDUCATION - CHOICE BASED CREDIT SYSTEM

OPERATIONAL GUIDELINES FOR FRAMING CURRICULUM

VISION AND MISSION OF THE UNIVERSITY

Vision

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

Mission

- To conduct research, teaching and outreach programmes to improve conditions of human living
- 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

PREAMBLE

- Outcome Based Education (OBE) has emerged as an effective approach in higher education to ensure quality, skill oriented and learner centered education. The Choice Based Credit System (CBCS) provides flexibility in curriculum design enables students to acquire knowledge, skills and competencies according to their interests and career aspirations. The curriculum is designed to promote flexibility, critical thinking, problem solving ability and lifelong learning through effective teaching, learning, and assessment practices. The revised curriculum framework integrates Programme Educational Outcomes (PEOs), Programme Outcomes (POs), Programme Specific Outcomes (PSOs), and Course Outcomes (COs) in alignment with the Vision and Mission of the University. The adoption of Revised Bloom's Taxonomy (RBT) ensures effective attainment of knowledge, skills, ethical values, and employability among learners. The courses are systematically designed and mapped to ensure that the outcomes of all courses collectively contribute to the achievement of the programme outcomes and the

holistic development of students.

PROGRAMME EDUCATIONAL OUTCOMES (PEO)

In alignment with the Vision and Mission of the University, the following have been defined as the PEO for the graduates.

PEO1: Developing strong positive attitude to learn independently the concepts in the field of study

PEO2: Ensuring confidence among the learners to apply the knowledge and skills gained to solve real life issues

PEO3: Habituating ethical values among the learners to succeed in personal and professional life

PROGRAMME OUTCOMES (PO)

Programme Outcomes for the Under Graduate and Post Graduate Degree Programmes of the University are articulated as under.

After the successful completion of Undergraduate Programme from the University, the learner should be able to

PO1: Comprehend the knowledge acquired and communicate the same to others.

PO2: Analyse and compare the factual data / situation to comprehend and to critically evaluate to find solution to the problem ahead.

PO3: Apply theories and philosophies learned in solving the problem in scientific manner.

PO4: Think reflectively on the earlier activities and attempt for self directed lifelong learning process.

PO5: Understand multicultural existence and identify the means to prolong moral/ethical values in personal and professional life.

PO6: Explore through multiple sources and get exposed to the digital technology

PO7: Act as a responsible member in teams and practice leadership qualities

Program Specific Outcomes (PSOs)

On successful completion of Bachelor of Nutrition & Dietetics programme, the student should be able to:

PSO1: Disciplinary Knowledge:

Understand the fundamental principles, concepts, and theories related to Nutrition & Dietetics Also, exhibit proficiency in performing experiments in the laboratory.

PSO2: Critical Thinking:

Analyse complex problems, evaluate information, synthesize information, apply theoretical concepts to practical situations, identify assumptions and biases, make informed decisions and communicate effectively.

PSO3: Problem Solving:

Employ theoretical concepts and critical reasoning ability with Nutrition & Dietetics and practical skills to solve problems, acquire data, analyze their physical significance and explore new scientific findings.

PSO4: Analytical & Scientific Reasoning:

Apply scientific methods, collect and analyse data, test hypotheses, evaluate evidence, apply statistical techniques and use computational models.

PSO5: Research related skills:

Formulate research questions, conduct literature reviews, design and execute research studies, communicate research findings and collaborate in research projects.

PSO6: Self-directed & Lifelong Learning:

Continuously update the knowledge by lifelong learning and contribute to the growth and development of science and technology.

PSO7: Employability and Entrepreneurship

Develop skills for employability, entrepreneurship, and career readiness in industry, education, and technology-driven sectors.

PROGRAMME DETAILS

B.Sc. Nutrition and Dietetics

Programme Name: Bachelor of Science (B.Sc.) in Nutrition and Dietetics

Duration: 3 Years (Six Semesters)

Medium of Instruction: English

Eligibility Criteria

Candidates seeking admission to the B.Sc. Nutrition and Dietetics programme should have successfully completed **Higher Secondary Examination (+2) or its equivalent** from a recognized Board. Applicants must have studied **Biology as a compulsory subject**, either in combination with **Chemistry and Biology** or other equivalent science streams that include Biology.

Programme Overview

The B.Sc. Nutrition and Dietetics programme is designed to provide students with a strong foundation in the science of nutrition, food, health, and diet therapy. The curriculum integrates theoretical knowledge with practical training to help students understand the relationship between food, nutrition, and human well-being.

The programme covers various aspects of nutrition, including human physiology, biochemistry, food science, community nutrition, therapeutic nutrition, food service management, and dietetics. Students gain hands-on experience through laboratory work, field visits, case studies, and internships, enabling them to apply nutritional principles in real-life situations.

EXAMINATION SCHEME

- B.Sc Nutrition & Dietetics curriculum is divided and studied in six semesters.
- The internal assessments and external examination are the two parts of evaluation scheme.
- The external theory and practical examinations will be conducted by the university at the end of each semester.
- There is a separate passing minimum of 40% for the external and overall components.

DISTRIBUTION OF MARKS BETWEEN INTERNAL AND EXTERNAL ASSESSMENT FOR CORE, SKILL ENHANCEMENT, ELECTIVE, AND ALLIED COURSES.

* Theory Marks 25: 75

* Practical Marks 50: 50

Pass minimum of 40% for external and overall components.

1. Internal Assessment.

Internal Marks for Theory shall be allotted in the following manner

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

2. Marks for Practical / Major Project shall be allotted in the following manner

Internal Marks: 50; External Marks: 50

External evaluation of Project;

Project report evaluation and Viva-Voce will be conducted by both the External examiner and the Guide at the end of the semester.

4. Internship

Report for Internship / Industrial Visit / Field Visit / Research Institute Visit.

Should be evaluated along with the project at the end of V^{th} semester.

Students should submit a report for internship / industrial visit / field visit / Research institute visit/ knowledge updation activity at the end of the fifth semester with attendance certificate from the concern organisation.

The duration of internship should be 30 hours.

Internal: 50 marks; External: 50 marks

5. Extension Activity:

The student should participate in any one of the programme like NSS, NCC, YRC, RRC, games and sports/ youth welfare activity, outreach programmes etc. the examination / report / evaluation will be conducted at the end of sixth semester.

6. Naan mudhalvan programme is compulsory for all the students. Those who failed in naan mudhalvan can write exam for the substitute subject*.

7. The question pattern for all theory courses shall be as follows.

Duration of Exam: 3 Hours

Section	Type of questions	Mark Distribution
Part A	Ten Multiple choice question(Two question from each unit compulsory)	10 x1=10 Marks
Part B	Five Internal Choice questions(One question from each unit: either or choice)	5x5=25 marks
Part C	Five Internal Choice questions(One question from	5x8=40 marks

	each unit: either or choice)	
	Total	**75 Marks**

MODEL QUESTION PAPER

FOOD SCIENCE **(For those who joined in July 2026 onwards)** **Time: Three hours** **Maximum:75 marks**		
	Part-A (10×1=10 marks) **Answer All questions**	
1	Which guide shows the optimal number of servings to be eaten daily from each basic food group? a) Food Chain b) Food Web c) Food Pyramid d) Food Cycle	K1
2	What is the blended beverage with a smooth, semi-liquid consistency made from concentrated fruit juice? a) Fruit Juices b) Smoothie c) Ice Creams d) Milk Shakes	K1
3	Which crop group is considered the world's largest staple food source? a) Pulses b) Cereals c) Rice d) Millets	K1
4	Which annual crops produce grains or seeds and are harvested for food? a) Cereals b) Millets c) Corn d) Pulses	K1
5	In what form is fat present in cow's milk? a) Glycerides b) Carbohydrates c) Calcium d) Protein	K1
6	Which nutrient is supplied in high quality by a whole egg? a) Calcium b) Fat c) Protein d) Nutrients	K1
7	Which preservation method prevents spoilage of vegetables by maintaining temperatures below –10°C? a) Cooking b) Canning c) Pasteurization d) Freezing	K1
8	What is the seed-bearing structure formed from the ovary after flowering? a) Vegetables b) Pulses c) Spices d) Fruits	K1
9	How can spoilage of fats be identified through the presence of specific compounds? a) Gallic Acid b) Erucic Acid c) Acetic Acid d) Arachidonic acid	K2

10	Which oil would you select if a diet requires the highest amount of polyunsaturated fatty acids (PUFA)? a) Coconut Oil b) Cottonseed Oil c) Soyabean Oil d) Sunflower Oil	K2
	PART- B (5 X 5 = 25 Marks)	
11	(a) Explain the components of the Food Pyramid and analyze how it helps in planning a balanced diet Or (b) Classify the different types of tea and compare their nutritional and health benefits.	K4
12	(a) Explain the role of pulses in cookery and evaluate their importance in a balanced diet. Or (b) Describe the process of gelatinization and examine the factors affecting gelatinization during cooking.	K2
13	(a) Explain the changes that occur during meat cookery and assess how different cooking methods affect meat quality. Or (b) Classify fish based on culinary characteristics and justify the suitability of different cooking methods for each type.	K5
14	(a) Explain the effect of cooking on food pigments and analyze the factors responsible for colour changes in vegetables. Or (b) Describe the nutritive value and composition of fruits and evaluate their role in maintaining health.	K4
15	(a) Explain the process of sugar crystallization and analyze the factors that influence crystal formation. Or (b) Enumerate the functions of fats and oils in cooking and evaluate their impact on the sensory quality of foods.	K5
	PART- C (5 X 8 = 40 Marks)	

16	(a) Describe the different methods of cooking and compare their effects on the nutritional quality of foods. Or (b) Classify beverages and evaluate their significance in a balanced diet.	K4
17	(a) Explain the structure, composition, and nutritive value of wheat and assess its importance in human nutrition. Or (b) Describe pulses, their nutritive value, and toxic constituents, and suggest methods to reduce the harmful effects of toxic factors.	K5
18	(a) Explain the structure, composition, and nutritive value of egg and analyze its role in cookery. Or (b) Discuss the composition, nutritive value, and principles of fish cookery, and evaluate suitable cooking methods for preserving nutrients.	K5
19	(a) Explain vegetable cookery methods, nutrient losses, and the effects of cooking on vegetables, and recommend methods to minimize nutrient loss. Or (b) Classify vegetable pigments and explain their nutritive value, and analyze the factors affecting pigment changes during cooking.	K3
20	(a) Explain the causes and types of fat spoilage and evaluate methods used to prevent spoilage in food products. Or (b) Classify sugars and sugar-related products and compare their uses in food preparation and processing.	K4

Credit Distribution for UG Programme Nutrition & Dietetics

Sem I	Credit	Sem II	Credit	Sem III	Credit	Sem IV	Credit	Sem V	Credit	Sem VI	Credit
1.1. Language	3	2.1. Language	3	3.1. Language	3	4.1. Language	3	5.1. Core Course CC9	4	6.1. Core Course CC13	4
1.2. English	3	2.2. English	3	3.2. English	3	4.2. English	3	5.2. Core Course CC10	4	6.2. Core Course CC14	4
1.3. Core Course CC1	4	2.3. Core Course CC3	4	3.3. Core Course CC5	4	4.3. Core Course CC7	4	5.3. Core Course CC11	4	6.3. Core Course CC15	4
1.4. Core Course CC2	4	2.4. Core Course CC4	4	3.4. Core Course CC6	4	4.4. Core Course CC8	4	5.4. Core / Project CC12	4	6.4. Elective EC7	3
1.5. Elective EC1	5	2.5. Elective EC2	5	3.5. Elective EC3	4	4.5. Elective EC4	4	5.5. Elective EC5	3	6.5. Elective EC8	3
1.6. Skill Enhancement Course SEC1	2	2.6. Skill Enhancement Course SEC2	1	3.6. Skill Enhancement Course SEC4	2	4.6. Skill Enhancement Course SEC5	2	5.6. Elective EC6	3	6.6. Naan Mudhalvan	2
1.7. Skill Enhancement Foundation ourse)	2	2.7. Skill Enhancement Course SEC3	1	3.7. EVS	2	4.7. Value Education	2	5.7. Naan Mudhalvan	2	6.7. Extension Activity	1
-	-	2.8. Naan Mudhalvan 1	2	3.8. Naan Mudhalvan 2	2	4.8. Naan Mudhalvan 3	2	5.8. Internship	1		
-	-	-	-								
	23		**23**		**24**		**24**		**25**		**21**

Consolidated Semester wise and Component wise Credit distribution

Parts	Sem I	Sem II	Sem III	Sem IV	Sem V	Sem VI	Total Credits
Part I	3	3	3	3	-	-	12
Part II	3	3	3	3	-	-	12
Part III	13	13	12	12	22	18	90
Part IV	4	4	6	6	3	2	25
Part V	-	-	-	-	-	1	1
Total	23	23	24	24	25	21	140

MEASUREMENT OF ATTAINMENT OF COURSE OUTCOME

The Course Outcomes (COs) are measured through the performance of learners by direct and indirect assessment methods for that particular course.

i. Internal Assessment (25 Marks)

Tests – 20 Marks

Seminar / Assignments/Attention (Participation) in Class – 5 Marks

ii. Semester End Examinations (75 Marks)

Written exams, Practical, Project report, and Comprehensive Viva Voce

Note: In both Internal and Semester End Examinations

Lower Order Thinking (K1, K2, & K3) – 60 % in each part

Higher Order Thinking (K4, K5, & K6) – 40 % in each part

Part I. II, and Part III components will be separately taken into account for CGPA calculation and classification for the undergraduate programme and the other components. IV, V have to be completed during the duration of the programme as per the norms, to be eligible for obtaining the UG degree.

PROGRAMME STRUCTURE

SEMESTER I								
Part	**Study Component**	**Course Title**	**Credit**	**Exam**				**Hrs/ week**
				Dur. Hrs	**CIA**	**Uni. exam**	**Total**	
I	Language	Tamil/Other Languages	3	6	25	75	100	6
II	Language	English	3	6	25	75	100	6
III	Core I	Human Physiology	5	5	25	75	100	5
III	Core Practical I	Human Physiology Practical	3	3	50	50	100	3
III	Allied I	Family Resource Management I	3	4	25	75	100	4
III	Allied Practical I	Family Resource Management I Practical	2	2	50	50	100	2
IV	Skill Enhancement Course	SEC-1-Public Health Nutrition	2	2	25	75	100	2
IV	Foundation Course	Women‘s Health and Wellness	2	2	25	75	100	2
		TOTAL	**23**	**30**	**250**	**550**	**800**	**30**

SEMESTER II								
Part	**Study Component**	**Course Title**	**Credit**	**Exam**				**Hrs/ week**
				Dur. Hrs	**CIA**	**Uni. exam**	**Total**	
I	Language	Tamil/Other Languages	3	6	25	75	100	6
II	Language	English	3	4	25	75	100	6
III	Core II	Food Science	5	5	25	75	100	5
III	Core Practical II	Food Science Practical	3	3	50	50	100	3
III	Allied I	Family Resource Management II	3	4	25	75	100	4
III	Allied Practical II	Family Resource Management II Practical	2	2	50	50	100	2
IV	Skill Enhancement Course SEC-II SECIII	SEC-II Introduction to Fashion Designing SEC III-Landscape Design and Ornamental Garden	1 1	2 2	25 25	75 75	100 100	2 2
IV		Naan Mudhalvan-1	2	2	-	-	-	2
		TOTAL	**23**	**30**	**250**	**550**	**800**	**30**

SEMESTER III								
Part	**Study Component**	**Course Title**	**Credits**	**Exam**				**Hrs/ week**
				Dur. Hrs	**CIA**	**Uni. exam**	**Total**	
I	Language	Tamil/Other Languages	3	6	25	75	100	6
II	Language	English	3	6	25	75	100	6
III	Core III	Human Nutrition	6	5	25	75	100	4
III	Core Practical III	Human Nutrition-Practical	3	3	50	50	100	3
III	Elective I	Human Development/Computer Applications in Home Science	4	4	25	75	100	4
III	SEC IV	Changing Trends in Extension Education	1	2	25	75	100	2
IV	EVS	Environmental Studies	2	2	25	75	100	2
IV		Naan Mudhalvan-2	2	2	-	-	-	2
		TOTAL	**24**	**30**	**150**	**450**	**600**	**30**

SEMESTER IV					
Part	**Study**	**Course Title**	**Credits**	**Exam**	

	Component			Dur. Hrs	CIA	Uni. exam	Total	Hrs/ week
I	Language	Tamil/Other Languages	3	6	25	75	100	6
II	Language	English	3	6	25	75	100	6
III	Core IV	Nutrition through Life Cycle	6	5	25	75	100	4
III	Core Practical IV	Nutrition through Life Cycle- Practical	3	3	50	50	100	3
III	Elective II	Basics of Food Microbiology/ Hospital Dietetic Counselling	4	4	25	75	100	4
III	SEC V	Fundamentals of Research in Nutritional Sciences	1	2	50	50	100	3
IV		Value-Based Education	2	2	25	75	100	2
V		Naan Mudhalvan-3	2	2	-	-	-	2
		TOTAL	**24**	**30**	**225**	**475**	**700**	**30**

SEMESTER V								
Part	**Study Component**	**Course Title**	**Credits**	**Exam**				**Hrs**
				Dur. Hrs	**CIA**	**Uni. exam**	**Total**	
III	Core V	Dietetics	4	5	25	75	100	5
III	Core VI	Food Service Management	4	5	25	75	100	5
III	Core VII	Dietetics-Practical	4	5	50	50	100	5
III	Core VIII	Project	3	5	50	50	100	5
III	Elective III	Food Product Development/Hospital Dietetic Counselling	3	4	25	75	100	4
IV	Elective IV	Foundations of Baking and Confectionery/Maternal and Child Nutrition	3	4	25	75	100	4
		Naan Mudhalvan-4	2	2	-	-	-	2
III	Internship	Internship/Industrial Visit/Field Visit	2	0	50	50	100	0
		TOTAL	**25**	**30**	**250**	**550**	**700**	**30**

SEMESTERVI								
Part	**Study Component**	**Course Title**	**Credits**	**Exam**				**Hrs/ week**
				Dur. Hrs	**CIA**	**Uni. exam**	**Total**	
III	Core IX	Fundamentals of Nutritional Biochemistry	4	6	25	75	100	3
III	Core X	Sports Nutrition	4	6	25	75	100	6
III	Core XI	Food Preservation and Processing	4	6	25	75	100	6
III	Elective V	Functional Foods for Chronic Diseases/Food Safety and Quality Control	3	5	25	75	100	4
IV	Elective VI	Fibre to Fabric/Geriatric Nutrition	3	5	25	75	100	4
		Naan Mudhalvan-5	2	2	-	-	-	-
V		Extension Activities	1	-	-	-	-	-
		TOTAL	**21**	**30**	**125**	**375**	**500**	**30**

FIRST YEAR –SEMESTER- I

Subject Code	Subject Name	Category	L	T	P	S	Credits	Inst. Hours	Marks		
									CIA	External	Total
	HUMAN PHYSIOLOGY	**Core -I**	5				5	5	25	75	100

Course Outcome

On completion of this course, Students will be able to

CO1 (K1 & K2 – Remembering and Understanding)

Describe and explain the structure and functions of cells, tissues, blood, immune system, nervous system, sense organs, cardiovascular system, respiratory system, digestive system, excretory system, endocrine glands, and reproductive organs.

CO2 (K3 – Applying)

Apply the principles of human anatomy and physiology to explain the functioning of body systems, including circulation, respiration, digestion, excretion, immunity, endocrine regulation, and reproduction under normal physiological conditions.

CO3 (K4 – Analyzing)

Analyze the interrelationship among various organ systems and evaluate the physiological mechanisms involved in maintaining homeostasis, including blood circulation, hormonal regulation, nerve conduction, immunity, and reproductive functions.

CO4 (K5 & K6 – Evaluating and Creating)

Evaluate physiological responses and functional alterations associated with hypo- and hyper-secretion of endocrine glands, immune responses, cardiovascular and respiratory functions, and formulate integrated interpretations of normal human body processes based on anatomical and physiological principles.

UNIT	Contents	No. of

		Hours
I	**Cell and tissues -** Structure of Cell and functions of different of different organelles. Classification, structure and functions of tissues. **Blood-** Constituents of blood- RBC, WBC and Platelets and its functions. Erythropoiesis, Blood clotting, Blood groups and histocompatibility **Immune system-** Antigen, Antibody, Cellular and Humoral Immunity	12
II	**Nervous system** General anatomy of nervous system, functions of the different parts **Sense organs** Structure and functions of Eye, Ear, Skin. Physiology of Taste andSmell- in Brief,	12
III	**Heart and circulation** Anatomy of the heart and blood vessels, properties of cardiac muscle, origin and conduction of heartbeat, cardiac cycle, cardiac output, blood pressure - definition and factors affecting blood pressure, and description of ECG. **Respiratory system** Anatomy and physiology of respiratory organs. Gaseous exchange in the lungs and tissues, Mechanism of respiration.	**10**
IV	**Digestive system** Anatomy of Gastro-intestinal tract, Structure and functions of Liver and Pancreas. Digestion and absorption of carbohydrates, proteins and fats. **Excretory system** Structure of kidney, functions of Nephron	12
V	**Endocrine system** Functions of hormones secreted by Pancreas, Pituitary gland, thyroid, parathyroid and adrenal glands. Effects of hypo and hyper secretion of	**12**

	these glands. **Reproductive system** Anatomy of male and female reproductive organs, Ovarian and Uterine cycle, influence of hormones on pregnancy and lactation.	

References:

1. Beck, W.S. (1971) Human Design. Harcourt Brace Jovanovich Inc., New York.
2. Best, C. H. and Taylor, N. B. (1980) Living Body. 4th ed. BIP, Bombay.
3. Creager, J. G. (1992) Human Anatomy and Physiology. 2nd ed. WMC Brown Publishers, England.
4. Guyton, A.C. (1979) Physiology of the Human Body. 5th ed. Saunders College of Publishing,Philadelphia.
5. Subramaniam, S. and Madhavan Kutty, K. (1971) The Text Book of Physiology. Orient Longman Ltd., Madras.
6. Tortora G. J.Anagnostakos N.P. (1984) Principles of Anatomy and Physiology, 4thedition, Harper and Row Publishers, New York.
7. Waugh A and Grant A. (2012) Ross and Wilson Anatomy and Physiology inHealth and Illness. 11th ed. Churchill and Livingston, Elsevier
8. Wilson, K. J. W. (1987) Anatomy and Physiology in Health and Illness.6th ed.ELBS, Churchill Livingstone, London.

e- LEARNING RESOURCES

- https://youtu.be/uFf0zxQ3rBU
- http://epgp.inflibnet.ac.in/Home/Download

CO – PO – PSO Mapping (Course Articulation Matrix)

CO	Pos							PSOs						
	1	**2**	**3**	**4**	**5**	**6**	**7**	**1**	**2**	**3**	**4**	**5**	**6**	**7**
CO1	3	1	1	1	1	1	0	3	1	1	1	0	1	0
CO2	2	2	3	1	1	1	1	2	3	3	2	1	1	1
CO3	2	3	2	2	1	2	1	2	3	3	3	2	2	1
CO4	2	3	3	3	2	2	2	2	3	3	3	3	3	2
Total Score	**9**	**9**	**9**	**7**	**5**	**6**	**4**	**9**	**10**	**10**	**9**	**6**	**7**	**4**

Level of Correlation between COs and POs, COs and POs

0 – No Correlation 1 – Low 2 – Medium 3 – High

Subject Code	Subject Name	Category	L	T	P	S	Credits	Inst. Hours	Marks		
									CIA	External	Total
	Human Physiology Practicals	**Core Practical I**					3		50	50	100

Course Outcome

On completion of this course, Students will be able to

CO1: Explain the structure of tissues, blood, organs, endocrine glands, and basic laboratory procedures.

CO2: Perform histological, hematological, and physiological laboratory experiments using standard methods.

CO3: Analyze laboratory findings and physiological measurements to interpret normal body functions.

CO4: Evaluate laboratory results and prepare accurate records and reports.

Course content

1. Microscopic study of tissues-epithelial, connective and muscular.
2. Collection of blood sample-Capillary blood from finger tips and venous blood.
3. Separation of blood components (Centrifugation).
4. Estimation of hemoglobin-Sahli‘s Acid haematin method.
5. Determination of Hematocrit (Wintrobe method).
6. Preparation and examination of stained blood smear (Wedge or glass slide method).
7. Determination of Erythrocyte Sedimentation Rate (Wintrobe method).
8. Determination of blood group.
9. Determination of bleeding time (Duke method) and coagulation time (Capillary tube method).
10. Platelet count (Rees Ecker method by hemocytometry).
11. Clinical examination of radial pulse (pulse rate).

12. Measurement of blood pressure (Sphygmomanometer).

13. Effect of exercise on blood pressure and heart rate.

14. Microscopic structure of heart, digestive system and kidney.

15. Microscopic structure of reproductive organs-ovary, uterus, mammary glands and testis.

16. Microscopic structure of endocrine glands- thyroid, pituitary and adrenal.

Reference:

G.K. Pal and Pravati pal, Textbook of practical physiology,

CO – PO – PSO Mapping (Course Articulation Matrix)

CO	Pos							PSOs						
	1	**2**	**3**	**4**	**5**	**6**	**7**	**1**	**2**	**3**	**4**	**5**	**6**	**7**
CO1	3	2	1	1	0	2	0	3	2	1	2	0	1	0
CO2	1	2	3	1	0	2	1	3	2	3	3	1	1	2
CO3	2	3	2	2	0	1	0	2	3	3	3	2	1	0
CO4	3	3	2	2	1	2	1	2	3	2	3	2	2	1
Total Score	**9**	**10**	**8**	**6**	**1**	**7**	**2**	**10**	**10**	**9**	**11**	**5**	**5**	**3**

Level of Correlation between COs and POs, COs and POs

0 – No Correlation 1 – Low 2 – Medium 3 – High

Subject Code	Subject Name	Category	L	T	P	S	Credits	Inst. Hours	Marks		
									CIA	External	Total
	Family Resource Management –I	**Allied I**	4				3	4	25	75	100

Course Outcome

On completion of this course, Students will be able to

CO1 (K1 & K2 – Remembering and Understanding)

Describe the concepts of housing, house planning, care and maintenance of the house, elements and principles of design, colour, furniture, accessories, and flower arrangement.

CO2 (K3 – Applying)

Apply the principles of house planning, housekeeping practices, design elements, colour schemes, and selection of furniture and accessories for creating functional and aesthetically pleasing living spaces.

CO3 (K4 – Analyzing)

Analyze housing requirements, interior design principles, colour applications, housekeeping methods, and furniture arrangements for improving livability, comfort, and resource utilization.

CO4 (K5 & K6 – Evaluating and Creating)

Evaluate housing and interior design practices and develop suitable plans for house management, decoration, furniture arrangement, and maintenance based on functional, economic, and aesthetic considerations.

UNIT	Contents	No. of

		Hours
I	**Housing** • Functions of the house and its environment. • 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. • Kitchen planning – different types and work triangle. • House plans for low, middle and high income groups.	12
II	**Care and Maintenance of House** • Care and maintenance of house and its surroundings. • Daily, weekly and periodical cleaning to keep the house in good condition. • Insect and pest control – preventive and remedial measures to be adopted.	12
III	**Elements of Design** • Elements of design – line, form, texture and colour. • Types of design and characteristics of a good design. • Principles of design. • Harmony – meaning and types (repetition, contrast and transition). • Proportion – meaning and means of obtaining good proportion. • Balance – meaning, types and means of obtaining balance. • Emphasis – meaning and means of creating emphasis. • Rhythm – meaning and means of obtaining rhythm.	10
IV	**Colour** • Qualities of colour – hue, value and intensity. • Colours and emotions. • Advancing and receding colours. • Use of colour in relation to proportion, balance,	12

	harmony and rhythm. • Use of colour in interior decoration.	
V	**Accessories, Furniture and Flower Arrangement** • Selection, use and care of accessories. • Pictures and wall hangings. • Selection and use of furniture for living room, bedroom and dining room. • Table setting. • Basic knowledge of flower arrangement – principles and types of flower arrangement.	**12**

References

1. Desh Pande, R.S., Modern Ideal Homes for India–United Book Corporations, Poone. 1971.
2. Stella Soundararaj. A Textbook of Household Arts, Orient Longmans, Bombay, 1968.
3. Margaret Kaye. A. A Students hand book of Housewifery, J.M. DentSons Ltd., London. 1986.
4. Paulena Nickell, Jean Muir Dorsey, Management in Family Living Wiley Eastern Private Ltd., 1976.
5. Varghese A.Home ManagementNew AgeInternational, 1985.

CO – PO – PSO Mapping (Course Articulation Matrix)

CO	POs							PSOs						
	1	**2**	**3**	**4**	**5**	**6**	**7**	**1**	**2**	**3**	**4**	**5**	**6**	**7**
CO1	3	1	1	1	2	1	0	3	1	1	1	0	1	0
CO2	2	2	3	1	2	1	1	3	2	2	2	1	1	1
CO3	2	3	2	2	2	1	1	2	3	3	3	1	2	1
CO4	2	3	3	3	2	2	2	2	3	3	2	2	3	2
Total Score	**9**	**9**	**9**	**7**	**8**	**5**	**4**	**10**	**9**	**9**	**8**	**4**	**7**	**4**

Level of Correlation between COs and POs, COs and POs

0 – No Correlation 1 – Low 2 – Medium 3 – High

Subject Code	Subject Name	Category	L	T	P	S	Credits	Inst. Hours	Marks		
									CIA	External	Total
	FAMILY RESOURCE MANAGEMENT–I PRACTICAL	**Allied Practical -I**	**2**				**2**	**2**	**50**	**50**	**100**

Course Outcome

On completion of this course, Students will be able to

CO1: Explain the principles of house planning, kitchen planning, interior decoration, and household resource management.

CO2: Apply planning, design, and management principles in household and practical settings.

CO3: Analyze household management practices, workspace design, furniture, and resource utilization.

CO4: Evaluate household management activities and organize events using effective planning and resource management skills.

Course content

1. Draw the kitchen plan and house plan for various income groups.
2. Visit hotels to obtain knowledge on interior decoration and housekeeping Demonstration on different designs and mixing color
3. Visit to Artificial and fresh flower company
4. Demonstration on different types of flower arrangement, wall hangings, picture mounting
5. Preparation of a time plan for a college girl /homemaker and its evaluation.
6. Determination of working height in vertical and horizontal planes Study on different

types of furniture and its sizes.

7. Planning, organizing, implementing and evaluating a group activity (Party/Exhibition/tour)

CO – PO – PSO Mapping (Course Articulation Matrix)

CO	**POs**							**PSOs**						
	1	**2**	**3**	**4**	**5**	**6**	**7**	**1**	**2**	**3**	**4**	**5**	**6**	**7**
CO1	3	1	1	1	1	1	0	3	1	1	1	0	1	0
CO2	2	2	3	1	1	2	1	3	2	3	2	1	1	1
CO3	2	3	2	2	1	2	1	2	3	3	3	1	2	1
CO4	2	3	3	3	2	2	3	2	3	3	2	2	3	3
Total Score	**9**	**9**	**9**	**7**	**5**	**7**	**5**	**10**	**9**	**10**	**8**	**4**	**7**	**5**

Level of Correlation between COs and POs, COs and POs

0 – No Correlation 1 – Low 2 – Medium 3 – High

Subject Code	Subject Name	Category	L	T	P	S	Credits	Inst. Hours	Marks		
									CIA	External	Total
	PUBLIC HEALTH NUTRITION	**SEC I**	2				**2**	**2**	**25**	**75**	**100**

Course Outcome

On completion of this course, Students will be able to

CO1 (K1 & K2 – Remembering and Understanding)

Explain the concepts, scope, and multidisciplinary nature of public health nutrition, nutritional problems, deficiency disorders, methods of nutritional assessment, nutrition policies, programs, and the role of national and international agencies in combating malnutrition.

CO2 (K3 – Applying)

Apply the principles and methods of nutritional assessment, nutrition education, and public health nutrition programs in addressing community nutrition and health issues.

CO3 (K4 – Analyzing)

Analyze the causes, prevalence, consequences, and preventive strategies of nutritional disorders and evaluate the effectiveness of nutrition policies, programs, and intervention strategies.

CO4 (K5 & K6 – Evaluating and Creating)

Evaluate public health nutrition initiatives and formulate appropriate nutrition education and awareness strategies for the prevention and management of community nutritional problems.

UNIT	Contents	No. of

		Hours
I	**Concept and scope of Public Nutrition** Definition, concept, scope and multidisciplinary nature of public nutrition **Nutritional problems affecting the community.** Etiology, prevalence, clinical features and preventive strategies for malnutrition-related problems and deficiency disorders- Under nutrition (Protein energy malnutrition, Wasting, Stunting), Over nutrition (obesity and related risks), Nutritional anemia, Vitamin A deficiency, Iodine deficiency disorders, Fluorosis.	12
II	**Assessment of Nutritional status** Objectives and importance, Methods of assessment: Direct (Clinical signs, Anthropometry, Biochemical tests); Indirect (Diet surveys, vital statistics)	10
III	**Nutrition policy and programs** National nutritional policy**;** Integrated child development scheme (ICDS), Midday Meal Program- State and National (Poshan Abhyan), National programs for the prevention of anemia, Vitamin A deficiency, Iodine deficiency disorders, Fortification of Foods and Public Distribution System as a preventive approach.	15
IV	**Nutrition Education** Objectives, principles and scope of nutrition and health education, creating awareness on current public health issues and devising strategies for prevention and management.	10

V	**Role of National and International agencies in combating malnutrition** WHO, FAO, UNICEF; National: FSSAI, ICAR, ICMR, NIN, FNB, CFTRI, NNMB-Role, Target groups (if specified), Policies and Programs.	10

Reference:

1. Wadhwa A and Sharma S (2003).Nutrition in the Community –A text book. Elite Publishing House Pvt. Ltd. New Delhi.
2. Park K (2011). Park's Textbook of Preventive and Social Medicine, 21st Edition.M/s Banarasidas Bhanot Publishers, Jabalpur, India.
3. Jellife DB, Jellife ERP, Zerfas A and Neumann CG (1989).Community nutritional assessment with special reference to less technically developed countries. Oxford University Press. Oxford.
4. WHO (2006). Child Growth Standards: Methods and development: height- for- age, weight-for-age, weight-for-length, weight-for-height and body mass index- for-age (http://www.who.int/childgrowth/standards/en/).
5. Gupta,MC .and Mahajan BK.(2003)Text book of Preventive and Social Medicine 3rdEdJaypee brothers, Medical Publishers (p) Ltd.

Web References:

- Mohfw.nic.in/NRHM/NIDD
- www.nrhmorissa.gov.in/NIDDCP.html
- www.Scripts.mit.edu

CO – PO – PSO Mapping (Course Articulation Matrix)

CO	POs							PSOs						
	1	**2**	**3**	**4**	**5**	**6**	**7**	**1**	**2**	**3**	**4**	**5**	**6**	**7**
CO1	3	2	1	1	2	1	0	3	1	1	1	0	1	0
CO2	2	2	3	1	2	2	1	3	2	3	2	1	1	1
CO3	2	3	2	2	2	2	1	2	3	3	3	2	2	1
CO4	2	3	3	3	3	2	2	2	3	3	3	3	3	2
Total Score	**9**	**10**	**9**	**7**	**9**	**7**	**4**	**10**	**9**	**10**	**9**	**6**	**7**	**4**

Level of Correlation between COs and POs, COs and POs

0 – No Correlation 1 – Low 2 – Medium 3 – High

Subject Code	Subject Name	Category	L	T	P	S	Credits	Inst. Hours	Marks		
									CIA	External	Total
	WOMEN'S HEALTH AND WELLNESS	**FOUNDATION COURSE**	**2**				**2**	**2**	**25**	**75**	**100**

Course Outcome

On completion of this course, Students will be able to

CO1 (K1 & K2 – Remembering and Understanding)

Describe the nutritional, physical, reproductive, mental, and social dimensions of women's health and the factors influencing health and wellness across different stages of life.

CO2 (K3 – Applying)

Apply principles of balanced nutrition, physical activity, stress management, reproductive health care, and communication skills to promote healthy lifestyles among women.

CO3 (K4 – Analyzing)

Analyze the impact of nutritional deficiencies, lifestyle factors, mental health issues, reproductive concerns, and social challenges on women's overall health and well-being.

CO4 (K5 & K6 – Evaluating and Creating)

Evaluate health and wellness practices and formulate strategies for improving nutritional status, mental health, reproductive health, and social well-being among women.

UNIT	Contents	No. of Hours
I	**Nutrition for Women-** • Dietary guidelines for a healthy lifestyle. • Current concepts pertaining to balanced diets. • Nutrient requirements for young and older women, with a special focus on protein, iron, vitamin D, and calcium. • Factors affecting nutrient intake in women: socioeconomic factors, environmental conditions, and health conditions. • Consequences of eating disorders in young women	8
II	**Physical Health-** • Significance of body weight and body composition parameters. • Benefits of aerobic, flexibility, and strength training exercises on general health, bone health, and risks associated with NCDs.	8
III	**Reproductive Health-** • Menstrual health, pregnancy, and lactation. • Pre- and post-menopausal concerns and preventive measures. • Sexually transmitted diseases: an overview.	8
IV	**Mental Health** • Common mental health problems: trends and issues relating to women. • Depression, anxiety, and coping with stress. • Strategies to improve mental health: learning new skills	8

	and hobbies. • Relaxation techniques such as yoga and meditation**.**	
V	**Social Health** • Balancing home and career. • Strengthening relationships and enhancing communication skills. • Personality development and technological advancements and their impact. • Dealing with domestic violence and harassment issues.	8

References

1. Lanza di Scalea T, Matthews KA, Avis NE, *et al*. (2012) Role stress, role reward, and mental health in a multiethnic sample of midlife women: results from the Study of Women's Health across the Nation (SWAN). J Women‘s Health; 21(5):481-489.
2. Mahan K and Sylvia E. Stump (2000) Krause‘s Food Nutrition and Diet Therapy, Saunders, USA.
3. Minkin M. J. and Wright C. V. (2003) The Yale Guide to Women‘s Reproductive Health from menarche to menopause. Yale University Press, London
4. Sizer F.S. and Whitney E.(2014)Nutrition: Concepts & Controversthies.13 Ed., Wadsworth, Cengage Learning, USA.
5. Sperry L. (2016), Mental Health and Mental Disorders. ABC-Clio, Californi
6. Williams M.H., Anderson D.E., Rawson E.S. (2013) Nutrition for Health, Fitness and Sport. McGraw Hill, New York.
7. Wrzus C, Hänel M, Wagner J, Neyer FJ. (2013) Social network changes and life events across the lifespan: a meta-analysis. Psychol Bull; 139 (1):53-80.

e-**Learning Resources:**

- https://www.nhp.gov.in/social-health_pg
- https://ncert.nic.in/textbook/pdf/jehp112.pdf
- https://ncert.nic.in/textbook/pdf/iehp113.pdf
- https://ncert.nic.in/textbook/pdf/lebo104.pdf
- https://www.nih.gov/health-information/social-wellness-toolkit
- https://www.cdc.gov/reproductivehealth/womensrh/index.htm
- https://www.nimh.nih.gov/health/topics/caring-for-your-mental-health
- https://www.who.int/news-room/fact-sheets/detail/mental-health-strengthening-our-response
- https://www.cdc.gov/mentalhealth/learn/index.htm

CO – PO – PSO Mapping (Course Articulation Matrix)

CO	POs							PSOs						
	1	**2**	**3**	**4**	**5**	**6**	**7**	**1**	**2**	**3**	**4**	**5**	**6**	**7**
CO1	3	1	1	1	3	1	0	3	1	1	1	0	1	0
CO2	2	2	3	1	3	2	1	3	2	2	2	1	1	1
CO3	2	3	2	2	3	2	1	2	3	3	3	2	2	1
CO4	2	3	3	3	3	2	2	2	3	3	3	3	3	2
Total Score	**9**	**9**	**9**	**7**	**12**	**7**	**4**	**10**	**9**	**9**	**9**	**6**	**7**	**4**

0 – No Correlation 1 – Low 2 – Medium 3 – High

FIRST YEAR –SEMESTER- II

Subject Code	Subject Name	Category	L	T	P	S	Credits	Inst. Hours	Marks		
									CIA	External	Total
	FOOD SCIENCE	**CORE II**	**5**				**5**	**5**	**25**	**75**	**100**

Course Outcome

On completion of this course, Students will be able to

CO1 (K1 & K2 – Remembering and Understanding)

Explain the classification, composition, nutritive value, functional properties, and culinary applications of foods including cereals, millets, pulses, milk, eggs, meat, fish, vegetables, fruits, fats, oils, sugars, and beverages.

CO2 (K3 – Applying)

Apply the principles of food science to cooking methods, food preparation, food processing, and quality evaluation while considering nutrient retention and functional properties of foods.

CO3 (K4 – Analyzing)

Analyze the physical, chemical, and nutritional changes occurring in foods during processing, cooking, storage, and preservation, and assess factors affecting food quality.

CO4 (K5 & K6 – Evaluating and Creating)

Evaluate food quality, identify food adulteration and quality defects, and propose suitable measures

for improving food preparation, processing, and utilization based on scientific principles.

UNIT	Contents	No. of Hours
I	**Food:** Definition, functional classification, groups (4, 5, 7 and 11), food pyramid. Cooking: Definition and objectives; Methods- Moist heat methods, dry heat methods, combination of both and micro wave cooking; Effect of cooking on nutrients. **Beverages:** Classification; Coffee beverage- Constituents and method of preparation; Tea-Types, preparation; Cocoa- Composition, nutritive value and preparation of cocoa beverage; Fruit beverages- Types; Introduction to vegetable juices, milk based beverages, malted beverages, carbonated non-alcoholic beverages and alcoholic beverages.	12
II	**Cereals and Millets** • Structure, composition and nutritive value of rice, wheat and oats. • Nutritive value of maize, jowar, ragi and bajra. **Cereal Cookery** • Effect of moist heat – Hydrolysis, gelatinization and factors affecting gelatinization, gel formation, retrogradation and syneresis. • Effect of dry heat. • Role of cereals in cookery. **Pulses** • Composition, nutritive value and toxic constituents.	12

	• Pulse cookery – Effect of cooking, factors affecting cooking quality, role of pulses in cookery, germination and its advantages.	
III	**Milk and Milk Products** • Composition and nutritive value of milk. • Milk cookery – Effect of heat, acid and enzymes. • Milk products – Non-fermented and fermented products (does not include preparation). • Role of milk in cookery. **Egg** • Structure, composition and nutritive value. • Egg cookery – Effect of heat, factors affecting coagulation of egg proteins and effect of other ingredients on egg protein. • Role of egg in cookery. • Home-scale method for detecting egg quality. **Meat** • Classification, composition, nutritive value, rigor mortis, ageing and tenderizing. • Meat cookery – Changes during cooking. **Poultry**	10

	• Classification, composition and nutritive value. **Fish** • Classification, composition, nutritive value, selection and principles of fish cookery.	
IV	**Vegetables** • Nutritional classification, composition and nutritive value. • Pigments in vegetables – Water-soluble and water-insoluble. • Enzymes, flavour compounds and bitter compounds. • Vegetable cookery – Preliminary preparation, changes during cooking, loss of nutrients during cooking, effect of cooking on pigments and role of vegetables in cookery. **Fruits** • Classification, composition, nutritive value and ripening of fruits. • Browning – Types and preventive measures. **Spices** • General functions and role in cookery. • Medicinal value of commonly used spices.	12
V	**Fats and Oils** • Composition and nutritive value. • Basic knowledge about commonly used fats and oils – Lard, butter, margarine, cottonseed oil, groundnut oil, coconut oil, soybean oil, olive oil, rice bran oil, sesame oil, rapeseed oil, mustard oil and palm oil. • Spoilage of fat – Types and prevention. • Effect of heating. • Role of fats and oils in cookery. **Sugar nd Related Products**	12

	• Nutritive value. • Characteristics and uses of various types of sugars. • Sugar cookery – Crystallization and factors affecting crystallization. • Stages of sugar cookery. • Role of sugar in cookery.	

Reference

1. Maney S (2008). *Foods, Facts and Principles*, 3rd Edition, Published by Wiley Eastern, New Delhi.
2. Usha Chandrasekhar (2002). *Food Science and Application in Indian Cookery*, Phoenix Publishing House P. Ltd., New Delhi.
3. Raina U, Kashyap S, Narula V, Thomas S Suvira, Vir S, Chopra S (2010). *Basic Food Preparation: A Complete Manual*, 4th Edition, Orient Black Swan Ltd., Mumbai.
4. Srilakshmi, B. (2017). *Nutrition Science*, New Age International (P) Ltd., New Delhi.
5. Mahtab, S. Bamji, Kamala Krishnasamy, Brahmam G.N.V (2012). *Text Book of Human Nutrition*, Third Edition, Oxford and IBH Publishing Co. P. Ltd., New Delhi.
6. Sunetra Roday (2017). *Food Science and Nutrition*, Oxford University Press, New Delhi.

CO – PO – PSO Mapping (Course Articulation Matrix)

CO	**POs**							**PSOs**						
	1	**2**	**3**	**4**	**5**	**6**	**7**	**1**	**2**	**3**	**4**	**5**	**6**	**7**
CO1	3	1	1	1	1	1	0	3	1	1	1	0	1	0
CO2	2	2	3	1	1	2	1	3	2	3	2	1	1	1
CO3	2	3	2	2	1	2	1	2	3	3	3	2	2	1
CO4	2	3	3	3	1	2	1	2	3	3	3	2	3	1
Total Score	**9**	**9**	**9**	**7**	**4**	**7**	**3**	**10**	**9**	**10**	**9**	**5**	**7**	**3**

Level of Correlation between COs and POs, COs and POs

0 – No Correlation 1 – Low 2 – Medium 3 – High

Subject Code	Subject Name	Category	L	T	P	S	Credits	Inst. Hours	Marks		
									CIA	External	Total
	FOOD SCIENCE PRACTICAL	**CORE PRACTICAL II**	**5**				**5**	**5**	**50**	**50**	**100**

Course Outcome

On completion of this course, Students will be able to

CO1 (K1 & K2 – Remembering and Understanding)

Describe the principles of food measurement, edible portion determination, cooking methods, food preparation techniques, and the scientific basis of changes occurring in foods during cooking and processing.

CO2 (K3 – Applying)

Perform food science experiments and prepare recipes by applying principles of gelatinization, coagulation, gluten formation, sugar cookery, pulse cookery, vegetable cookery, and various cooking methods.

CO3 (K4 – Analyzing)

Analyze the effects of temperature, time, ingredients, pH, water, and processing conditions on the physical, chemical, and sensory properties of foods.

CO4 (K5 & K6 – Evaluating and Creating)

Evaluate food preparation techniques and develop suitable recipes and cooking practices to improve food quality, nutrient retention, acceptability, and functionality.

Course Content

1. Grouping of foods according to ICMR classification.

2. Measurement of food materials using standard measuring cups, spoons and weighing.

3. Find the percentage of edible portion of foods.

4. Observe the microscopic structure of different starches before and after gelatinization (rice, wheat and corn).

5. Study the effect of temperature, time of heating, concentration, addition of sugar and acid on gelatinization of starch.

6. Prepare recipes using the following processes- Gelatinization, gluten formation and gel formation.

7. Demonstrate the best method of cooking rice.

8. Demonstrate the effect of soaking, hard water, sodium bicarbonate and papaya on cooking quality of pulses.

9. Prepare recipes using whole gram, dhal, pulse flours, sprouted pulses and cereal pulse combination.

10. Demonstrate the factors affecting coagulation of milk protein.

11. Prepare recipes using milk and its products.

12. Demonstrate the formation of ferrous sulphide in boiling egg and its preventive measures.

13. Demonstrate the effect of the addition of acid, fat, salt, water and sugar on the texture of omelets.

14. Prepare recipes where egg acts as – thickening agent, binding agent, emulsifying agent and enriching agent.

15. Demonstrate the effect of acid, alkali and overcooking on vegetables containing different pigments.

16. Demonstrate the effects of different amounts of water added to vegetables during cooking on flavor and appearance.

17. Demonstrate enzymatic browning in vegetables and fruits and any four methods of preventing

it.

18. Prepare the following using fruits and vegetables- salads, soups and curries.

19. Determine the smoking point of any 4 cooking oils.

20. Prepare recipes using shallow fat and deep fat frying methods.

21. Demonstrate the stages of sugar cookery

22. Prepare recipes using various stages of sugar cookery and jaggery.

23. Preparation of any one beverage under the following types refreshing, nourishing, stimulating, soothing and appetizing.

Reference

1. Srilakshmi. B. Food Science, New Age International (P) Ltd. Publishers, Sixth edition. 2016.

2. Khanna K, Gupta S, Seth R, Mahna R, Rekhi T (2004). The Art and Science of Cooking: A Practical Manual, Revised Edition. Elite Publishing House Pvt Ltd.

3. Raina U, Kashyap S, Narula V, Thomas S, Suvira, Vir S, Chopra S (2010). Basic Food Preparation: A Complete Manual, Fourth Edition. Orient Black Swan Ltd.

4. Bamji MS, Krishnaswamy K, Brahmam GNV (2009). Textbook of Human Nutrition, 3rd edition. Oxford and IBH Publishing Co. Pvt. Ltd.

CO – PO – PSO Mapping (Course Articulation Matrix)

CO	POs							PSOs					
	1	**2**	**3**	**4**	**5**	**6**	**7**	**1**	**2**	**3**	**4**	**5**	**6**	**7**
CO1	3	1	1	1	1	1	0	3	1	1	1	0	1	0
CO2	2	2	3	1	1	2	1	3	2	3	3	1	1	1

CO3	2	3	3	2	1	2	1	2	3	3	3	2	2	1
CO4	2	3	3	3	1	2	2	2	3	3	3	2	3	2
Total Score	**9**	**9**	**10**	**7**	**4**	**7**	**4**	**10**	**9**	**10**	**10**	**5**	**7**	**4**

Level of Correlation between COs and POs, COs and POs

0 – No Correlation 1 – Low 2 – Medium 3 – High

Subject Code	Subject Name	Category	L	T	P	S	Credits	Inst. Hours	Marks		
									CIA	External	Total
	Family Resource Management –II	**ALLIED I**	**4**				**3**	**4**	**25**	**75**	**100**

Course Outcome

On completion of this course, Students will be able to

CO1 (K1 & K2 – Remembering and Understanding)

Explain the concepts and principles of management, resource utilization, time and energy management, money management, consumer rights, consumer protection, and family welfare.

CO2 (K3 – Applying)

Apply management principles, decision-making processes, budgeting techniques, resource utilization strategies, and consumer education practices in family and household situations.

CO3 (K4 – Analyzing)

Analyze family resources, standards of living, income and expenditure patterns, savings mechanisms, consumer issues, and factors influencing effective management of household resources.

CO4 (K5 & K6 – Evaluating and Creating)

Evaluate management practices and consumer protection measures and formulate suitable plans for resource management, budgeting, savings, consumer welfare, and residential course organization.

UNIT	Contents	No. of Hours
I	**Management** •Definition and meaning of management. •Characteristics of a good homemaker.	12

	• Management process – planning, organizing, controlling and evaluating. • Motivating factors in management – values, goals and standards. • Decision making – steps in decision making.	
II	**Resources** • Resources – classification and characteristics. • Standard of living – factors affecting standard of living. • Causes for low living standards in India. • Law of diminishing marginal utility.	12
III	**Time and Energy Management** • Importance of time management. • Guidelines in planning time schedules. • Fatigue – types and methods of overcoming fatigue. • Work simplification – definition and Mundel's Law.	10
IV	**Money Management** **Family Income** • Types, sources and methods of augmenting family income. • Family expenditure – budget, meaning, types of budget, planning a family budget, steps in planning and advantages of budgeting. • Engel's Law of Consumption. **Savings** • Meaning and need for savings. • Saving institutions – bank, post office, insurance, chit fund and mutual fund.	12
V	**Consumer Rights and Protection** • The homemaker as a wise consumer. • Consumer education.	

	• Consumer aids – advertisements, standards, labels and price tags. • Consumer protection – need and measures adopted to provide consumer protection. • Consumer laws, consumer courts and consumer movement.	12

Reference

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 & S ons.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.
6. Margaret Kaye. A.A Students hand book of House wifer. Y. J. M. Dent Sons Ltd.,London. 1986.

CO – PO – PSO Mapping (Course Articulation Matrix)

CO	POs							PSOs						
	1	**2**	**3**	**4**	**5**	**6**	**7**	**1**	**2**	**3**	**4**	**5**	**6**	**7**
CO1	3	1	1	1	2	1	0	3	1	1	1	0	1	0
CO2	2	2	3	1	2	2	1	3	2	3	2	1	1	1
CO3	2	3	2	2	2	2	1	2	3	3	3	2	2	1
CO4	2	3	3	3	3	2	2	2	3	3	3	2	3	2
Total Score	**9**	**9**	**9**	**7**	**9**	**7**	**4**	**10**	**9**	**10**	**9**	**5**	**7**	**4**

0 – No Correlation 1 – Low 2 – Medium 3 – High

Subject Code	Subject Name	Category	L	T	P	S	Credits	Inst. Hours	Marks		
									CIA	External	Total
	FAMILY RESOURCE MANAGEMENT –II PRACTICAL	**ALLIED PRACTICAL II**	**2**				**2**	**2**	**25**	**75**	**100**

Course Outcome

On completion of this course, Students will be able to

CO1 (K1 & K2 – Remembering and Understanding)

Explain the principles of family budgeting, waste management, consumer education, consumer protection, and resource management in family living.

CO2 (K3 – Applying)

Prepare family budgets, develop products from household waste materials, design labels and advertisements, and apply consumer awareness and management principles in practical situations.

CO3 (K4 – Analyzing)

Analyze expenditure patterns, waste management practices, consumer product information, and consumer issues for effective utilization of family resources.

CO4 (K5 & K6 – Evaluating and Creating)

Evaluate consumer products and management practices, formulate consumer complaints, and plan, organize, implement, and assess residential stay programs based on management principles.

Course Content

1. Study of expenditure pattern of your family and preparation of a model family budget/budget suitable for various categories.
2. Study of waste management practices in your house/locality
3. Development of an art object from house hold waste materials.
4. Development and evaluation of labels and advertisements for consumer products. Preparation of a consumer complaint for any consumer product.
5. 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 EasternPrivateLtd.,1976.
3. Van Dommolen, D.B. Designing and Decorating Book–John Wiley&Sons.1991
4. Mann, M. Home Management for Indian families, NewDelhi Kalyan Publishers.1980.
5. Stella Soundararaj. A Textbook of Household Arts, Orient Longmans, Bombay, 1968.

CO – PO – PSO Mapping (Course Articulation Matrix)

CO	POs							PSOs					
	1	**2**	**3**	**4**	**5**	**6**	**7**	**1**	**2**	**3**	**4**	**5**	**6**	**7**
CO1	3	1	1	1	2	1	0	3	1	1	1	0	1	0
CO2	2	2	3	1	2	2	1	3	2	3	2	1	1	1
CO3	2	3	2	2	2	2	1	2	3	3	3	2	2	1
CO4	2	3	3	3	3	2	3	2	3	3	3	2	3	3
Total Score	**9**	**9**	**9**	**7**	**9**	**7**	**5**	**10**	**9**	**10**	**9**	**5**	**7**	**5**

Level of Correlation between COs and POs, COs and POs

0 – No Correlation 1 – Low 2 – Medium 3 – High

Subject Code	Subject Name	Category	L	T	P	S	Credits	Inst. Hours	Marks		
									CIA	External	Total
	INTRODUCTION TO FASHION DESIGNING	**SEC -II**	**2**				**1**	**2**	**25**	**75**	**100**

Course Outcome

On completion of this course, Students will be able to

CO1 (K1 & K2 – Remembering and Understanding)

Explain the concepts of fashion, fashion terminology, design elements, principles of design, colour theories, figure analysis, and wardrobe planning used in fashion designing.

CO2 (K3 – Applying)

Apply design elements, principles of design, colour harmonies, figure analysis, and wardrobe planning techniques in apparel and fashion design.

CO3 (K4 – Analyzing)

Analyze fashion trends, body proportions, colour combinations, garment suitability, and design applications for different figures, age groups, and occasions.

CO4 (K5 & K6 – Evaluating and Creating)

Evaluate fashion design concepts and create appropriate apparel designs, wardrobe plans, and fashion illustrations based on aesthetic, functional, and psychological considerations.

UNIT	Contents	No. of Hours
I	**Introduction to fashion designing** Fashion, style, fad, classic, collection, chic, custom made, mannequin, fashion show, trend forecasting, high fashion, fashion cycle, haute couture, fashion director, fashion editor, line, knock-off, avant-garde, bridge, buying house, apparel, fashion merchandising, prêt-à-porter.	8
II	**Design** a) Design- definition and types– structural and decorative design, requirements of a good structural and decorative design. Application of structural and decorative sign in address, selection and application of rimming's and decorations. b) Elements of design– line, shape or form, colour, size and texture. c) Principles of design -balance–formal and in formal, rhythm-through repetition, radiation and gradation, emphasis, harmony and proportion. Application of principles of design in address.	10
III	**Colour** a) Colour - definition, colour the ories-prang colour chart and Munsell colour system, b) Dimensions of colour-hue, value, and intensity. c) Colour harmonies- types and its application in dress design.	7
IV	**Figure drawing and analysis** a) Basic human proportions, Anatomy and model drawing 8, 10, 12 head theory, Straight, flesh, motion posture. b) Figure analysis and designing dresses for stout figure, thin figure, slender figure, narrow shoulders, broad shoulders, round shoulders, large bust, flat chest, large hip, and large abdomen, round face, large face, small face, prominent	8

	chin and jaw, prominent forehead.	
V	**Wardrobe planning** a) Wardrobe planning for different age groups, factors influencing wardrobe selection, Fashion and season, d) Designing dresses based on different occasions–business meetings, parties/ dinners, evenings/leisure hours, weddings, functions, sports, uniforms for civil service, air hostess, hoteliers, schools–girls and boys.	8

Reference:

1. Sumathi, G.J. (2002) Elements of Fashion and Apparel Design. New Age International Publishers, New Delhi.
2. Gini Stephens Frings (1999) Fashion – From Concept to Consumer. 6th edition, Prentice Hall.
3. Gerry Cooklin (2003) Pattern grading for women's clothes, the technology of sizing, Blackwell science Ltd, USA
4. Kaur N (2010) Comdex Fashion Design: Fashion Concepts - Vol. 1, Dream tech Press, Delhi

e- learning Resources:

1. https://purushu.com/2010/08/elements-of-design-in-fashion.html
2. https://vanseodesign.com/web-design/color-meaning/
3. http://bieap.gov.in/Pdf/FGMPaperI.pdf
4. http://textilelearner.blogspot.com/2015/07/drafting-procedures-of-line-frock.html
5. http://textilelearner.blogspot.com/2015/06/drafting-procedures-of-ladies-kurti.html

CO – PO – PSO Mapping (Course Articulation Matrix)

CO	POs							PSOs						
	1	**2**	**3**	**4**	**5**	**6**	**7**	**1**	**2**	**3**	**4**	**5**	**6**	**7**
CO1	3	1	1	1	1	1	0	2	1	1	1	0	1	1
CO2	2	2	3	1	1	2	1	2	2	2	2	1	1	3
CO3	2	3	2	2	1	2	1	2	3	3	3	1	2	3
CO4	2	3	3	3	1	2	2	2	3	3	2	2	3	3
Total Score	**9**	**9**	**9**	**7**	**4**	**7**	**4**	**8**	**9**	**9**	**8**	**4**	**7**	**10**

Level of Correlation between COs and POs, COs and POs

0 – No Correlation 1 – Low 2 – Medium 3 – High

Subject Code	Subject Name	Category	L	T	P	S	Credits	Inst. Hours	Marks		
									CIA	External	Total
	LANDSCAPE DESIGN AND ORNAMENTAL GARDEN	**SEC- III**	**2**				**1**	**2**	**25**	**75**	**100**

Course Outcome

On completion of this course, Students will be able to

CO1 (K1 & K2 – Remembering and Understanding)

Explain the concepts, principles, styles, components, and importance of landscape design, ornamental gardening, and the factors influencing plant growth and garden development.

CO2 (K3 – Applying)

Apply principles of landscape design and gardening techniques in the selection of ornamental plants and the preparation of landscape and garden plans for different settings.

CO3 (K4 – Analyzing)

Analyze site conditions, garden styles, plant characteristics, and environmental factors for developing suitable landscape and ornamental garden designs.

CO4 (K5 & K6 – Evaluating and Creating)

Evaluate landscape requirements and create functional and aesthetically appealing garden and landscape designs by integrating appropriate plants, structures, and environmental considerations.

UNIT	Contents	No. of Hours

I	**Landscape Design -** Definition, Importance and Principles of Design in Landscaping. Requirements in Landscape Area- Site & Location, Site Evaluation, Soil Properties, Water Systems, Climatic Conditions and Lighting. Public and Private Garden. Importance of Kitchen Garden.	6
II	**Ornamental Garden -** Definition, Components of Garden- Arboretum. Shrubbery, Fernery, Arches and Pergolas, Edges and Hedges. Integral Elements of Garden- Climbers and Creepers, Cacti &Succulents, Herbs, Annuals & Perennials, Flower Borders & Beds. Supplementary Elements of Garden- Ground Covers, Carpet Beds, Bamboo Grooves, Topiary and Garden Adornments.	6
III	**Styles and Types of Landscape Garden -** Garden Styles: Formal, Informal and Freestyle, Wild Gardening, Types of Gardens: Persian, Mughal, Japanese, English, Italian, Buddha and Spanish garden.	6
IV	**Special Types of Gardens -** Vertical Garden, Roof Garden, Bog Garden, Sunken Garden, Rock Garden, Clock Garden, Bonsai Gardens, Temple Garden & Sacred Groves.	6
V	**Indoor-Outdoor Plants -** Kinds and Classification, Factors Influencing Growth of Plants. Planning and Execution of Landscape Design Based on the Styles and Kinds of Plants.	6

References:

1. A K Tiwari, (2012), Fundamentals of Ornamentals Horticulture and Landscape Gardening, NIPA publisher
2. Alkasingh (2015), A colour handbook: Landscape gardening, NIPA publisher
3. Deshraj (2017), Floriculture at a glance, Kalyani publishers
4. G.S. Randhawa, A.N. Mukhopadyay, A. Mukhopadhyay (1998) Floriculture in India, Jaideep publishers Delhi.
5. Harikrishnan Paliwal, (2013) Ornamental Gardening-A user‘s Companion,

Jain Publishing Company, New Delhi

6. M Kannan, P Ranchana, S Vinodh, (2016) Ornamental Gardening and Landscaping, New India publishing agency

e-**Learning Resources:**

- http://www.megagriculture.gov.in/PUBLIC/floriculture_objectives.aspx
- http://ncert.nic.in/vocational/pdf/kegr101.pdf
- http://agritech.tnau.ac.in/horticulture/horti_Landscaping_freshflower.html
- https://www.basicsofgardening.com/types-of-garden
- https://www.designcad.com.au/wp/Docs/Landscape%20Design%20and%20CAD. pdf

CO – PO – PSO Mapping (Course Articulation Matrix)

CO	POs1							PSOs						
	1	**2**	**3**	**4**	**5**	**6**	**7**	**1**	**2**	**3**	**4**	**5**	**6**	**7**
CO1	3	1	1	1	2	1	0	2	1	1	1	0	1	1
CO2	2	2	3	1	2	2	1	2	2	2	2	1	1	3
CO3	2	3	2	2	2	2	1	2	3	3	3	2	2	3
CO4	2	3	3	3	2	2	2	2	3	3	3	2	3	3
Total Score	**9**	**9**	**9**	**7**	**8**	**7**	**4**	**8**	**9**	**9**	**9**	**5**	**7**	**10**