

**Sri Meenakshi Government Arts College for Women**

(An Autonomous Institution Affiliated to Madurai Kamaraj University)

Re-Accredited with 'A' Grade by NAAC (3rd Cycle)

Madurai - 625 002.



## **M.Sc. Home Science**

**CHOICE-BASED CREDIT SYSTEM**

**OUTCOME-BASED EDUCATION**

**SYLLABUS**

**(For those who joined in 2022 - 2023)**

**SRI MEENAKSHI GOVERNMENT ARTS COLLEGE FOR WOMEN (A),  
MADURAI**

**SYLLABUS FOR M.Sc. HOME SCIENCE**

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**SRI MEENAKSHI GOVERNMENT ARTS COLLEGE FOR WOMEN (A), MADURAI****DEPARTMENT OF HOME SCIENCE****SCOPE OF HOME SCIENCE:**

The study of Home Science helps the pupil to lead a more satisfying personal, family and community life because of the knowledge, understanding, skills and appreciation of cultural and spiritual values a pupil acquires through Home Science education. Unlike other subjects, Home Science is a practical science that applies to everyday life. As a skill-oriented subject, it offers maximum opportunity to express one's ability to achieve one's potential in diverse fields, as an individual and a team player and develop leadership qualities.

Home Science education develops qualities needed for responsible citizenship. Home Science helps pupils to recognize the importance of food in healthy living, teaches how to prepare food by retaining its nutrients and the importance of a balanced diet. It also enables one to achieve healthy family relationships and manage household resources. Home Science education lays the foundation for entrepreneurship, a sustainable path towards today's youth empowerment. The student becomes efficient to nurture and take care of the young, to foster their healthy growth and development. Moreover one gains technical knowledge and information from various branches of Home Science for both personal and professional capabilities.

YEAR OF ESTABLISHMENT OF THE DEPARTMENT: 1979-1980

COURSES OFFERED: CBCS Course Structure; Outcome-Based Education (OBE)

- UG COURSE offered since 2000-2001:

**B.Sc. Home Science (Nutrition, Food Service Management & Dietetics)**

- PG COURSE offered since 2018-2019: **M.Sc. Home Science**

**VISION:** *To uplift the socially backward and economically poor young women of the society through value-based education in health & nutrition*

**MISSION**

**Equip students to become messengers of nutrition to the community at large**

**Impart skills and techniques to find placement in the food & health sector**

**Revise syllabus constantly for social relevance & employability**

**Provide flexibility & academic freedom through Choice Based Credit**

**System Identify strengths & eliminate weaknesses**

**Provide accountability & accreditation****PROGRAMME: M.Sc. HOME SCIENCE****ELIGIBILITY FOR ADMISSION: As per DCE norms (Pass in B.Sc. Home Science or equivalent)****PROGRAMME OUTCOMES**

1. Getting enriched by the existing knowledge in their respective disciplines and apply appropriate methodology for research and implementation
2. Develop technology compatible to new perceptions and evolve innovative pedagogy in their discipline
3. Design creative projects and translate it to the present day scenario
4. Evaluate the issues and challenges pertaining to their disciplines and synergize them with the growing needs in their arena
5. Explore the diverse value systems of our nation and contribute towards building an egalitarian society

**PROGRAMME SPECIFIC OUTCOMES**

1. Appreciate nuances of value-based life-skill oriented learning
2. Devise strategies for promoting healthy living in the community
3. Develop comprehensive and analytical skills in food industries and health sectors
4. Demonstrate higher-order skill set in all the specializations of Home Science
5. Appraise and distinguish exceptional situations in human development to make early detection of special needs
6. Achieve desirable change in the development and empowerment of people

## Mapping of COs with POs and PSOs

Mapping	1-20%	21-40%	41-60%	61-80%	81-100%
Scale	1	2	3	4	5
Relation	0.0-1.0	1.1-2.0	2.1-3.0	3.1-4.0	4.1-5.0
Quality	Very Poor	Poor	Moderate	High	Very High
Mean Score of COs = $\frac{\text{Total Value}}{\text{Total No. of POs \& PSOs}}$			Mean Overall Score of COs = $\frac{\text{Total of Mean Score}}{\text{Total No. of COs}}$		

CO: COURSE OUTCOME

PO: PROGRAMME OUTCOME

PSO: PROGRAMME SPECIFIC OUTCOME

**SCHEME FOR INTERNAL ASSESSMENT**

**Theory:** Internal: 25 marks

**Practical:** Internal: 40 marks

The pattern of internal assessment will be as follows:

Test average of two tests	10 marks
Model Exam	10 marks
Assignments	5 marks
Total	25 marks

**SCHEME FOR EXTERNAL ASSESSMENT**

**Theory:** External Exam: Maximum 75 marks

**Practical:** External Exam: Maximum 60 marks

**PASSING MINIMUM**

Assessment	Internal	External	Aggregate
Theory	No minimum	(34/75) 45% of 75	50/100
Practical	No minimum	(27/60) 45% of 60	50/100

**QUESTION PAPER PATTERN**

<b>Title of the paper</b>		
<b>Subcode:</b>	<b>Duration : 3 Hours</b>	<b>Max Marks: 75</b>
<b>Section - A</b> <b>(5 x 5 = 25) marks</b> Question No. 1 to 5 (Two questions from each unit) Answer ALL Questions ( <b>Internal Choice</b> ) Answers not exceeding two pages		
<b>Section – B</b> <b>(5 x 10 = 50) marks</b> Question No. 6 to 10 (Two question from each unit) Answer ALL Questions ( <b>Internal Choice</b> ) Answers not exceeding four pages		

**BLUEPRINT**

UNIT	SECTION		TOTAL No. of Questions
	A 5 MARKS EACH 5 questions INTERNAL CHOICE	B 10 MARKS EACH 5 questions INTERNAL CHOICE	
I	2	2	4
II	2	2	4
III	2	2	4
IV	2	2	4
V	2	2	4
Total Marks	25	50	20
			75

### Levels of Mapping for Post Graduate Programme

Bloom's classification system that is used to define and distinguish different levels of student's cognition has been incorporated into the evaluation process. It is based on the following:

#### K1 - Remembering/Recalling

**Keywords:** Define, Identify, Mention, List out, Find, Select, Quote, State, Choose, Trace, etc.

#### K2 - Understanding/Comprehension

**Keywords:** Classify, Explain, Demonstrate, Translate, Infer, Show, Differentiate, Distinguish, Illustrate, Draw, Examine, etc.

#### K3 - Application and Analysis

**Keywords:** Apply, Derive, Justify, Explain, Solve, Analyze, Describe, Sketch, Draw, Evaluate, Discuss, Explore, Compare and contrast, Appreciate, Elucidate, Review, etc.

#### K4 - Synthesis and Evaluation

**Keywords:** Evaluate, Solve, Discuss, Describe, Elucidate, Design, Develop, Formulate, Criticise, Explain, Justify, Compare, Comment, etc.

Year	K1	K2	K3	K4
I	20%	20%	30%	30%
II	20%	20%	30%	30%

### Question Pattern

Year	K1	K2	K3	K4
I & II	Part-A (1 question)	Part-A (1 question)	Part-A (1 question)	Part-A (2 questions)
	Part-B (1 question)	Part-B (1 question)	Part-B (1 question)	Part-B (2 questions)

## SRI MEENAKSHI GOVT. ARTS COLLEGE FOR WOMEN (AUTONOMOUS), MADURAI-2

Programme Code: PHSE 1

M.Sc HOME SCIENCE

Course Type	Course Code	Title of the Course	Hrs/Week	Credits	Exam Hrs	Marks		
						Int	Ext	Total
<b>SEMESTER –I</b>								
Core Course-I (CC-I)	P22CN1	Applied Physiology	6	5	3	25	75	100
Core Course-II (CC-II)	P22CN2	Advanced Food Science	5	4	3	25	75	100
Core Course-III (CC-III)	P22CN3	Food Safety and Quality Control	6	5	3	25	75	100
Core Course-IV (CC-IV)	P22CN4P	Food Science and Quality Control Practical	6	3	5	<b>40</b>	<b>60</b>	100
Discipline Specific Elective Course - I (DSEC- I)	P22DSN1A	Family Resource Management Concepts and Contexts	5	4	3	25	75	100
	P22DSN1B	Food Processing and Packaging						
Skill Enhancement Course-I (SEC -I)	P22SEN1	Home Science for Competitive Examinations	2	2	3	25	75	100
<b>Total</b>			<b>30</b>	<b>23</b>				<b>600</b>
<b>SEMESTER –II</b>								
Core Course-V (CC-V)	P22CN5	Principles of Nutrition	6	4	3	25	75	100
Core Course-VI (CC-VI)	P22CN6	Applied Human Nutrition	6	5	3	25	75	100
Core Course-VII (CC-VII)	P22CN7	Biochemical Changes in Diseases	5	4	3	25	75	100
Core Course-VIII (CC-VIII)	P22CN8P	Nutrient Analysis Practical	6	3	5	<b>40</b>	<b>60</b>	100
Discipline Specific Elective Course-II (DSEC-II)	P22DSN2A	Trends and Issues in Human Development	5	4	3	25	75	100
	P22DSN2B	Diabetes Care and Education						
Skill Enhancement Course-II (SEC- II) (T)	P22SEN2	Early Childhood Care and Education	2	2	3	25	75	100
<b>Total</b>			<b>30</b>	<b>22</b>				<b>600</b>

*Summer Internship between II & III Semesters in Hospitals and / or Food Industries*

<b>SEMESTER –III</b>								
Core Course-IX (CC-IX)	P22CN9	Diet in Metabolic Diseases	6	5	3	25	75	100
Core Course-X (CC-X)	P22CN10	Clinical Nutrition and Dietetics	6	5	3	25	75	100
Core Course-XI (CC-XI)	P22CN11	Research Methodology and Statistics	5	5	3	25	75	100
Core Course-XII (CC-XII)	P22CN12P	Clinical Nutrition, Dietetics Practical & Internship	6	3	3	<b>40</b>	<b>60</b>	100
Discipline Specific Elective Course III (DSEC–III)	P22DSN3A	Trends in Extension Education and Communication	5	4	3	25	75	100
	P22DSN3B	Public Health and Epidemiology						



Non Major Elective Course (NMEC)	P22NMN1	Nutrition for Health and Fitness	2	2	3	25	75	100
<b>Total</b>			<b>30</b>	<b>24</b>				<b>600</b>
<b>SEMESTER –IV</b>								
Core Course-XIII (CC–XIII)	P22CN13	Institutional Food Administration	6	4	3	25	75	100
Core Course-XIV (CC–XIV)	P22CN14	Food Product Development and Marketing	6	4	5	25	75	100
Core Course-XV (CC-XV)	P22CN15P	Food Product Development and Marketing Practical	5	4	3	<b>40</b>	<b>60</b>	100
Core Course-XVI (CC-XVI)	P22CNPW	Project	8	5	-	<b>80</b>	<b>20</b>	100
Discipline Specific Elective Course-IV (DSEC–IV)	P22DSN4A	Textiles and Clothing	5	4	3	25	75	100
	P22DSN4B	Gender Studies						
Total			<b>30</b>	<b>21</b>				<b>500</b>
<b>TOTAL</b>			<b>120</b>	<b>90</b>				<b>2300</b>

**COURSE FRAMEWORK FOR M.Sc. PROGRAMME**

PART	COURSE	TOTAL NO OF COURSES	HOURS	CREDITS	MARKS
III	Core Course	15	86	63	1500
III	Core Project	1	8	5	100
III	Discipline Specific Elective Course	4	20	16	400
III	Non Major Elective	1	2	2	100
III	Skill Enhancement Course	2	4	4	200
<b>Total</b>		<b>23</b>	<b>120</b>	<b>90</b>	<b>2300</b>

**Programme :** M.Sc. HOME SCIENCE  
**Semester :** I **Core Course I** **Hours per week: 6** **90 hrs/Semester**  
**Sub. Code :** P22CN1 **Credits : 5**

**TITLE OF THE COURSE: APPLIED PHYSIOLOGY**

Pedagogy	Hours	Lecture	Peer Group Teaching	Demo/OER/Tutorial	GD/Seminar	ICT/Blended Learning	IV/DI
	90	52	8	10	10	10	-

**PREAMBLE**

This course is designed to:

- Familiarize the structure and functions of systems in human body
- Understand the integrated functions of all systems and disease conditions

**COURSE OUTCOME**

At the end of the Semester, the Students will be able to

	Unit	Hrs/Sem
<b>CO1:</b> Connect the functions of blood components with disorders of blood and immune system.	I	18
<b>CO2:</b> Differentiate the phases of cardiac cycle and demonstrate measurement of blood pressure.	II	18
<b>CO3:</b> Explain mechanism of respiration, lung capacities, digestive and absorption of food.	III	18
<b>CO4:</b> Illustrate structure and functions of nervous and excretory systems.	IV	18
<b>CO5:</b> Integrate mechanism of hormonal secretion, action and regulation.	V	18
<b>CO6:</b> Describe role of hormones in fertilization.	V	

**SYLLABUS**

**UNIT 1**

**Blood-**Composition, functions of WBC, RBC, Platelets, Plasma protein, Leucocytes; Erythropoiesis. Disorders of blood – Anaemia - types, White blood cell, Platelets, Clotting of blood. Lymphatic system; Tissue fluid: Intracellular & Extracellular. Immune system-antigen, antibodies; Auto-immune disorders - Gravis, Sjogren's syndrome, rheumatoid arthritis, haemolytic anaemia, thyroiditis.

**UNIT II**

**Circulatory system** – Classification (Systemic, pulmonary, coronary, portal, cerebral and foetal circulation) cardiac cycle, cardiac output, Blood pressure- measurement of blood pressure, peripheral resistance, Hypotension, Hypertension-types. Thrombophlebitis.

**UNIT III**

**Respiratory System** -Anatomical Structures, Mechanism of respiration. Disturbances of respiration – apnea, hypo and hyperventilation, hypoxia, asphyxia, Oxygen toxicity. Lung volumes, Lung capacities. Composition of alveolar air, inspired air and expired air.

**Digestive system:** Composition, functions and secretory mechanism of digestive juices (Saliva, Gastric juice, Pancreatic juice, Bile juice). Digestion of food – carbohydrate, protein, fat; Process of absorption- carbohydrate, protein, fat and water.

**UNIT IV**

**Nervous System:** Anatomical classification of nervous system, structure and functions of neurons, sensation, reflexes. Disorders of spinal cord - multiple sclerosis. Disorders of basal ganglia - Parkinson's disease, Huntington chorea. Sleep disorder. Epilepsy.

**Excretory system:** Formation of urine, characteristics of urine, normal and abnormal constituents of urine; osmotic diuresis. Abnormalities of micturition - atonic bladder, nocturnal micturition. Sense organs - Abnormalities of taste

sensation - ageusia, hypogeusia, dysgeusia, taste blindness. Abnormalities of olfactory sensation - anosmia, hyposmia, hyperosmia. Skin- structure, functions.

#### UNIT V

**Endocrine system**—Classification of hormones – steroids, proteins and derivatives of tyrosine. Mechanism of hormonal action. Structure and functions of Pituitary, adrenal, thyroid, pancreas, parathyroid, pineal and thymus glands. Conditions of Hypo and Hyperactivity. Regulation of hormone secretion.

**Reproductive System**- Female reproductive system, Primary female sex organs and hormones (Ovaries, graafian follicle, ovum, uterus, vagina, oestrogen, progesterone) secondary female sex organs (Mammary glands); Menstruation cycle, fertilization. Abnormal menstruation - oligomenorrhea, dysmenorrhea, amenorrhea. Male reproductive system - Hypo and hypergonadism in males.

#### TEXTBOOK

1. Ratan, V. (2004) Handbook of Human Physiology (Seventh Edition), Jaypee Brothers Medical Publishers, New Delhi.
2. Chatterjee, C.C. (2016) 11<sup>th</sup> Edition, Human Physiology Volume I, CBS Publishers and Distributors Pvt. Ltd., Mumbai.

#### REFERENCES

1. Sembulingam, K. & Sembulingam, P. (2012) 6<sup>th</sup> Edition, Essentials of Medical Physiology, Jaypee Brothers Medical Publishers Pvt. Ltd., New Delhi.
2. Joshi, D.V. (1995) Preparatory Manual for Undergraduate Physiology, B.I. Churchill Living Stone, New Delhi.
3. Subramaniam & Kutty, S.M. (2001) TextBook of Human Physiology, S. Chand & Company Ltd., New Delhi.
4. Umamaheshwari, B & Sampath, K. (2007) A Textbook of Human Anatomy & Physiology, Birla Publications Pvt. Ltd.

#### Open Educational Resources

Blood -

<http://www.ignouhelp.in/ignou-mfn-01-study-material/>

Skin -

<http://ecoursesonline.iasri.res.in/course/view.php?id=633>

Endocrine system - [https://epgp.inflibnet.ac.in/view\\_f.php?category=554](https://epgp.inflibnet.ac.in/view_f.php?category=554)

COURSE OUTCOMES (COs)	PROGRAMME OUTCOMES (POs)					PROGRAMME SPECIFIC OUTCOMES (PSOs)						MEAN SCORE OF COs
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	
CO1	5	3	4	2	3	4	5	3	3	3	2	3.36
CO2	5	3	4	2	3	4	5	3	3	3	2	3.36
CO3	5	3	4	2	3	4	5	3	3	3	2	3.36
CO4	5	3	4	2	3	4	5	3	3	3	2	3.36
CO5	5	3	4	2	3	4	5	3	3	3	2	3.36
CO6	5	3	4	2	3	4	5	3	3	3	2	3.36
MEAN OVERALL SCORE												3.36

Result: The score for this course is 3.36 (High Relationship)

**Programme :** M.Sc. HOME SCIENCE

**Semester :** I

**Core Course - II**

**Hours per week: 5**

**75 hrs/Semester**

**Sub. Code :** P22CN2

**Credits : 4**

**TITLE OF THE COURSE: ADVANCED FOOD SCIENCE**

Pedagogy	Hours	Lecture	Peer Teaching	Demo/OER/Tutorial	GD/Seminar/Flipped Classroom	ICT/Blended Learning	IV/DI
	75	60	2	5	3	5	-

**PREAMBLE**

This course is designed to:

- Provide an understanding of composition of various foodstuffs.
- Familiarize students with changes occurring in various foodstuffs as a result of processing and cooking.
- Enable students to use theoretical knowledge in various applications and food preparations.

**COURSE OUTCOME**

At the end of the Semester, the Students will be able to

**CO1:** Analyze the constituents of foods and their physical properties.

**CO2:** Apply the classification and properties of carbohydrates in food products.

**CO3:** Familiarize with need, types and scope of novel proteins and protein substitutes.

**CO4:** Discuss the role of enzymes in food fermentation.

**CO5:** Examine the quality of food fat based on functional properties.

**CO6:** Compare food colours and flavours and their safety limits.

Unit

Hrs/Sem

I

15

II

15

III

15

IV

15

V

15

**SYLLABUS**

**UNIT I**

**Water and Food Dispersions:** Physical properties of water, chemical nature, Free and bound water, solutions and colligative properties. Water activity and Food spoilage.

**Food Colloids and Emulsions:** Classification, stabilization of colloidal systems.

- Gels: Structure, formation, strength, types.
- Emulsions: Formation, stability, surfactants and emulsifiers
- Foams: Structure, formation and stabilization.

**UNIT II**

**Polysaccharides, Sugars and Sweeteners:**

- Starch: Structure and Composition, Gelatinization and dextrinization, Effects of ingredients and conditions on gelatinization. Modified food starches. Non-starch Polysaccharides: Cellulose, hemicellulose, pectins, gums, animal / plant polysaccharides.
- Sugars: Kinds of sugar, sugar syrups, sugar products. Properties –solubility, hydrolytic reactions, crystallization, hygroscopicity, colligative properties, textural contributions, fermentation, non-enzymatic browning.
- Sweeteners: Types, properties, applications in food products

**UNIT III**

**Proteins in foods:**

- Structure, Composition, coagulation, denaturation, non-enzymatic browning, putrefaction, and other chemical changes.
- Protein Concentrates, Hydrolysates and textured vegetable proteins.
- Milk substitutes-Soya, Groundnut and Coconut milk.

**Enzymes:**

- Classification and Nature, stability and action.
- Proteolytic enzymes, oxidases, lipases, enzymes decomposing carbohydrates and applications.
- Enzymes in food fermentations. Immobilized enzymes.

**UNIT IV****Fats and Oils:**

- Sources, Composition, Oil extraction, refining, hydrogenation, winterizing.
- Fats and Oils: Composition, Functional properties of fat and uses in food preparations. Animal fats and Plant oils. Smoking point of different edible oils.
- Changes in fat on cooking and processing. Trans-fats.
- Fat deterioration: types of rancidity and antioxidants. Fat substitutes.

**UNIT V****Food Colours and Flavours:**

- Pigments classification, structure and properties; Effects of processing on stability of pigments in foods and the factors influencing stability of colours in foods; Role of colours in food products. Safety limits.
- Flavors: Taste and nonspecific saporous sensations, Flavour compounds in vegetables, fruits and spices; Flavours produced from fermentation and volatiles on foods; Effect of processing on food flavours; Role of flavours in food products. Flavour encapsulation.

**TEXTBOOKS**

1. Manay, S. and ShadaksharaSwamy, Food: Facts and Principles, New Age International (P) Publishers, New Delhi.
2. Srilakshmi, B. (2018) Food Science, 7<sup>th</sup> Edition, New Age International Ltd., New Delhi.

**REFERENCES**

1. Potter, N. and Hotch Kiss, J.H. (1996): Food Science, Fifth edition, CBS Publishers and Distributors, New Delhi
2. Charley, H. (1982). Food Science, 2nd edition, John Wiley & Sons, New York.
3. Meyer, L.H. 1974. Food Chemistry, AVI Publishing Co. Inc,
4. Chandrasekhar, U. (2002) Food Science and Applications in Indian Cookery, Phoenix Publishing House Pvt. Ltd., New Delhi

**JOURNALS**

- Journal of Food Science.
- Advances in Food Research.
- Journal of Food Science and Technology.

**Open Educational Resources**

Emulsion and colloids - [https://epgp.inflibnet.ac.in/view\\_f.php?category=546](https://epgp.inflibnet.ac.in/view_f.php?category=546)

Gelatinization - [https://epgp.inflibnet.ac.in/view\\_f.php?category=546](https://epgp.inflibnet.ac.in/view_f.php?category=546)

Fats and oils - [https://epgp.inflibnet.ac.in/view\\_f.php?category=546](https://epgp.inflibnet.ac.in/view_f.php?category=546)

COURSE OUTCOMES (COs)	PROGRAMME OUTCOMES (POs)					PROGRAMME SPECIFIC OUTCOMES (PSOs)						MEAN SCORE OF COs
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	
CO1	5	4	5	4	3	4	5	5	4	3	2	3.54
CO2	5	4	5	4	3	4	5	5	4	3	2	3.54
CO3	5	4	5	4	3	4	5	5	4	3	2	3.54
CO4	5	4	5	4	3	4	5	5	4	3	2	3.54
CO5	5	4	5	4	3	4	5	5	4	3	2	3.54
CO6	5	4	5	4	3	4	5	5	4	3	2	3.54
MEAN OVERALL SCORE												3.54

Result: The score for this course is 3.54 (High Relationship)

**Programme:** M.Sc. HOME SCIENCE  
**Semester:** I **Core Course - III** **Hours per week: 6** **90hrs/Semester**  
**Sub. Code:** P22CN3 **Credits : 5**  
**TITLE OF THE COURSE: FOOD SAFETY AND QUALITY CONTROL**

Pedagogy	Hours	Lecture	Peer Group Teaching	Demo/ OER/ Tutorial	GD/Seminar	ICT/Blended Learning	IV/DI
	90	52	8	10	10	10	-

**PREAMBLE**

To enable students

1. To know the importance of quality assurance in food industry
2. To know the tests and standards for quality assessment and food safety
3. To know the laws and standards ensuring food quality and safety

**COURSE OUTCOME**

At the end of the Semester, the Students will be able to

**CO1:** Identify types of food spoilage and the need for hygiene in food handling.

**CO2:** Discuss the implications of food adulterants and additives on consumers' health.

**CO3:** Demonstrate skill in food quality testing career for further career prospects in food industry.

**CO4:** Describe the process of food quality assurance.

**CO5:** Apply the guidelines of food laws and standards to ensure food quality in food industry.

**CO6:** Interpret the principles of food safety and quality to contribute to the best practices in food

Unit

Hrs/Sem

I

18

II

18

III

18

IV

18

V

18

**SYLLABUS****UNIT I**

**Food Spoilage:** Food spoilage definition; Factors influencing food spoilage; Types of food spoilage such as microbes, enzymes and insects; Changes in food quality due to spoilage; Methods for detection of food spoilage; Concept of food preservation and the principles.

**Food Safety:** Need and importance of food safety in food industries; Factors affecting food safety; Role of kitchen-hygiene, employee health and food plant hygiene in prevention of food spoilage and contamination; Regulatory authorities at local, district and national levels ensuring food safety in food industries.

**UNIT II**

**Food Additives and Adulterants:** Food additives definition; Common food additives and its function and usage; Permissible limits of additives in foods; Implications of additives on consumers health; Food adulteration: Meaning and definition; Types of food adulterants; Methods used for detection of food adulterants.

**UNIT III**

**Testing of Food Quality:** Quality - meaning and need for food quality testing; Types of evaluation – subjective and objective; Subjective evaluation methods based on difference, rate, sensitivity etc.; Difference tests: paired comparison test, duo-trio, triangle test; Rating tests: ranking, two-sample difference test, multiple sample difference, hedonic rating, numerical scoring, composite scoring; Sensitivity test- threshold, dilution. Descriptive test - flavour profile. Objective evaluation methods – tools and instruments used.

**UNIT IV**

**Food Quality Control and Assurance:** Current concepts of quality control and assurance; Need and importance of quality control programmes such as quality plan, documentation of records, product standards, Product and purchase specifications and process control; Principles of HACCP and its role in total quality process; Duties and responsibilities of food quality controller.

**UNIT V**

**Food Laws and Standards:** Need and importance; National food legislation such as FSSAI, Essential Commodities Act, ISI or BIS, AGMARK, FPO and PFA; International Organization such as FAO, WHO, Codex Alimentarius, and APEDA.

**TEXT BOOKS**

1. Jaiswal P.K., (2011) Food Quality and Safety, CBS Publishers and Distributors, New Delhi
2. Manay, S.M. & Shadakshara Swamy, M. (2010) Food Facts & Principles, New Age International (P)Limited Publishers, Chennai

**REFERENCES**

1. Early, R. (1995). Guide to Quality Management Systems for the Food Industry, Blackie, Academic and Professional, London
2. Gould, W.A. and Gould, R.W. 1988. Total Quality Assurance for the Food Industries, CTI Publications Inc, Baltimore
3. Pomeranz, Y. and Meloan, C.E. 1996. Food Analysis : Theory and Practice, CBS Publishers and Distributor, New Delhi
4. Ranganna, S. 1986. Handbook of Analysis and Quality Control for Fruit and Vegetable Products, 2nd Edition, Tata McGraw hill Publishing Co Ltd., New Delhi
5. Hagstad, H.V. and Hubbert, W.T. (1986). Food Quality Control, Foods of Animal Origin, Iowa State University Press, AMES
6. Srilakshmi, B. 2005. Food Science, New Age International (P) Ltd., Publishers, New Delhi.

**Open Educational Resources**

Employee Hygiene - [https://epgp.inflibnet.ac.in/view\\_f.php?category=547](https://epgp.inflibnet.ac.in/view_f.php?category=547)

Food spoilage - [https://epgp.inflibnet.ac.in/view\\_f.php?category=548](https://epgp.inflibnet.ac.in/view_f.php?category=548)

Evaluation - [https://epgp.inflibnet.ac.in/view\\_f.php?category=547](https://epgp.inflibnet.ac.in/view_f.php?category=547)

COURSE OUTCOMES (COs)	PROGRAMME OUTCOMES (POs)					PROGRAMME SPECIFIC OUTCOMES (PSOs)						MEAN SCORE OF COs
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	
CO1	5	5	4	4	3	5	5	5	4	3	4	4.27
CO2	5	5	4	4	3	5	5	5	4	3	4	4.27
CO3	5	5	4	4	3	5	5	5	4	3	4	4.27
CO4	5	5	4	4	3	5	5	5	4	3	4	4.27
CO5	5	5	4	4	3	5	5	5	4	3	4	4.27
CO6	5	5	4	4	3	5	5	5	4	3	4	4.27
MEAN OVERALL SCORE												4.27

Result: The score for this course is 4.27 (Very High Relationship)

**Programme :** M.Sc. HOME SCIENCE  
**Semester :** I **Core Course -IV** **Hours per week: 6** **90 hrs/Semester**  
**Sub. Code :** P22CN4P **Credits: 3**

**TITLE OF THE COURSE: FOOD SCIENCE AND QUALITY CONTROL PRACTICAL**

Pedagogy	Hours	Lecture	Practical Experience	Demo/OER/Tutorial	GD/Seminar/Flipped Classroom	ICT/Blended Learning	IV/DI
	90	10	60	20	-	-	-
<b>COURSE OUTCOME</b>							
At the end of the Semester, the Students will be able to						Unit	Hrs/Sem
<b>CO1:</b> Perform the tests for identifying food adulterants						I	15
<b>CO2:</b> Evaluate quality of milk, fats and oils based on its physical components						II	15
<b>CO3:</b> Determine the quality check for edible oils and fats						III	15
<b>CO4:</b> Apply the study of egg white stability in preparations of food emulsions						IV	15
<b>CO5:</b> Perform the sensory evaluation tests for different foods						V	15
<b>CO6:</b> Integrate the evaluation techniques in food quality assessment						I-V	
<b>SYLLABUS</b>							
<b>UNIT I</b>							
Determination of adulterants in different food products.							
<ul style="list-style-type: none"> <li>a. Food grains and its products</li> <li>b. Sugars and confectionery</li> <li>c. Salt, spices and condiments</li> <li>d. Fruits and vegetables</li> <li>e. Beverages</li> </ul>							
<b>UNIT II</b>							
Quality evaluation of milk samples – determination of the physical characteristics and presence of any additives, fat content, solid non-fat, protein content.							
<b>UNIT III</b>							
Tests for fats & oils – determination of melting point of fat, Acid value, Iodine value, microscopic examination of fat crystals, presence of adulterants.							
<b>UNIT IV</b>							
Test for stability of food colloids – egg white, mayonnaise, gluten content of wheat.							
<b>UNIT V</b>							
Sensory Evaluation of foods - Subjective evaluation; Difference tests: paired comparison test, duo-trio, triangle test; Rating tests: ranking, two-sample difference test, multiple sample difference, hedonic rating, numerical scoring. Sensitivity test - threshold, dilution.							



**TEXT BOOK**

1. Srilakshmi (2010) Food Science Laboratory Manual New Age Publications, New Delhi.
2. FSSAI(2022): Detect Adulteration with Rapid Test, Food Safety and Standards Authority of India, Ministry of Health and Family Welfare Government of India.

**REFERENCES**

1. Charley. H (1982): Food Science (2nd Edition), John Wiley & Sons, New York.
2. Potter, N. and Hotchkiss, J.H. (1996); Food Science, Fifth Edition, CBS Publishers and Distributors, New Delhi.
3. Belitz, H.D. and Grosch, W. (1999); Food Chemistry (2nd Edition), Springer, New York.
4. Bowers, J. (1992); Food Theory and Applications, (2nd Edition), MacMillan.
5. Peckham, G and Freeland — Graves, G.H. (1979); Foundations of Food Preparation.
6. UshaChandrasekaran (2002). Food Science and its Application to Indian Cookery, New Delhi Phoenix Publishing.
7. Raghuramulu, N. Nair, K.M. & Kalyanasundaram, S.A. (1983) Manual of Laboratory Techniques, National Institute of Nutrition, ICMR, Hyderabad.

COURSE OUTCOMES (COs)	PROGRAMME OUTCOMES (POs)					PROGRAMME SPECIFIC OUTCOMES (PSOs)						MEAN SCORE OF COs
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	
CO1	5	5	4	4	3	5	5	5	4	2	4	4.18
CO2	5	5	4	4	3	5	5	5	4	2	4	4.18
CO3	5	5	4	4	3	5	5	5	4	2	4	4.18
CO4	5	5	4	4	3	5	5	5	4	2	4	4.18
CO5	5	5	4	4	3	5	5	5	4	2	4	4.18
CO6	5	5	4	4	3	5	5	5	4	2	4	4.18
MEAN OVERALL SCORE												4.18

Result: The score for this course is 4.18 (Very High Relationship)

**Programme :** M.Sc. HOME SCIENCE  
**Semester :** I **Discipline Specific Elective Course I(a)** **Hours per week: 5** **75 hrs/Semester**  
**Sub. Code :** P22DSN1A **Credits: 4**  
**TITLE OF THE COURSE: FAMILY RESOURCE MANAGEMENT CONCEPTS AND CONTEXTS**

Pedagogy	Hours	Lecture	Peer Group Teaching	Demo/Tutorial	GD/Seminar	ICT/Blended Teaching	IV/DI
	75	65	2	3	2	3	–
<b>PREAMBLE</b>							
To enable the students to							
<ul style="list-style-type: none"> <li>● Understand the factors motivating home management</li> <li>● Acquire ability to use human resources</li> <li>● Gain knowledge about management of family resources</li> <li>● Know the importance of decisions in management</li> <li>● Understand the significance of ergonomics in home and work environment</li> </ul>							
<b>COURSE OUTCOME</b>						Unit	Hrs/Sem
At the end of the Semester, the Students will be able to							
<b>CO1:</b> Associate human values in achieving family goals.						I	15
<b>CO2:</b> Demonstrate abilities in home management.						II	15
<b>CO3:</b> Analyze effective usage of family resources.						III	15
<b>CO4:</b> Develop skills in personal time and money management.						IV	15
<b>CO5:</b> Integrate ergonomics in home and work environment						V	15
<b>SYLLABUS</b>							
<b>Unit I</b>							
<b>Introduction to Resource Management in Family Settings-</b> Introduction to home management- meaning, definitions, conceptual framework, need and scope of family resource management, family resources Vs home management, Motivating factors in management – Values, Standards and Goals – meaning, types/ classification Theories of Motivation- Maslow’s hierarchy of needs theory; human wants – nature and role in management							
<b>Unit II</b>							
<b>Resources-</b> Concept, classification, characteristics and usefulness of family resources, Factors affecting utilization of family resources, Maximizing use of resources and resource conservation, guidelines for the use of resources, Significance of managing resources of the family							
<b>Unit III</b>							
<b>Management Process and Decision Making: An Overview-</b> Management process: Definitions and steps in management process: Planning, Controlling, Organizing and Evaluation. Decision Making- the crux of management, Types of decisions; factors of control, role of values, standards and goals in decision making process.							

**Unit IV**

**Time and Energy Management** - Time – concept of time schedule, time norms and peak loads, Energy – Types of effort (Manual, pedal, visual etc)., Concept of body posture, drudgery and fatigue, fatiguing activities, classification of activities (sedentary, moderate and heavy), use of labour saving devices in management of time and energy, methods of alleviating fatigue, Principles of Work simplification, Mundel's Classes of Change, time and motion studies.

**Unit V**

**Ergonomics: Role in Management of Human Resources**- Ergonomics – concept and principles, scope and importance, work, worker and work environment relationship, role of work, workplace and equipment (appliances) as sources of drudgery, working heights at different levels, Principles of workplace design, Functional designs of kitchen and other storage areas

**TEXTBOOKS**

1. Nickell, P., and Dorsey, J. M. (2002). *Management in Family Living*. New Delhi: CBS Publishers (ISBN13: 9788123908519)
2. Seetharaman, P., Batra, S., & Mehra, P. (2005). *An Introduction to Family Resource Management*. New Delhi: CBS Publishers & Distributors (ISBN 13: 9788123911861)
3. Varghese, M.A., Ogale, N.N. and Srinivasan, K. (2017) *Home Management 2<sup>nd</sup> Edition* New Age International (P) Ltd., Publishers, New Delhi. ISBN-9789386286635

**REFERENCES**

1. Bhargava, B. (2005). *Family Resource Management and Interior Decoration*, Jaipur: Apple Printer and V. R. Printers
2. Deacon, R. F., and Firebaugh, F.M. (1975). *Home Management: Contexts and Concepts*. Boston: Houghton Mifflin Company.
3. Gandotra, V., and Jaiswal, N. (2008). *Management of Work in Home*, New Delhi: Dominant Publishers and Distributors. (ISBN No. 81-7888-526-3)
4. Gross, I.H., Crandall, E. W. and Knoll, M. M. (1980). *Management for Modern Families*. New Jersey: Prentice Hall Inc.
5. Rao V.S.P., and Narayana P.S. (2008). *Principles and Practices of Management*. New Delhi: Konark Publishers Pvt. Ltd. (ISBN 13: 9788122000283)
6. Shukul, M., and Gandotra, V. (2006). *Home Management and Family Finance*. New Delhi: Dominant Publishers and Distributors. (ISBN No. 81-7888-403-8)
7. Singh, S. (2007).

**Open Educational Resources**

Values, Goals - <http://ecoursesonline.iasri.res.in/course/view.php?id=218-->

Resource management

-<http://vidyamitra.inflibnet.ac.in/index.php/home/subjects?domain=Social+Sciences&subdomain=Home+Science>

COURSE OUTCOMES (COs)	PROGRAMME OUTCOMES (POs)					PROGRAMME SPECIFIC OUTCOMES (PSOs)						MEAN SCORE OF COs
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	
CO1	5	4	5	4	4	5	4	2	4	2	3	3.81
CO2	5	4	5	4	4	5	4	2	4	2	3	3.81
CO3	5	4	5	4	4	5	4	2	4	2	3	3.81
CO4	5	4	5	4	4	5	4	2	4	2	3	3.81
CO5	5	4	5	4	4	5	4	2	4	2	3	3.81
MEAN OVERALL SCORE												3.81

The score for this course is 3.81 (High Relationship)

**Programme :** M.Sc. HOME SCIENCE  
**Semester :** I **Discipline Specific Elective Course I(b)** **Hours per week: 5** **75 hrs/Semester**  
**Sub. Code :** P22DSN1B **Credits: 4**  
**TITLE OF THE COURSE: FOOD PROCESSING AND PACKAGING**

Pedagogy	Hours	Lecture	Peer Teaching	Demo/OER/ Tutorial	GD/Seminar/Flipped Classroom	ICT/ Blended Learning	IV/DI
	75	65	2	3	2	3	2
<b>PREAMBLE</b>							
<ol style="list-style-type: none"> <li>To know the principles of different techniques used in processing and preservation of foods.</li> <li>To understand the packaging methods, packaging materials, packaging machineries, modern packaging techniques etc.</li> </ol>							
<b>COURSE OUTCOME</b>						Unit	Hrs/Sem
At the end of the Semester, the Students will be able to							
<b>CO1:</b> Summarize the scope of food processing, preservation and packaging in India						I	15
<b>CO2:</b> Combine methods of processing and preservation for different food products						II	15
<b>CO3:</b> Apply principles of food packaging to selection of packaging materials for different foods						III	15
<b>CO4:</b> Differentiate packaging materials and their finishes						IV	15
<b>CO5:</b> Discuss the recent trends in food packaging systems applied to perishable foods						V	15
<b>CO6:</b> Interpret the contribution of food preservation sector towards nation's economy						I-V	
<b>SYLLABUS</b>							
<b>UNIT I</b>							
Scope of food processing, principles of food processing and preservation. Processing and preservation by heat blanching, pasteurization, sterilization and UHT processing, canning, extrusion cooking, dielectric heating, microwave heating, baking, roasting and frying, etc.							
<b>UNIT II</b>							
Processing and preservation by low temperature, refrigeration, freezing, dehydro-freezing. cold storage methods. Processing and preservation by dehydration, drying, concentration and evaporation- types of dryers and their suitability for different food products, ultra-filtration, reverse osmosis.							
<b>UNIT III</b>							
Definitions and functions of packaging, MAP, CAP, Vacuum packing, Packaging requirements and selection of packaging materials; Types of packaging materials: Paper: Pulping, fibrillation and beating, types of papers and their testing methods.							
<b>UNIT IV</b>							
<b>Glass:</b> composition, properties, types of closures, methods of bottle making; <b>Metals:</b> Tinplate containers, tinning process, components of tinplate, tin free steel (TFS), types of cans, aluminum containers, lacquers; <b>Plastics:</b> types of plastic films, laminated plastic materials, co-extrusion, edible films, biodegradable plastics.							
<b>UNIT V</b>							
Food packaging system: Different forms of packaging such as rigid, semi-rigid, flexible forms and different packaging systems for (a) dehydrated foods (b) frozen foods (c) dairy products (d) fresh fruits and vegetables (e) meat, poultry and sea foods.							
<b>TEXTBOOK</b>							
<ol style="list-style-type: none"> <li>Subbulakshmi, G. and Udupi, A.S. (2006) Food Processing and Preservation, New Age International Publishers, New Delhi.</li> </ol>							
<b>REFERENCES</b>							
<ol style="list-style-type: none"> <li>Richard Coles, Mark J. Kirwan. (2011). Food and Beverage Packaging Technology, 2<sup>nd</sup> Edition. Wiley Blackwell.</li> <li>James G. Brennan, Alistair S. Grandison. (2011) Food Processing Handbook, 2<sup>nd</sup> Edition, 2 Vol Set.</li> <li>James G. Brennan. (2006) Food Processing Handbook.</li> <li>Ramaswamy H and Marcotte M. (2006) Food Processing: Principles and Applications. Taylor &amp; Francis.</li> <li>Fellows PJ. (2005) Food Processing Technology: Principle and Practice. 2<sup>nd</sup> Ed. CRC.</li> <li>Potter NN &amp; Hotchkiss. (1997) Food Science. 5<sup>th</sup> Ed. CBC.</li> <li>Mahadeviah M &amp; Gowramma RV. (1996) Food Packaging Materials. Tata McGraw Hill.</li> </ol>							

**JOURNALS**

1. Journal of Packaging Technology and Research
2. Food Packaging and Shelf Life
3. Journal of Advanced Research in Food Science and Nutrition

**Open Educational Resources**

Modified atmosphere packaging – [https://epgp.inflibnet.ac.in/view\\_f.php?category=1416](https://epgp.inflibnet.ac.in/view_f.php?category=1416)

Principles of Food Processing -[https://epgp.inflibnet.ac.in/view\\_f.php?category=549](https://epgp.inflibnet.ac.in/view_f.php?category=549)

Frozen packaging - [https://epgp.inflibnet.ac.in/view\\_f.php?category=1416](https://epgp.inflibnet.ac.in/view_f.php?category=1416)

Food Preservation-[https://epgp.inflibnet.ac.in/view\\_f.php?category=548](https://epgp.inflibnet.ac.in/view_f.php?category=548)

Food Preservation-<http://ecoursesonline.iasri.res.in/course/view.php?id=639>

Packaging Technology- <http://eagri.org/eagri50/HORT381/lec10.html>

COURSE OUTCOMES (COs)	PROGRAMME OUTCOMES (POs)					PROGRAMME SPECIFIC OUTCOMES (PSOs)						MEAN SCORE OF COs
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	
CO1	5	4	3	4	2	4	4	5	3	2	4	3.63
CO2	5	4	3	4	2	4	4	5	3	2	4	3.63
CO3	5	4	3	4	2	4	4	5	3	2	4	3.63
CO4	5	4	3	4	2	4	4	5	3	2	4	3.63
CO5	5	4	3	4	2	4	4	5	3	2	4	3.63
CO6	5	4	3	4	2	4	4	5	3	2	4	3.63
MEAN OVERALL SCORE												3.63

The score for this course is 3.63 (High Relationship)

**Programme :** M.Sc. HOME SCIENCE  
**Semester :** I **Skill Enhancement Course - I** **Hours per week: 2** **30 hrs/Semester**  
**Sub. Code :** P22SEN1 **Credits : 2**

**TITLE OF THE COURSE: HOME SCIENCE FOR COMPETITIVE EXAMINATIONS**

Pedagogy	Hours	Lecture	Peer Group Teaching	Demo/OER/Tutorial	GD/Seminar	ICT/Blended Learning	IV/DI
	30	20	4	2	2	2	-

**PREAMBLE**

This course is designed to:

- Overview the general concepts of Home Science and its branches
- Inculcate competencies in various disciplines of Home Science targeted towards competitive examinations

**COURSE OUTCOME**

At the end of the Semester, the Students will be able to

	Unit	Hrs/Sem
<b>CO1:</b> State the dynamics of family relationships and differentiate the theories of human development	I	6
<b>CO2:</b> Enumerate the functions and methodologies of resource management, interior decoration and work place design	II	6
<b>CO3:</b> Classify the types of fibre, yarn, weave and design apparel for different age groups	III	6
<b>CO4:</b> Identify the types of communication and ICT for extension activities	IV	6
<b>CO5:</b> Apply the good safety regulations and standards in food safety management	V	6

**SYLLABUS**

**Unit I Family Studies and Child Development**

**Family Studies** - Dynamics of Marriage and Family Relationships, Domestic Violence, Marital Disharmony, Community Education, Family Studies, Family Welfare, Human Rights and Gender rules.

**Child Development**- Theories of human Development and behaviour. Influence of family, peers, school, community, culture on personality development. Children at risk: child labour, street children, children of destitute, orphans, child abuse and trafficking.

**Unit II Resource Management and Interior Decoration**

**Resource Management** - Function, need, human resource development: challenges, function, manpower planning, training need assessment, training methodologies, training evaluation.

**Interior Decoration** - Housing and environment: building materials - impact on environment, green rating system, energy efficiency in buildings, energy auditing, indices of indoor comfort. Product design: design thinking process, diffusion and innovation, design communication, ergonomic consideration. Ergonomics: significance, scope, anthropometry, man, machine, environment relationship, factors affecting physiological cost of work, body mechanics, functional Design of workplace, time and motion study, energy studies.

**Unit III Textiles and Apparel Designing**

**Textiles** - Textiles terminologies: fibre, yarn, weave, fabric etc., Classification of fibres, yarns and weaves, identification of fibres and weaves. Traditionally textiles of India: embroidered textiles, printed textiles, woven textiles, dyed textiles of various regions in India. Identification on the basis of fibre content, technique, motif, colour and design.

**Apparel Designing** - body measurements, equipment and tools for manufacturing, patterns Making, quality testing for apparel, care and maintenance of clothes. Fashion: fashion Theories and adoption, fashion forecasting. Designing and principles of design, selection of clothing for different age groups.

#### Unit IV Communication

Role of communication in development: need and importance, development journalism, writing for development- print, radio, television and internet. Traditional, modern and new media for development: folk forms of songs, arts, dance, theater, puppetry, advertisement, cinema, ICTs for development- community. Radio, participatory video, social media and mobile phones.

#### Unit V General Concept Of Food Safety

International Food Control System/Laws, Regulations and Standards/Guidelines with regard to food safety - overview of CODEX Alimentarius commission (history, members, standard setting and advisory mechanisms: JECFA, JEMRA, JMPR), WTO agreement (SPS/TBT); Promoting Safe and Wholesome Food - RUCO, Clean street food hub; Food Safety Ecosystem in India - Detect adulteration with rapid test (DART), Blissful hygienic offering to god (BHOG), regulations related to nutraceutical food for special dietary uses, Provision on organic foods and non specified food/food ingredients, Central advisory committee and scientific committee/ panel, food import clearance system, General Principles of Food Safety Management System - HACCP, GMP, GAP, GHP, GLP and BAP.

#### TEXTBOOKS

1. Premlatha Mullick (2012), Textbook of Home Science, Kalyani Publishers, New Delhi.
2. Hurlock, E B (2001), Child Development, McGraw Hill Publication, New York.

#### REFERENCES

1. Nandhini Sharma, Kanika Khandelwal, Renu Kulshreshtha, Monika Manjumdar (2021): UGC/NET/JRF/SET, Home Science paper-2, Arihant publications (INDIA) limited.
2. KVS Madaan (2022), UGC/NET/SET/JRF, Teaching and Research Aptitude Paper-I, Pearson India Education Services Pvt. Ltd, India.
3. Dr. K. Sathishkumar, P. Sankari (2022): MRB - Food Safety Officer, Sakthi Publishing House, Chennai.
4. Deepak Mudgil, Sheweta Barack Mudgil, Objective Food Science & Technology, Scientific Publishers, India.

COURSE OUTCOMES (COs)	PROGRAMME OUTCOMES (POs)					PROGRAMME SPECIFIC OUTCOMES (PSOs)						MEAN SCORE OF COs
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	
CO1	5	2	2	3	2	2	3	2	3	4	3	2.81
CO2	5	2	2	3	2	2	3	2	3	2	3	2.63
CO3	5	2	2	3	2	2	3	2	3	2	3	2.63
CO4	5	2	2	3	2	2	3	2	3	2	3	2.63
CO5	5	2	2	3	2	2	3	2	3	2	3	2.63
MEAN OVERALL SCORE												2.66

The score for this course is 2.66 (Moderate Relationship)



**Programme :** M.Sc. HOME SCIENCE  
**Semester :** II **Core Course - V** **Hours per week: 6** **90 hrs/Semester**  
**Sub. Code :** P22CN5 **Credits : 4**

**TITLE OF THE PAPER: PRINCIPLES OF NUTRITION**

Pedagogy	Hours	Lecture	Peer Teaching	Demo/OER/Tutorial	GD/Seminar/Flipped Classroom	ICT/Blended Learning	IV/DI
	90	52	8	10	10	10	-

**PREAMBLE**

Learning outcomes

This course will enable the students to:

- Gain in-depth knowledge of the physiological and metabolic role of macronutrients, fat soluble vitamins and electrolytes and their importance in human nutrition.
- Enable the understanding of the basis of human nutritional requirements and Recommendations through the life cycle and translate the knowledge into practical guidelines for dietary needs.
- Familiarize with the recent advances in nutrition and apply this knowledge in planning for public health programmes.

**COURSE OUTCOME**

At the end of the Semester, the Students will be able to

CO1: Interpret RDA to meet nutritional requirements for Indians and determine energy requirements for all age groups based on BMR and activity levels

CO2: Distinguish carbohydrates and dietary fibre; identify their role in promoting health

CO3: Evaluate protein quality and protein deficiency

CO4: Compare dietary fatty acids based on composition transport and absorption

CO5: Analyze factors affecting bioavailability of minerals and vitamins in foods

CO6: Assess the role of nutrition policies and programmes

Unit Hrs/Sem

I 18

II 18

III 18

IV 18

V 18

**SYLLABUS**

**UNIT I**

**Human Nutritional Requirements** – Basic concepts of human nutrition – health, nutrition, balanced diet; Nutrition states – optimum nutrition, malnutrition, undernutrition, over nutrition. Nutrient Guidelines – Recommended Dietary Allowances. Food Guides and Recommendations – Food Pyramid, Food Groups, ICMR Guidelines for Dietary Requirements of all nutrients.

Energy-Measurement of Food energy – Units of food energy. Physiological fuel value. Energy balance. Components of energy requirements – BMR/REE. Calculating BMR – Harris Benedict, Mifflin – St.Jeor Equations for men & women, Physical activity levels. Factors influencing BMR. Total Energy Requirement – BMR, Physical activity, Thermic effect of food. Determination of energy requirements. ICMR Guidelines for energy intake.

**UNIT II**

**Carbohydrates:** Composition, classification, food sources, functions, digestion – mechanical and chemical –mouth, stomach, small intestine; intestinal absorption, metabolic utilization – energy for fuel and storage. ICMR Recommendations for Dietary Carbohydrate.

**Dietary fibre:** Types, food sources, mechanism of action and physiological significance. Resistant starch, fructo-oligosaccharides. Glycemic Index and Glycemic load. Factors affecting GI of foods; Role of GI in chronic diseases.

**UNIT III**

**Proteins:** Composition, classification, food sources, functions, digestion, absorption, amino acid pool, metabolic utilization, ICMR Guidelines for dietary protein requirements. Nitrogen Balance - Dietary protein deficiency or excess. Evaluation of protein quality – Digestibility Coefficient, Net Protein Utilization, Protein Efficiency Ratio, Biological Value, Amino acid score, PDCAAS.

**Lipids:** Composition, classification, food sources. Dietary fatty acids – SFA, MUFA, n-3, n-6, PUFA, EFA, Trans fats; Triglycerides, Phospholipids- lecithin, eicosanoids; Sterols- Cholesterol. Food fats – Visible and invisible, animal and plant fats. Digestion and Absorption – Composition of chylomicron, Transport – Lipoprotein types – LDL, VLDL, HDL. Requirements and ICMR Dietary guidelines.

#### UNIT IV

**Minerals:** Macro minerals: Calcium, Phosphorous, Sodium, Potassium; Micro minerals: Iron, Zinc, Selenium, Iodine and Fluorine. Trace elements – Selenium, Cobalt, Chromium, Vanadium, Silicon, Boron and Nickel. Review of Food sources, Metabolism (digestion, absorption, transport, storage and elimination); Bioavailability and factors affecting bioavailability; Biochemical and Physiological functions; Interaction with other nutrients;

**Vitamins:** Fat soluble vitamins: A, D, E and K; Water soluble vitamins: B1, B2, B5, B6, B12 and Vitamin C. Review of food sources, metabolism (digestion, absorption, transport, storage and elimination), factors affecting bioavailability, Biochemical and physiological functions, deficiency conditions and treatment. Inter-relationship between vitamin and mineral metabolism.

#### UNIT V

**National Nutrition Policies and Programmes.** National Nutrition Policy. Health, Nutrition and Family Welfare. AYUSH. National Rural Health Mission. National Health Outcome Goals. Intervention programmes to combat malnutrition - ICDS, PDS, Mid day meal scheme; Role of National and International Organisations – Objectives and functions– ICMR, NIN, ICDS, FNB, CFTRI, NNMB, WHO, FAO, UNICEF.

**Food and Nutrition Security:** causes of food and nutrition insecurity – availability, accessibility and affordability of food; Policies to control food costs and intervention to food production to meet nutrient needs.

#### TEXTBOOKS

1. Shubhangini Joshi (2010) Nutrition and Dietetics with Indian Case Studies, 3<sup>rd</sup> edition, McGrawHill Higher Education, New Delhi.
2. Sheila John & Jennifer DJ (2008) Essentials of Nutrition and Dietetics for Nursing, B.I. Publishing Pvt Ltd., Chennai.

#### REFERENCES

1. Michael J. Gibney, Hester V Vorster and Frans J Kok (2003) Introduction to Human Nutrition Blackwell publishing Oxford, U.K.
2. Kathleen Mahan and Sylvia Escort- Stump (2000): Food, Nutrition and Diet Therapy 11<sup>th</sup> Edition, W.B. Saunders Company London.
3. Susan G. Dudek (2007) Nutrition Essentials for Nursing Practice, Lippincot Williams D Wilkins, Philadelphia.
4. Staci Nix Williams (2009) Basic Nutrition and Diet Therapy, 13<sup>th</sup> edition, CV Mosby Inc., New Delhi.
5. Z.S.C. Okoye: Biochemical Aspects of Nutrition, Prentice-Hall of India Pvt. Ltd., New Delhi.

#### JOURNALS

1. American Journal of Clinical Nutrition
2. Indian Journal of Nutrition and Dietetics
3. Journal of American Nutrition and Dietetics
4. Malaysian Journal of Nutrition

#### Open Educational Resources

Macronutrients- <https://epgp.inflibnet.ac.in/ahl.php?csrno=444> Micronutrients- <https://epgp.inflibnet.ac.in/ahl.php?csrno=444>  
Nutrition policies -<http://ecoursesonline.iasri.res.in/course/view.php?id=476>

COURSE OUTCOMES (COs)	PROGRAMME OUTCOMES (POs)					PROGRAMME SPECIFIC OUTCOMES (PSOs)						MEAN SCORE OF COs
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	
CO1	5	5	4	4	4	3	5	5	3	3	4	4
CO2	5	5	4	4	4	3	5	5	3	3	4	4
CO3	5	5	4	4	4	3	5	5	3	3	4	4
CO4	5	5	4	4	4	3	5	5	3	3	4	4
CO5	5	5	4	4	4	3	5	5	3	3	4	4
CO6	5	5	4	4	4	3	5	5	3	3	4	4
MEAN OVERALL SCORE												4

Result: The score for this course is 4 (High Relationship)

**Programme :** M.Sc. HOME SCIENCE  
**Semester :** II **Core Course - VI** **Hours per week: 6** **90 hrs/Semester**  
**Sub. Code :** P22CN6 **Credits: 5**

**TITLE OF THE COURSE: APPLIED HUMAN NUTRITION**

Pedagogy	Hours	Lecture	Peer Teaching	Demo/OER/ Tutorial	GD/Seminar/ Flipped Classroom	ICT/ Blended Learning	IV/DI
	90	52	8	10	10	10	-
<b>PREAMBLE</b>							
1. To familiarize students with changes occurring in the physiology and metabolism of the human body as a result of change in altitude, gravity and exercise.							
2. To provide in-depth knowledge of nutritional requirements for various physiological and metabolic conditions.							
<b>COURSE OUTCOME</b>						Unit	Hrs/Sem
At the end of the Semester, the Students will be able to							
<b>CO1:</b> Associate the nutritional needs during exercise and physical activity of different sports activities.						I	18
<b>CO2:</b> Connect performance with nutritional needs before, during and after different sports activities.						II	18
<b>CO3:</b> Indicate physiological changes and nutrient requirements during space activities.						III	18
<b>CO4:</b> Relate physiological and psychological changes to nutritional needs during sea travel.						IV	18
<b>CO5:</b> Integrate nutrition support system with relief and rehabilitation in disaster management.						V	18
<b>CO6:</b> Apply nutritional skills in real life situations.						I-V	
<b>SYLLABUS</b>							
<b>UNIT I</b>							
<b>Nutrition for Exercise and Physical Fitness:</b> Exercise Physiology – Types of physical activity – activities of daily living, aerobic exercise, resistance exercise. Energy metabolism during exercise – aerobic and anaerobic. Dietary need during exercise – fuel sources – macronutrients, oxygen, fluid and micronutrient needs. Health benefits of exercise.							
<b>UNIT II</b>							
<b>Sports Nutrition:</b> Need and scope of sports nutrition; Nutrition for competition - pregame meal, meal during game and post-game meal; Concept of carbohydrate loading and the methods of carbohydrate loading; Hydration. Nutrition management during sports/game; Ergogenic aids in sports. Significance of nutritional supplements.							
<b>UNIT III</b>							
<b>High Altitude and Space Nutrition:</b> Physiological changes due to high altitude; Acclimatization process; Altitude sickness and related health problems; Nutrient requirements and dietary management of mountaineers. Space Nutrition: Need and scope for space travel; History of space travel; Physiological changes in astronauts; Nutrient requirement and dietary management during space travel.							
<b>Sea Travel Nutrition:</b> Physiological changes in the human body during sea travel. Psychological preparedness for sea travel. Health and nutritional problems encountered during sea travel; Nutrient requirements and dietary management during sea travel.							
<b>UNIT IV</b>							
<b>Nutrition in Emergencies:</b> Need and importance of nutrition support systems in relief and rehabilitation. Types of emergency situations such as natural – flood, earthquake, drought, cyclone, novel contagion; and manmade - war; Nutritional and health problems in emergencies; Control of communicable diseases through sanitation and immunization; Assessment of food needs and food distribution strategies. Nutrient requirement and dietary management during emergencies.							
<b>UNIT V</b>							
<b>Nutrigenomics:</b> Basic concepts of nutrigenetics and nutrigenomics; The Human Genome Project. Tools of nutrigenomics; Nutrition-gene interaction. Chronic disease and nutrigenomics; Nutritional genomic influences on gene expression. Role of nutrigenomics in obesity, type-2 diabetes, cardiovascular diseases, hypertension, cancer, immune health. Application of nutrigenomics: Genotype and nutrition assessment, nutrition diagnosis and genetic counselling. Gene guided 'Personalised nutrition'. Advantages and disadvantages of nutrigenomics.							

**TEXTBOOK**

1. Srilakshmi B, Suganthi V, Ashok CK (2018) Exercise Physiology, Fitness and Sports Nutrition, New Age International Pvt Ltd., New Delhi.

**REFERENCES**

1. Michael J. Gibney, Hester V Vorster and Frans J Kok (2003) Introduction to Human Nutrition Blackwell publishing Oxford, U.K.
2. Kathleen Mahan and Sylvia Escort- Stump (2000): Krause's Food, Nutrition and Diet Therapy 11<sup>th</sup> Edition, W.B. Saunders Company London.
3. Susan G. Dudek (2007) Nutrition Essentials for Nursing Practice, Lippincott Williams D Wilkins, Philadelphia.
4. Staci Nix Williams (2009) Basic Nutrition and Diet Therapy, 13<sup>th</sup> edition, CV Mosby Inc., New Delhi.
5. Z.S.C. Okoye: Biochemical Aspects of Nutrition, Prentice-Hall of India Pvt. Ltd., New Delhi.

**JOURNALS**

1. American Journal of Clinical Nutrition
2. Indian Journal of Nutrition and Dietetics

**Open Educational Resources**

Carbohydrates for Exercise - <https://epgp.inflibnet.ac.in/ahl.php?csrno=444>

Hydration and Physical Fitness - <https://epgp.inflibnet.ac.in/ahl.php?csrno=444>

Diet in exercise - [https://epgp.inflibnet.ac.in/view\\_f.php?category=558](https://epgp.inflibnet.ac.in/view_f.php?category=558)

Ergogenic Aids - [https://epgp.inflibnet.ac.in/view\\_f.php?category=558](https://epgp.inflibnet.ac.in/view_f.php?category=558)

Physical fitness - [https://epgp.inflibnet.ac.in/view\\_f.php?category=558](https://epgp.inflibnet.ac.in/view_f.php?category=558)

COURSE OUTCOMES (COs)	PROGRAMME OUTCOMES (POs)					PROGRAMME SPECIFIC OUTCOMES (PSOs)						MEAN SCORE OF COs
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	
CO1	5	5	4	4	3	5	5	5	3	3	4	4.18
CO2	5	5	4	4	3	5	5	5	3	3	4	4.18
CO3	5	5	4	4	3	5	5	5	3	3	4	4.18
CO4	5	5	4	4	3	5	5	5	3	3	4	4.18
CO5	5	5	4	4	3	5	5	5	3	3	4	4.18
CO6	5	5	4	4	3	5	5	5	3	3	4	4.18
MEAN OVERALL SCORE												4.18

Result: The score of this course is 4.18 (Very high relationship)

**Programme :** M.Sc. HOME SCIENCE  
**Semester :** II CoreCourse VII **Hours per week: 5** **75hrs/Semester**  
**Sub. Code :** P22CN7 **Credits : 4** **Max Marks: 100**

**TITLE OF THE COURSE: BIOCHEMICAL CHANGES IN DISEASES**

Pedagogy	Hours	Lecture	Peer Teaching	Demo/OER/Tutorial	GD/Seminar/Flipped Classroom	ICT/ Blended Learning	IV/DI
	75	65	2	3	2	3	-

**PREAMBLE**

This course will enable the students to:

1. Understand the pathophysiological changes in different organs, tissues and systems indifferent disease conditions across the lifespan
2. Comprehend the implications of functional interrelationships in a diseased body
3. Know and interpret the various diagnostic indicators/parameters
4. Apply this knowledge for planning nutritional care of individuals.

**COURSE OUTCOME**

At the end of the Semester, the Students will be able to

**CO1:** Examine the immunological and haematological functions, alterations and metabolic adaptations.

**CO2:** Describe the implications of alterations in blood components and circulatory systems.

**CO3:** Identify the manifestations of gastrointestinal dysfunction and suggest diet therapy.

**CO4:** Relate disorders of nutrient metabolism to general well-being.

**CO5:** Suggest dietary management of various metabolic disorders.

**CO6:** Interpret the metabolic interrelationships in normal and diseased conditions.

Unit Hrs/Sem

I 15

II 15

III 15

IV 15

V 15

I - V

**SYLLABUS**

**UNIT I**

**Basic concepts of pathophysiology and metabolism of adaptation** - Fluid and electrolyte, acids and bases, Immunity, Inflammation, Hypersensitivity, Infection and Immunodeficiency. Cellular Proliferation and Cancer: Biology of Cancer, Tumor spread and treatment, Clinical manifestations of cancer. Alterations of Haematologic functions: Nutritional Anemias. Erythropoiesis and haemoglobin synthesis Nutrients involved in erythropoiesis. Classifications of Anemias and Nutritional Care i) Normocytic anemia – aplastic anemia, ii) Megaloblastic anemia, iii) Microcytic anemia, iv) Sickle cell anemia and Thalassemia v) Hemolytic anemia.

**UNIT II**

**Pathophysiology of Cardiovascular, lymphatic and pulmonary system:** Alteration of cardiovascular functions, atherosclerosis, arteriosclerosis, Thrombus, embolus, dysrhythmias. Myocardial ischemia, Myocardial infarction, Heart failure, Stroke, Hypertension, Dyslipidemias. Intestinal transport of lipids, Cellular uptake and metabolism of lipids, (beta-oxidation, de novo synthesis of fatty acids, synthesis and breakdown of unsaturated fatty acids, cholesterol, phospholipids and triacylglycerol). Lipoprotein metabolism, VLDL and LDL and HDL. Regulation of lipid metabolism at substrate level, enzyme level, hormonal level and organ level, Disorders of lipid metabolism, Dyslipidemias, Lipid storage diseases.

**UNIT III**

**Manifestations of gastrointestinal dysfunction:** Hepatic dysfunction: Liver function tests; Pathophysiology of Liver disorders - Hepatitis, Cirrhosis, Hepatic encephalopathy; Etiology of Gallbladder disorders - Cholelithiasis, Gout. Acute and chronic gastritis, Ulcers, Malabsorption syndrome. Pancreatic insufficiency and Pancreatitis. Ulcerative colitis, Crohn's disease. Liver dysfunction, Hepatitis, Cirrhosis, Cholelithiasis. Alteration of hormonal regulation: Hypo and Hyper functions of Pituitary, Adrenal cortex and medulla, Hypo and Hyperthyroidism. Hypocalcaemia.

Functions of the adrenal cortex, thyroid and parathyroid gland, their insufficiencies, clinical symptoms and metabolic implications. Dietary treatment as supportive to other forms of therapy.

#### UNIT IV

**Renal dysfunction:** Assessment of Renal function, Glomerular Filtration Rate (GFR), proteinuria, uremia, microalbuminuria; Creatine and Creatinine levels; Pathophysiology of Nephritis, Nephrotic Syndrome - Acute and Chronic Renal Disease, Uremic Renal Failure; Dialysis and its types; Nephrolithiasis - etiology and types.

#### UNIT V

**Disorders of Carbohydrate and Amino Acid metabolism:** Blood glucose monitoring, Glycosylated hemoglobin, Urine testing. Blood sugar lowering agents - Oral hypoglycemic agents, Insulin, Exercise. Acute complications – pathophysiology, diagnosis, types, treatment - Hypoglycemia, Ketoacidosis, Somogyi effect, Dawn phenomenon. Long term complications- pathophysiology, diagnosis, types, and treatment - Macrovascular and Microvascular. Glycogen Storage disorders.

#### TEXTBOOK

1. Ramadevi. K. (2016) AmbikaShanmugam's Fundamentals of Biochemistry for Medical Students 8<sup>th</sup> edition, Wolters Kluwer Health (India) Pvt. Ltd., New Delhi. ISBN 9789351296829.

#### REFERENCES

1. Mohan, V, Rema, M, Unnikrishnan, R. (2009) Dr. Mohan's Handbook of Diabetes Mellitus, Elsevier India Ltd
2. Staci Nix Williams, (2009) Basic Nutrition and Diet Therapy, Mosby Inc Elsevier.
3. Mahan K & Sylvia Escott-Stump (2008) Krause's Food, Nutrition and Diet Therapy, 12th edition, Saunders Elsevier Inc. Canada, ISBN 978-0-8089-2378-7.
4. Mosby's Manual of Diagnostics and Laboratory Tests (2006) Elsevier.
5. Maurice E. Shils, James A. Olson, Moshe Shike, A. Catharine Ross, (1994), Modern Nutrition in Health and Disease" Lippincott Williams and Wilkins publication, London.
6. Satyanarayana U and Chakrapani U (2009) Biochemistry, 3<sup>rd</sup> edition, Books & Allied Pvt. Ltd., Vijayawada.
7. Murray, R.K., Granner, D.K., Mayes, P.A. and Rodwell, V.W. (2000): 25th Ed. Harpers Biochemistry. Macmillan Worth Publishers.

#### Journals

1. Journal of American Dietetic Association.
2. British Journal of Dietetics.
3. Asia-Pacific Journal of Clinical Nutrition.
4. Journal of Academy of Nutrition and Dietetics
5. Indian Journal of Nutrition and Dietetics.

#### Open Educational Resources

Lipoprotein metabolism - [https://epgp.inflibnet.ac.in/view\\_f.php?category=559](https://epgp.inflibnet.ac.in/view_f.php?category=559)

COURSE OUTCOMES (COs)	PROGRAMME OUTCOMES (POs)					PROGRAMME SPECIFIC OUTCOMES (PSOs)						MEAN SCORE OF COs
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	
CO1	5	4	3	4	4	4	5	5	4	2	3	3.9
CO2	5	4	3	4	4	4	5	5	4	2	3	3.9
CO3	5	4	3	4	4	4	5	5	4	2	3	3.9
CO4	5	4	3	4	4	4	5	5	4	2	3	3.9
CO5	5	4	3	4	4	4	5	5	4	2	3	3.9
CO6	5	4	3	4	4	4	5	5	4	2	3	3.9
MEAN OVERALL SCORE												3.9

Result: The score for this course is 3.9 (High Relationship)

Programme : M.Sc. HOME SCIENCE  
 Semester : II Core Course VIII Hours per week: 6 90 hrs/Semester  
 Sub. Code : P22CN8P Credits: 3

**TITLE OF THE COURSE: NUTRIENT ANALYSIS PRACTICAL**

Pedagogy	Hours	Lecture	Practical Experience	Demo/OER/Tutorial	GD/Seminar/Flipped Classroom	ICT/Blended Learning	IV/DI
	90	10	60	20	--	--	--
<b>COURSE OUTCOME</b>						Unit	Hrs/Sem
At the end of the Semester, the Students will be able to							
<b>CO1:</b> Understand the principle behind the nutrient analytical procedures						I	18
<b>CO2:</b> Use the various equipments and analytical instruments for determining nutrient content						II	18
<b>CO3:</b> Determine the nutrient content of foods using specific instruments						III	18
<b>CO4:</b> Calculate the quantity of nutrients for different quantity of foods						IV&V	36
<b>CO5:</b> Apply the acquired analytical skills in handling instruments for career as food analysts						I-V	
<b>SYLLABUS</b>							
<b>UNIT I</b>							
Determination of moisture content and total ash content of rice flour, ragi flour, maida, wheat flour.							
<b>UNIT II</b>							
Determination of caloric value of foods using Bomb Calorimeter, Total Carbohydrate.							
<b>UNIT III</b>							
Quantitative Analysis of Protein using the Kjeldahl method.							
<b>UNIT IV</b>							
Estimation of Crude fiber in foods using Fibra plus.							
<b>UNIT V</b>							
Quantitative analysis of minerals-Sodium, Calcium, Potassium-using Flame Photometer.							
<b>REFERENCES</b>							
1. Jayaraman.J. Laboratory Manual in Biochemistry, 2006, New Age International Pvt. Ltd. Publishers, New Delhi. ISBN 0852264283.							
2. Mosby's Manual of Diagnostics and Laboratory Tests (2006) Elsevier.							

COURSE OUTCOMES (COs)	PROGRAMME OUTCOMES (POs)					PROGRAMME SPECIFIC OUTCOMES (PSOs)						MEAN SCORE OF COs
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	
CO1	5	3	4	3	2	5	5	5	5	1	2	3.6
CO2	5	3	4	3	2	5	5	5	5	1	2	3.6
CO3	5	3	4	3	2	5	5	5	5	1	2	3.6
CO4	5	3	4	3	2	5	5	5	5	1	2	3.6
CO5	5	3	4	3	2	5	5	5	5	1	2	3.6
<b>MEAN OVERALL SCORE</b>												3.6

Result: The score for this course is 3.6 (High Relationship)



**Programme :** M.Sc. HOME SCIENCE  
**Semester :** II **Discipline Specific Elective Course II(a)** **Hours per week: 5** 75hrs/Semester  
**Sub. Code :** P22DSN2A **Credits : 4**  
**TITLE OF THE COURSE: TRENDS AND ISSUES IN HUMAN DEVELOPMENT**

Pedagogy	Hours	Lecture	Peer Group Teaching	Demo/OER/Tutorial	GD/Seminar	ICT/Blended Learning	IV/DI
	75	65	2	3	2	3	-

**PREAMBLE**

1. To develop understanding of all round development of the individual from infancy to adulthood.
2. To develop skills in achieving positive human relationships.

**COURSE OUTCOME**

At the end of the Semester, the Students will be able to

	Unit	Hrs/Sem
<b>CO1:</b> Apply the acquired knowledge on ante, pre and postnatal care to real life situations.	I	15
<b>CO2:</b> Connect the milestones of growth and developmental tasks with child rearing practices.	II	15
<b>CO3:</b> Integrate the intricacies of early childhood development and behaviour with parenting techniques.	III	15
<b>CO4:</b> Promote positive habit formation to solve behaviour problems in late childhood.	IV	15
<b>CO5:</b> Suggest measures to promote inclusive environment for pre-school education	V	15
<b>CO6:</b> Integrate the understanding of all round development of individuals to achieve positive human relationships.	I- V	

**SYLLABUS****UNIT I**

**How life begins:** Conception-Prenatal Development, Pregnancy: Signs and symptoms of Pregnancy, ante-natal care, prenatal influences, Process of birth and types of birth, Postnatal care.

**UNIT II**

**Growth and Development:** Meaning and Principles of growth and Development. Basic concepts of development-maturation and learning, sensitive periods, individual differences, nature-nurture issues. Physical and motor, emotional, social and intellectual development during infancy and babyhood, Care during babyhood-feeding, weaning, clothing, immunization

**UNIT III**

Physical and motor development, emotional, social, intellectual development and developmental tasks during early and late childhood, Play behavior in children, early childhood education, early socialization, parenting and cultural processes, childhood illnesses, communicable diseases, deficiency diseases and other illnesses.

**UNIT IV**

Physical and motor, emotional, social, intellectual and moral development during adolescence, needs of children-Language Development- Perceptual, conceptual, common behavior problems, habits and habit formation. Adulthood- Characteristics and development, Old age- Characteristics, changes and problems

**UNIT V**

Preschool education; meaning, objectives, importance, types and Programme of a Preschool, Preschool building, (surroundings, site, plan) play equipment-selection of equipment, characteristics of preschool teacher. Children with special needs -definition, classification-physically handicapped, hearing impaired, visually impaired, speech impaired, mentally handicapped, gifted, emotionally and socially maladjusted.

**TEXTBOOKS**

1. Hurlock, E.B. (2001), Child development, MCGraw Hill, New York
2. Suriakanthi, A. (1989) Child Development- An Introduction, Kavitha Publications, Gandhigram

**REFERENCES**

1. Devadas, R.P. and Jaya, N. (2003), A Textbook on Child Development, Macmillan India Ltd., Delhi,
2. Neil J. Salkind (2004) .An Introduction to theories of Human Development, Saga Publications. New Delhi
3. Dr. S.V. Kal. (2015), Child Psychology and child Guidance, Himalaya Publishing house, Bombay.
4. Dr. Sushma Gupta, (2003), Textbook of Nutrition, child care and Psychology, Kalyani Publisher, New Delhi.
5. Jersild, A.T., Telford, C.W. and Sawrey, J.M. (1975), Child Psychology, Prentice-Hall of India Private Limited, New Delhi

**Open Educational Resources**

Language development - <https://epgp.inflibnet.ac.in/ahl.php?csrno=827>

Type of preschool - <https://epgp.inflibnet.ac.in/ahl.php?csrno=827>

Growth and development - <https://epgp.inflibnet.ac.in/ahl.php?csrno=827>

COURSE OUTCOMES (COS)	PROGRAMME OUTCOMES (POs)					PROGRAMME SPECIFIC OUTCOMES (PSOs)						MEAN SCORE OF COs
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	
CO1	5	5	4	5	4	5	5	4	5	5	4	4.63
CO2	5	5	4	5	4	5	5	4	5	5	4	4.63
CO3	5	5	4	5	4	5	5	4	5	5	4	4.63
CO4	5	5	4	5	4	5	5	4	5	5	4	4.63
CO5	5	5	4	5	4	5	5	4	5	5	4	4.63
CO6	5	5	4	5	4	5	5	4	5	5	4	4.63
MEAN OVERALL SCORE												4.63

Result: The score for this course is 4.63 (Very High Relationship)

**Programme :** M.Sc. HOME SCIENCE  
**Semester :** II **Discipline Specific Elective Course II(b)** **Hours per week: 5** **75hrs/Semester**  
**Sub. Code :** P22DSN2B **Credits : 4**

**TITLE OF THE COURSE: DIABETES CARE AND EDUCATION**

Pedagogy	Hours	Lecture	Peer Teaching	Demo/OER/Tutorial	GD/Seminar/Flipped Classroom	ICT/Blended Learning	IV/DI
	75	65	2	3	2	3	-
<b>PREAMBLE</b>							
1. To obtain in-depth knowledge about Diabetes Mellitus (DM ) 2. To make the students aware of various complications during Diabetes Mellitus. 3. To gain knowledge about the management of Diabetes Mellitus through diet, exercise and medication							
<b>COURSE OUTCOME</b>						Unit	Hrs/Sem
At the end of the Semester, the Students will be able to							
<b>CO1:</b> Identify diabetes as a rising public health concern in national and global scenario						I	15
<b>CO2:</b> Demonstrate diagnostic and monitoring procedures for diabetes care.						II	15
<b>CO3:</b> Familiarize with classic features and screening methods of diabetic emergencies.						III	15
<b>CO4:</b> Discuss the criteria for screening and diagnosis of chronic complications of diabetes.						IV	15
<b>CO5:</b> Promote adherence to drug, diet and physical activity in diabetes.						V	15
<b>CO6:</b> Evolve as diabetes educator.						I-V	
<b>SYLLABUS</b>							
<b>UNIT I</b>							
<b>Diabetes:</b> Introduction, definition, and meaning, classification of diabetes mellitus and risk factors, diabetic food pyramid. Prevalence - International, national and state.							
<b>UNIT II</b>							
Pathological changes in metabolism: Pathophysiology of Diabetes Mellitus. Pathological changes in other systems- Eye, C.V system, Neuropathy, Nephropathy and Micro vascular. Diagnosis and routine investigations-Monitoring the blood glucose level, Urine testing for the presence of sugar, random blood glucose, GTT.							
<b>UNIT III</b>							
<b>Complication in diabetic emergencies:</b> Diabetic ketoacidosis - hyperglycemia, hyper-osmolar non-keto coma, lactic acidosis. Complication in diabetes eye - types of ocular complication in diabetes - diabetic retinopathy-estimating burden, classification, features, diagnosis of screening - averting retinopathy tight control of blood glucose.							
<b>UNIT IV</b>							
<b>Cardiovascular complication in diabetes:</b> Prevention of CVD in diabetics; managing acute MI and unstable angina. <b>Diabetic nephropathy</b> Hyperglycemia and kidney function - correlation, population at risk and their chance to develop nephropathy - disease progression in diabetic kidney disease. Criteria for screening and diagnosis for diabetic nephropathy - treatment and prevention of nephropathy. End stage renal disease.							
<b>UNIT V</b>							
<b>Diabetic neuropathy:</b> Classification of neuropathy - peripheral neuropathy-sexual dysfunction - automatic neuropathy - consequence of neuropathy - diagnosis and screening - glycemic control in management of diabetic neuropathy - diagnosis management of diabetic neuropathic foot ulceration							
<b>TEXTBOOK</b>							
1. Mohan, V, Unnikrishnan, R & Anjana,R.M.(2011) Dr.Mohan's Handbook of Diabetes Mellitus, 4 <sup>th</sup> edition, Madras Diabetes Research Foundation, Chennai.							

**REFERENCES**

1. L. Kathleen Mahan, Sylvia Escott-Stump, (2000). "Krause's Food Nutrition and Diet Therapy" W.B. Saunders Company, London.
2. Maurice E. Shils, James A. Olson, Moshe Shike, A. Catharine Ross, (1994), Modern Nutrition in Health AND Disease" Lippincott Williams and Wilkins publication, London.
3. American Diabetes Association guidelines (2010).
4. Rekha Sharma (2008) Diet Management, 3<sup>rd</sup> edition, Elsevier India, Noida.
5. Antia FP (2015) Clinical Dietetics and Nutrition, 4<sup>th</sup> edition, Oxford University Press, New Delhi.

**Open Educational Resources**

Diabetic in Renal failure - [https://epgp.inflibnet.ac.in/view\\_f.php?category=559](https://epgp.inflibnet.ac.in/view_f.php?category=559)

Diabetic Nephropathy - [https://epgp.inflibnet.ac.in/view\\_f.php?category=559](https://epgp.inflibnet.ac.in/view_f.php?category=559)

COURSE OUTCOMES (COs)	PROGRAMME OUTCOMES (POs)					PROGRAMME SPECIFIC OUTCOMES (PSOs)						MEAN SCORE OF COs
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	
CO1	5	3	4	5	5	5	5	5	5	3	4	4.45
CO2	5	5	5	5	5	5	5	5	5	3	4	4.72
CO3	5	5	5	5	5	5	5	5	5	3	4	4.72
CO4	5	5	5	5	5	5	5	5	5	3	4	4.72
CO5	5	3	5	5	5	5	5	5	5	3	4	4.54
CO6	5	4	5	5	5	5	5	5	5	3	4	4.63
MEAN OVERALL SCORE												4.63

Result: The score for this course is 4.63 (Very High Relationship)

**Programme :** M.Sc. HOME SCIENCE  
**Semester :** II **Skill Enhancement Course II** **Hours per week: 2** **30 hrs/Semester**  
**Sub. Code :** P22SEN2 **Credits : 2**  
**TITLE OF THE COURSE: EARLY CHILDHOOD CARE AND EDUCATION**

Pedagogy	Hours	Lecture	Peer Group Teaching	Demo/OER/Tutorial	GD/Seminar	ICT/Blended Learning	IV/DI
	30	20	2	3	2	3	-

**PREAMBLE**

- To know the importance of early childhood years and significance of intervention programs for early childhood development.
- To develop awareness of ECCE programs in different contexts in India.

**COURSE OUTCOME**

At the end of the Semester, the Students will be able to

**CO1:** Explain the importance of early childhood years and significance of intervention programs for early childhood development.

**CO2:** Describe the historical developments - global and Indian including the current programs and policies in ECCE.

**CO3:** Analyze curriculum models and pedagogical approaches in early childhood education.

**CO4:** Identify various indigenous (Indian) models of Early Childhood Education and apply it to understand the current early childhood research, theoretical trends and issues.

**CO5:** Create developmentally appropriate programs for young children.

Unit

Hrs/Sem

I

6

II

6

III

6

IV

6

V

6

**SYLLABUS****UNIT I**

**Introduction to Early Childhood Care and Education** - Concept, meaning, scope and significance of ECCE, Aims and objectives of ECCE- General and specific, Types of ECCE service delivery – Formal and informal; Government funded, Philosophy oriented, Laboratory nursery school, Franchise oriented

**UNIT II**

**ECCE in India**-History of Early Childhood Care and Education in pre and post independence India. Contributions of educational philosophers: global and Indian perspective- views of educationists and philosophers: Rousseau, Froebel, Montessori, Sri Aurobindo, Tagore, Mahatma Gandhi, Recent Policies in ECCE-Variou s Education commissions of India : National Policy on Education (1986) Programmes / schemes and innovations in ECCE – ICDS, Balwadis, mobile crèches, National Curriculum Framework 2005, National Policy on Early Childhood Care and Education 2013, Curriculum Framework for Early Childhood Care and Education 2012/2013 2.7 New Education Policy, 2020

**UNIT III**

**Early Childhood Curriculum**-Definition and concept of curriculum, Curriculum approaches – subject centered, learner centered, community centered, Developmentally Appropriate Practice (DAP) – definition and core considerations, Components and essential features of developmentally appropriate ECCE curriculum

**UNIT IV**

**Play and its importance**-Play and its characteristics, Theories of play- surplus energy theory, recreational theory, recapitulation theory, Stages and types of play, Role of play in overall development of children, Teacher's role in creating environment and promoting play, Use of play way approach in the curriculum for young children.

**UNIT V**

**Innovative ECCE Models- Indian Models-** Nutan Bal Shikshan Sangh, Daxinamurti Bal Mandir, Gram Bal Shikshan Kendra, Lok Jumbish Program, Mirambika, Rishi Valley, **Foreign Models-**High/Scope Model, USA, Reggio Emilia Approach, Italy , *TeWhāriki* Model, New Zealand , The ECEC Model, Sweden, SetoGurans National Child Development Services, Nepal

**TEXTBOOKS**

1. Hurlock, E.B. (2001), Child development, MCGraw Hill, New York
2. Suriakanthi, A. (1989) Child Development- An Introduction, Kavitha Publications, Gandhigram

**REFERENCES**

1. Devadas, R.P. and Jaya, N. (2003), A Textbook on Child Development, Macmillan India Ltd., Delhi,
2. Neil J. Salkind (2004) .An Introduction to theories of Human Development, Saga Publications. New Delhi
3. Dr. S.V. Kal. (2015), Child Psychology and child Guidance, Himalaya Publishing house, Bombay.
4. Dr. Sushma Gupta, (2003), Textbook of Nutrition, child care and Psychology, Kalyani Publisher, New Delhi.
5. Jersild, A.T., Telford, C.W. and Sawrey, J.M. (1975), Child Psychology, Prentice-Hall of India Private Limited, New Delhi

**Open Educational Resources**

Language development - <https://epgp.inflibnet.ac.in/ahl.php?csrno=827>

Type of preschool - <https://epgp.inflibnet.ac.in/ahl.php?csrno=827>

Growth and development - <https://epgp.inflibnet.ac.in/ahl.php?csrno=827>

COURSE OUTCOMES (COS)	PROGRAMME OUTCOMES (POs)					PROGRAMME SPECIFIC OUTCOMES (PSOs)						MEAN SCORE OF COs
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	
CO1	5	5	5	5	4	5	5	5	4	5	4	4.72
CO2	5	5	5	5	4	5	3	2	4	5	4	4.27
CO3	5	5	5	5	4	5	3	2	4	5	4	4.27
CO4	5	5	5	5	4	5	3	2	4	5	4	4.27
CO5	5	5	5	5	4	5	5	5	4	5	4	4.72
MEAN OVERALL SCORE												4.45

Result: The score for this course is 4.45 (Very High Relationship)

**Programme :** M.Sc. HOME SCIENCE  
**Semester :** III **Core Course - IX** **Hours per week: 6** **90 hrs/Semester**  
**Sub. Code :** P22CN9 **Credits : 5**

**TITLE OF THE COURSE: DIET IN METABOLIC DISEASES**

Pedagogy	Hours	Lecture	Peer Teaching	Demo/OER/Tutorial	GD/Seminar/Flipped Classroom	ICT/ Blended Learning	IV/DI
	90	52	8	10	10	10	-

**PREAMBLE**

To enable the students to

1. Understand the etiology, physiology and metabolic anomalies of acute and chronic diseases and patient needs
2. Know the effect of the various metabolic conditions on nutritional status, nutritional and dietary requirements
3. Obtain knowledge on therapeutic diets and to develop capacity and attitude for taking up dietetics as a profession

**COURSE OUTCOME**

At the end of the Semester, the Students will be able to

**CO1:** Explore new trends in dietary management of weight imbalances.

**CO2:** Integrate meal planning techniques for nutritional management of diabetes and its complications.

**CO3:** Integrate the cardiac, renal and liver functional tests with acute and chronic complications.

**CO4:** Distinguish the clinical aberrations and medical nutritional management of various organ systems.

**CO5:** Familiarize with influences of clinical nutrition on inherited metabolic disorders.

**CO6:** Exhibit professional capacity and attitude for career in clinical nutrition.

Unit

Hrs/Sem

I

18

II

18

III

18

IV

18

V

18

I-V

**SYLLABUS**

**UNIT I**

Nutrition in weight management. BMI and body composition. Weight imbalance – overweight, underweight, unintentional weight loss. Nutritional Management of obesity in children and adults. Total energy requirement - BMR and Physical Activity level. Role of complex carbohydrates. Reading nutrition labels - refined carbohydrates and empty calories. Macro modification for stubborn weight – Atkin’s, Ketogenic diet, Paleo, Low-carb High fat diet. Hormones that control hunger and fat storage - ghrelin, leptin, insulin, cortisol, estrogen. Nutritional management of hormonal imbalance – PCOD, hypo and hyperthyroidism.

**UNIT II**

Diabetes mellitus - Metabolic pattern of type-1 and type-2 diabetes. Abnormal metabolism in uncontrolled diabetes. Long term complications of diabetes and its management. Nutritional recommendations for management of diabetes – meal planning, food exchange system, carbohydrate counting, insulin carbohydrate ratio, portion control, dietary fibre, glycemic index and glycemic load.

**UNIT III**

Nutritional Management of Cardiovascular diseases - Coronary Artery Disease: Atherosclerosis, Thrombosis, Hyperlipidemia, Hypertension, Stroke. Inter-relationship between Diet and risk factors of CVD. Role of Dietary fibre, Saturated and Unsaturated fatty acids - omega 3 & 6 fatty acids, Mediterranean Diet, Prudent diet. Kempner’s rice diet, Dietary Approach to Stop Hypertension (DASH), Sodium intake in Hypertension. Lipoproteins and hyperlipidemia – risk factors and prevention.

**UNIT IV**

Nutritional management of Renal disorders – Acute and chronic glomerulonephritis, Nephrotic syndrome. Dietary management of Acute and Chronic Renal failure, End Stage Renal Disease; Importance of protein nutrition in renal failure and uremia. Role of low protein, fluid restricted diet. Sodium and Potassium exchange list. Diet in Nephrolithiasis - Acid and Alkaline Ash Diet.

**UNIT V**

Nutritional management of Liver, gallbladder disorders – Jaundice, cirrhosis, hepatic coma, gallbladder stones. Nutritional management of Gout - Role of low purine diet in gout.

Nutritional management of Pancreatitis: Acute and chronic pancreatitis.

Nutritional management of inherited metabolic disorders – phenylketonuria (PKU), Maple syrup disease, Alkaptonuria, Primary hyperoxaluria, Cystinuria, Homocystinuria, Tyrosinemia, Albinism, Histidinemia. Glycogen storage diseases, Niemann-Pick disease and Farber's disease.

**TEXTBOOKS**

1. Rekha Sharma (2008) Diet Management, 3<sup>rd</sup> edition, Elsevier India, Noida.
2. Antia FP (2015) Clinical Dietetics and Nutrition, 4<sup>th</sup> edition, Oxford University Press, New Delhi.
3. Mahan L.K and Stump SE. (2012) Krause's Food, Nutrition and Diet Therapy, 13th edition, WB Saunders Co.

**REFERENCES**

1. Bamji MS, Rao NP, and Reddy V.(2010) Textbook of Human Nutrition, Oxford and IBH Publishing Co. Pvt. Ltd. New Delhi.
2. Michael J. Gibney, Hester V Vorster and Frans J Kok (2003) Introduction to Human Nutrition Blackwell publishing Oxford, U.K.
3. Shills, E.M,Olson, S.J. and Shils,M.C. (2011) Modern Nutrition in health and disease, 11th edition,Lea and Febringer, Philadelphia.
4. Williams SR (2009) Basic Nutrition and Diet Therapy, 13th edition, Mosby.
5. Satyanarayana U and Chakrapani U (2009) Biochemistry, 3<sup>rd</sup> edition, Books & Allied Pvt. Ltd., Vijayawada.

**Open Educational Resources**

Diabetic - [https://epgp.inflibnet.ac.in/view\\_f.php?category=559](https://epgp.inflibnet.ac.in/view_f.php?category=559)

PCOD - [https://epgp.inflibnet.ac.in/view\\_f.php?category=559](https://epgp.inflibnet.ac.in/view_f.php?category=559)

COURSE OUTCOMES (COs)	PROGRAMME OUTCOMES (POs)					PROGRAMME SPECIFIC OUTCOMES (PSOs)						MEAN SCORE OF COs
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	
CO1	5	5	4	5	5	4	5	5	5	2	4	4.45
CO2	5	5	5	5	5	4	5	5	5	2	4	4.54
CO3	5	5	5	5	5	4	5	5	5	2	4	4.54
CO4	5	5	5	5	5	4	5	5	5	2	4	4.54
CO5	5	5	5	5	5	4	5	5	5	2	4	4.54
CO6	5	5	5	5	5	4	5	5	5	2	4	4.54
MEAN OVERALL SCORE												4.53

Result: The score for this course is 4.53 (Very High Relationship)



**Programme :** M.Sc. HOME SCIENCE  
**Semester :** III **Core Course - X** **Hours per week: 6** **90 hrs/Semester**  
**Sub. Code :** P22CN10 **Credits : 5**

**TITLE OF THE COURSE: CLINICAL NUTRITION AND DIETETICS**

Pedagogy	Hours	Lecture	Peer Teaching	Demo/OER/Tutorial	GD/Seminar/Flipped Classroom	ICT/ Blended Learning	IV/DI
	90	52	8	10	10	10	-

**PREAMBLE**

To enable the students to

1. Understand the etiology, physiology and metabolic anomalies of acute and chronic diseases and patient needs
2. Know the effect of the various metabolic conditions on nutritional status, nutritional and dietary requirements
3. Obtain knowledge on therapeutic diets and to develop capacity and attitude for taking up dietetics as a profession

**COURSE OUTCOME**

At the end of the Semester, the Students will be able to

**CO1:** Assess nutritional status to identify high risk individuals in critical care.

**CO2:** Develop and implement feeding substrates for special feeding.

**CO3:** Discern the role of nutraceuticals in cancer and immune deficiency disorders.

**CO4:** Assess and recommend nutritional plans in pediatrics and geriatrics.

**CO5:** Distinguish the etiology and clinical findings of GI diseases and suggest suitable dietary modifications.

Unit

Hrs/Sem

I

18

II

18

III

18

IV

18

V

18

**SYLLABUS**

**UNIT I**

**Nutritional screening and assessment:** Nutrition screening tools. Identification of high risk patients. Nutritional Assessment of hospitalized and outdoor patients based on clinical, biochemical, anthropometric data and diet history. Methods of dietary assessment. Identification of high risk patients. Implementation of nutritional care - techniques and feeding substrates. Dietary Counselling.

**UNIT II**

**Special nutritional needs in critical illness:** trauma, sepsis, burns. Medical nutrition therapy: Enteral nutrition – types, routes, composition of feeds, complications and precautions while feeding; Parenteral nutrition: types, modes, complications and precautions while feeding. Palliative care and rehabilitation diets.

**UNIT III**

**Medical Nutrition Therapy for immunodeficiency disorders** – HIV/AIDS, respiratory disorders – asthma and bronchitis. MNT for Novel viral infections.

**Nutritional management in Cancer** – Nutrition and Carcinogenesis. Medical nutrition therapy in cancer. Role of neutropenic diet. Nutraceuticals in cancer prevention. Nutritional impact of cancer treatment and its management.

**UNIT IV**

**Nutritional management in Paediatrics:** Assessment of nutritional needs, factors affecting nutritional intake; special feeding practices. Management of food allergy and food intolerance in infants.

**Nutritional management in Geriatrics:** Assessment of nutritional risks - physiological, metabolic and psychological needs. Nutritional support services. Bone health in elderly – osteoporosis, osteo-arthritis, vitamin D deficiency. Special feeding methods for elderly.

**Nutritional management of Neurological disorders** – Parkinson’s disease, Epilepsy, Alzheimer’s syndrome. Role of ketogenic diet.

**UNIT V**

**Nutritional management in Gastrointestinal Diseases** Clinical manifestations and dietary modifications for GERD, peptic ulcer, ulcerative colitis, Tropical sprue, celiac disease, irritable bowel syndrome. Role of FODMAP diet.

**Nutritional management in Pancreatic disorders** - acute and chronic pancreatitis, pancreatic cancer.

**Nutrient Drug interaction** – Effect of food, nutrients and nutritional status on drug dosage and efficacy.

**TEXTBOOKS**

1. Rekha Sharma (2008) Diet Management, 3<sup>rd</sup> edition, Elsevier India, Noida.
2. AntiaFP(2015) Clinical Dietetics and Nutrition, 4<sup>th</sup> edition, Oxford University Press, New Delhi.

**REFERENCES**

1. Judith Brown, Jennifer Kosto (2008) Nutrition Now-Interactive Learning Guide for Students, International Student edition.
2. Bamji, M.S., Rao, P.N. and Reddy, V. (1996). Textbook of Human Nutrition, Oxford & IBH Publishing Co. Pvt. Ltd.
3. Staci Nix Williams (2009). Basic Nutrition and Diet Therapy, 13TH ed. CV Mosby Inc.
4. Mahan K & Escott-Stump S (2012) Krause's Food, Nutrition and Diet Therapy, 13th edition, Saunders Elsevier Inc. Canada, ISBN 978-0-8089-2378-7.
5. Shills, M.E., Olson, J., Shike, M. and Roos, C. (1998): Modern Nutrition in Health and Disease. 9th Edition .Williams and Williams. A. Beverly Co. London.
6. SreeDevi.V. (1997). Nutrition Education. Discovery Publishing House, New Delhi.

**Journals**

1. Journal of American Dietetic Association.
2. British Journal of Dietetics.
3. Asia-Pacific Journal of Clinical Nutrition.
4. Journal of Academy of Nutrition and Dietetics
5. Indian Journal of Nutrition and Dietetics.

**Open Educational Resources**

Nutraceuticals in Cancer prevention - [https://epgp.inflibnet.ac.in/view\\_f.php?category=556](https://epgp.inflibnet.ac.in/view_f.php?category=556)  
 HIV/AIDS - [https://epgp.inflibnet.ac.in/view\\_f.php?category=559](https://epgp.inflibnet.ac.in/view_f.php?category=559)

COURSE OUTCOMES (COs)	PROGRAMME OUTCOMES (POs)					PROGRAMME SPECIFIC OUTCOMES (PSOs)						MEAN SCORE OF COs
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	
CO1	5	5	5	5	4	5	5	5	5	3	4	4.63
CO2	5	5	5	5	4	5	5	5	5	3	4	4.63
CO3	5	5	5	5	4	5	5	5	5	3	4	4.63
CO4	5	5	5	5	4	5	5	5	5	3	4	4.63
CO5	5	5	5	5	4	5	5	5	5	3	4	4.63
MEAN OVERALL SCORE												4.63

Result: The score for this course is 4.63 (Very High Relationship)

**Programme :** M.Sc. HOME SCIENCE  
**Semester :** III **Core Course XI** **Hours per week: 5** **75 hrs/Semester**  
**Sub. Code :** P22CN11 **Credits: 5**  
**TITLE OF THE PAPER: RESEARCH METHODOLOGY AND STATISTICS**

Pedagogy	Hours	Lecture	Peer Teaching	Demo/OER/ Tutorial	GD/Seminar/Flipped Classroom	ICT/ Blended Learning	IV/DI
	75	65	2	3	2	3	-
<b>PREAMBLE</b>							
1. To understand the significance of research methodology in Home Science research.							
2. To understand the types, tools and methods of research and develop the ability to construct data gathering instruments appropriate to the research design.							
<b>COURSE OUTCOME</b>						Unit	Hrs/Sem
At the end of the Semester, the Students will be able to							
<b>CO1:</b> Define the objectives of research and identify research problem						I	15
<b>CO2:</b> Apply sampling techniques in data collection						II	15
<b>CO3:</b> Formulate research hypothesis, design and conceptual framework							
<b>CO4:</b> Differentiate variable types and statistical measures						III	15
<b>CO5:</b> Demonstrate application of digital tools in statistical analysis						IV	15
<b>CO6:</b> Display skills in writing research report and develop interest for future research activities						V	15
<b>SYLLABUS</b>							
<b>UNIT I</b>							
<b>Fundamentals of Research:</b> Meaning and Objectives of research; Types of research — pure, applied, historic, exploratory and descriptive, experimental, diagnostic, survey and case study. Advantages and limitations of research.							
<b>Types of Research Design</b> Non-Experimental research designs – Observational, Cross-sectional, Longitudinal, Case study, Correlational and Quasi-experimental; Experimental research design – independent and dependent variables – pre-test, post-test study - between subjects, within subjects. Characteristics of good experimental design.							
<b>UNIT II</b>							
<b>Research methods: Types of Sampling and Data collection techniques:</b> Sampling — Sampling methods and techniques – probability, random, stratified, systematic, multi-stage, cluster, non-probability, judgement, convenience, quota, accidental, snow-ball sampling methods. Collection of data, sources of data — Primary and Secondary data. Scales of Measurement: nominal, ordinal, interval and ratio.							
<b>Data gathering instruments:</b> observation, questionnaire, interview, case study, home visits. Reliability and Validity of measuring instruments.							
<b>UNIT III</b>							
<b>Description of variables</b> – categorical and numerical variables. Frequency distribution, percentage, proportions, ratios and rates.							
<b>Tabulation:</b> Tabulation of data - graphic and diagrammatic presentations (Bar diagrams, Pie diagrams, Pictograms, graphs etc.).							
<b>Statistical measures:</b> Measures of central tendency - Arithmetic mean, median and mode - application, advantages and disadvantages. <b>Measures of Dispersion:</b> Range, Standard deviation, standard error. Normal and symmetrical distribution, Confidence interval and Coefficient of variation.							
<b>UNIT IV</b>							
<b>Formulation and testing of hypothesis</b> - Null and alternative hypothesis, Hypothesis testing. Small sample tests and large sample tests, one tail tests and two tail tests. (t - test and z - test).							
<b>Tests of significance:</b> Chi Square Test and F-test, Anova- One way, two way.							
<b>Correlation Analysis:</b> Meaning, types of correlation, methods of measuring correlation, algebraic methods -Karl Pearson's coefficient of correlation and Spearman's Rank correlation.							

**Regression Analysis:** Regression - Meaning, Kinds of regression, Methods of measuring regression; Difference between Correlation and Regression. Application of computers in Statistical Analysis- SPSS, Excel.

#### UNIT V

**Writing a Research Report** - Purpose and characteristics of a good report. Contents and format of a research report - Introduction, Review of literature, Methodology, Results and Discussion, Summary, Bibliography. Styles of referencing. Use of footnotes. Editing and evaluation. Types of reports. Recent techniques in research report preparation - Digital tools for reference management.

#### TEXTBOOKS

1. Vijayalakshmi, G and Sivapragasam C. (2008). Research methods – Tips and techniques, MJP Publishers, Chennai. ISBN13 9788180940460.
2. Kothari, C.R. and Garg G (2014), Research Methodology - Methods and Techniques. 3<sup>rd</sup> edition, New Age International Publishers, New Delhi. ISBN 9788122436235.

#### REFERENCES

1. Bandarkar, P.L. and Wilkinson T.S. (2000). Methodology and Techniques of Social Research, Himalaya Publishing House, Mumbai.
2. Bhatnagar, G.L. (1990). Research Methods and Measurements in Behavioural and Social Sciences, Agri. Cole Publishing Academy, New Delhi.
3. Edwards, T. (2011). Research Design and Statistics – a Bio-Behavioural Focus, Tata McGraw Hill Education Pvt. Ltd., New Delhi.
4. Agarwal, Y.P.(1990) Statistical Methods, Sterling Publishers Pvt. Ltd.
5. Gupta S.P. (1996) Statistical Methods, Sultan Chand & Sons, New Delhi.
6. Sancheti, D.C. and Kapoor, V.K.(1993) Statistics, Theory, Method and Application, Sultan Chand & Sons, New Delhi.
7. Mahajan BK (2010) Methods in BioStatistics for Medical students and Research workers, 7<sup>th</sup> edition, Jaypee Brothers Medical Publishers Pvt. Ltd., New Delhi.
8. Biju Dharmapalan (2012) Scientific Research Methodology, Narosa Publishing House Pvt. Ltd., New Delhi.

#### JOURNAL

International Journal of Science and Research Methodology  
International Journal of Social Research Methodology  
Indian Journal of Medical Research

#### Open Educational Resources

Research Methods in Nutrition - [https://epgp.inflibnet.ac.in/view\\_f.php?category=1381](https://epgp.inflibnet.ac.in/view_f.php?category=1381)

Fundamental research - <https://epgp.inflibnet.ac.in/ahl.php?csrno=827>

Test of significance - <https://epgp.inflibnet.ac.in/ahl.php?csrno=827>

Correlations - <https://epgp.inflibnet.ac.in/ahl.php?csrno=827>

COURSE OUTCOMES (COs)	PROGRAMME OUTCOMES (POs)					PROGRAMME SPECIFIC OUTCOMES (PSOs)						MEAN SCORE OF COs
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	
CO1	5	4	3	4	2	4	4	3	2	2	2	3.18
CO2	5	4	3	4	2	4	4	3	2	2	2	3.18
CO3	5	4	3	4	2	4	4	3	2	2	2	3.18
CO4	5	4	3	4	2	4	4	3	2	2	2	3.18
CO5	5	4	3	4	2	4	4	3	2	2	2	3.18
CO6	5	4	3	4	2	4	4	3	2	2	2	3.18
MEAN OVERALL SCORE												3.18

Result: The score for this course is 3.18 (High Relationship)

**Programme :** M.Sc. HOME SCIENCE

**Semester :** III **Core Course - XII** **Hours per week: 6**

**90 hrs/Semesters**

**Sub. Code :** P22CN12P

**Credits: 3**

**TITLE OF THE COURSE: CLINICAL NUTRITION, DIETETICS PRACTICAL & INTERNSHIP**

Pedagogy	Hours	Lecture	Practical Experience	Demo/OER/Tutorial	GD/Seminar/Flipped Classroom	ICT/ Blended Learning	IV/DI
	90	10	60	20	-	-	-

**PREAMBLE**

The practical exercises are aimed to facilitate the students to

- Understand the techniques in assessment of nutritional needs for different therapeutic conditions
- Imbibe the skill set in planning therapeutic diets of higher order
- Practice the use of exchange lists, ready-reckoners and digital applications in planning diets
- Gain knowledge in the functioning of a dietary department with hands-on experience in the roles and responsibilities of dietitians
- Learn diet counseling skills and know the trends in diet supplements and substitutes

**COURSE OUTCOME**

At the end of the Semester, the Students will be able to

	Unit	Hrs/Sem
<b>CO1:</b> Standardize food measures and practice use of exchange lists in planning diets.	I	18
<b>CO2:</b> Formulate novel modified diets for surgical conditions, food intolerance and special needs.	II	18
<b>CO3:</b> Demonstrate applications of meal planning tools for dietary management of chronic disorders.	III	18
<b>CO4:</b> Utilize nutritional screening tools and assessment techniques in critical care.	IV	18
<b>CO5:</b> Perform case studies of specific disease conditions.	V	18
<b>CO6:</b> Evolve as an eligible clinical nutritionist.	I -V	

**SYLLABUS**

**UNIT I**

Standardization of household food weights and measures.

Preparation of routine hospital diets in surgical conditions – clear fluid, full fluid and soft diets.

**UNIT II**

Planning and preparing diets for the following conditions IBD – celiac disease and IBS – Lactose intolerance.

Planning and preparing diet for Type I and II Diabetes conditions with and without complications and on different drug therapy - carbohydrate counting, food exchange lists, ready reckoner based diet.

Planning and preparing a diet for individuals with hypertension – sodium restricted diet.

**UNIT III**

Planning and preparing diet for Liver failure condition - fat restricted diet.

Planning and preparing diet for renal failure – fluid and protein restricted diet

Planning and preparing a diet for post-burn condition – high calorie and protein diets.

**UNIT IV**

Planning and preparing a diet for HIV with and without comorbidities – protein and vitamin rich diet.

Planning and preparing a diet for poor nutritional status in cancer patients – nutraceutical based diet.

**UNIT V**

Planning and preparing diet for over-weight, obese and conditions of hyperlipidemia – macro modified diet.

Planning and preparing paediatric and geriatric diets.

**INTERNSHIP**

- Nutritional screening and Nutritional Assessment techniques.
- Interpretation of patient data and diagnostic tests and drawing up of patient diet prescriptions, using a case study approach.
- Preparation of diet counseling aids for common disorders.
- Planning diets for patients with common multiple disorders and complications and discharge diet plans.
- Planning, preparing and monitoring special feeding. Use of parenteral feeds and nasal /tube feedings.
- Manage– Medical, Surgical, Obstetric, Neonatal and Pediatric specialties.
- Monitoring diet setting in the diet kitchen.
- Patient counseling methods and strategies. Follow up program to evaluate acceptability of diet prescription, compliance, discharge diet plan.
- Case study of specific disease conditions, related diet counseling and evaluation.
- Market survey of commercial nutritional supplements and nutritional support substitutes.

**REFERENCES:**

1. Rekha Sharma (2008) Diet Management, 3<sup>rd</sup> edition, Elsevier India, Noida.
2. Antia FP (2015) Clinical Dietetics and Nutrition, 4<sup>th</sup> edition, Oxford University Press, New Delhi.
3. Rema M, Saroja R & Mohan V (2009) Dr.Mohan's Diet Manual for Diabetes, Elsevier India, Noida. ISBN 978-8131216774
4. Vimala V. Advances in Diet Therapy Practical Manual (2009) New Age International Pvt. Ltd. Publishers, New Delhi. ISBN 9788122426779.
5. Suganthi, V and Anitha, V. Manual on Diet Therapy (2017) Dipti Press Pvt. Ltd., Chennai. ISBN 9788193103173.S

COURSE OUTCOMES (COs)	PROGRAMME OUTCOMES (POs)					PROGRAMME SPECIFIC OUTCOMES (PSOs)							MEAN SCORE OF COs
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	
CO1	5	5	5	4	4	4	5	5	4	2	3	3	4.18
CO2	5	5	5	4	4	4	5	5	4	2	3	3	4.18
CO3	5	5	5	4	4	4	5	5	4	2	3	3	4.18
CO4	5	5	5	4	4	4	5	5	4	2	3	3	4.18
CO5	5	5	5	4	4	4	5	5	4	2	3	3	4.18
CO6	5	5	5	4	4	4	5	5	4	2	3	3	4.18
MEAN OVERALL SCORE													4.18

Result: The score for this course is 4.18 (High Relationship)

**Programme :** M.Sc. HOME SCIENCE  
**Semester :** III **Discipline Specific Elective Course III (a)** **Hours per week: 5** **75 hrs/Semester**  
**Sub. Code :** P22DSN3A **Credits : 4**

**TITLE OF THE COURSE: TRENDS IN EXTENSION EDUCATION AND COMMUNICATION**

Pedagogy	Hours	Lecture	Peer Group Teaching	Demo/OER/Tutorial	GD/Seminar	ICT/Blended Learning	IV/DI
	75	65	2	3	2	3	-

**PREAMBLE**

1. To obtain necessary skills in extension teaching and field work
2. To study the existing organizations at village and block levels.
3. To know the role of extension workers in planning programmes for the community.

**COURSE OUTCOME**

At the end of the Semester, the Students will be able to	Unit	Hrs/Sem
<b>CO1:</b> Apply the principles and philosophies of extension education to society.	I	15
<b>CO2:</b> Exhibit the qualities and responsibilities of women extension workers.	II	15
<b>CO3:</b> Display the individual, group and mass approaches for extension and communication.	III	15
<b>CO4:</b> Plan and execute community nutrition programmes for extension activities.	IV	15
<b>CO5:</b> Compare the objectives and implementation of community development programmes in India.	V	15
<b>CO6:</b> Act as change agents in extending health and nutrition knowledge to the community.	I-V	

**SYLLABUS**

**UNIT I**

Extension Education — Concept, aim, Philosophy and Principles of Extension education. Extension Education and its relationship with other Social Sciences. Home science extension - Meaning, Objectives and role of Home Science Extension in national development.

**UNIT II**

Administrative setup for rural development - Central, State, District, Block and village level. Extension personnel working at block level, role and functions of women extension workers, qualities of an extension worker, training women extension workers.

**UNIT III**

Communication and Extension - Approaches for development. Advantages - Individual, Group and mass approaches, Motivation, Methods of extension teaching, Teaching tools, Difference in methods of extension and formal education, Direct contact, demonstration method.

Audio visual aids-visual aids, audio aids and other teaching Aids. Communication through written words and satellite.

**UNIT IV**

Programme Planning, Meaning, and principles, developing a plan of work - Definition, analysis of the concept, Importance and scope of Extension. Steps in Programming evaluation- Criteria for judging the plan of the work.

**UNIT V**

Community Development Programme - meaning, objectives, types and principles of community development; Programmes in India - Socio-Economic programmes — IRDP, TRYSEM, DWCRA, ICDS, Social forestry. Community Organization - meaning, scope, role and characteristics of Community Organisation - Women's Club, Youth Club. Extension Training Institution — Meaning, need and importance; principles of training institutions- KVIC, RETC, NYK.

**Related Experience / Practical**

1. Visit to Block to understand its set up and importance in Rural Development
2. Visit to DRBA and discuss with officials on the current programme.
3. Visit to K.V.K / RETC.
4. Visit to a MahilaMandal.
5. Planning and Implementing a programme for Women and Children
6. Familiarizing with audio visual aids
7. Studying the functions of ICDS.

**TEXTBOOK**

1. Adivi Reddy A. (1999). **Extension Education**, BapatlaSree Lakshmi Press.
2. Serene Shekhar, (Gote) and Santosh Ahlawat, (2013). **Text Book of Home Science Extension Education**, New Delhi: Daya Publishing House.

**REFERENCES**

1. Pankajam, G. (2000). **Extension – Third Dimension of Education**, New Delhi: Gyan Publishing House.
2. Adivi Reddy A. (1999). **Extension Education**,BapatlaSree Lakshmi Press.
3. Supe, S.V. (1983). **An Introduction to Extension Education**, New Delhi : Oxford AD IBH Publishing Company.
4. Dahama, O.P. and Bhatnagar, O.P. (1985). **Education and communication for development**, New Delhi: Oxford IBH publishing company.

**Open Educational Resources**

Concept of extension - <http://ecoursesonline.iasri.res.in/course/view.php?id=691>

Communication and Extension - <http://ecoursesonline.iasri.res.in/course/view.php?id=218-->

Community Development Programmes

-<http://vidyamitra.inflibnet.ac.in/index.php/home/subjects?domain=Social+Sciences&subdomain=Home+Science>

COURSE OUTCOMES (COs)	PROGRAMME OUTCOMES (POs)					PROGRAMME SPECIFIC OUTCOMES (PSOs)						MEAN SCORE OF COs
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	
CO1	5	4	4	4	4	4	5	2	3	2	5	3.63
CO2	5	4	4	4	4	4	5	2	3	2	5	3.63
CO3	5	4	4	4	4	4	5	2	3	2	5	3.63
CO4	5	4	4	4	4	4	5	2	3	2	5	3.63
CO5	5	4	4	4	4	4	5	2	3	2	5	3.63
CO6	5	4	4	4	4	4	5	2	3	2	5	3.63
MEAN OVERALL SCORE												3.63

Result: The score of this course is 3.63 (High Relationship)



**Programme :** M.Sc. HOME SCIENCE  
**Semester :** III **Discipline Specific Elective Course III(b) Hours per week: 5 75hrs/Semester**  
**Sub. Code :** P22DSN3B **Credits : 4**

**TITLE OF THE COURSE: PUBLIC HEALTH & EPIDEMIOLOGY**

Pedagogy	Hours	Lecture	Peer Teaching	Demo/OER/Tutorial	GD/Seminar/Flipped Classroom	ICT/Blended Learning	IV/DI
		75	65	2	3	2	3
<b>PREAMBLE</b>							
To enable to students to							
1. Understand the concept of health from the individual and community perspective.							
2. Know the importance of epidemiology and public health.							
<b>COURSE OUTCOME</b>						Unit	Hrs/Sem
At the end of the Semester, the Students will be able to							
<b>CO1:</b> Interpret indicators of health in relation to the health situation of India.						I	15
<b>CO2:</b> Identify nutritionally vulnerable groups and the needs of special populations.						II	15
<b>CO3:</b> Describe the significance of vital statistics in public health epidemiology						III	15
<b>CO4:</b> Promote lifestyle changes to prevent chronic diseases.						IV	15
<b>CO5:</b> Justify the significance of immunization for public health.						V	15
<b>CO6:</b> Interpret global burden of diseases in relation to Healthcare Index.						I-V	
<b>SYLLABUS</b>							
<b>UNIT I</b>							
Health and dimensions of health - Introduction to concept of health, indicators of health, health situation in India, Family and Community health.							
<b>UNIT II</b>							
Community and its organization - Concept of Community, factors affecting health of the community – environmental, social, cultural, dietary, organizational, economic, political. Vulnerable groups/needs of special populations.							
<b>UNIT III</b>							
Public Health - Vital statistics and their significance. Epidemiological methods Descriptive, analytical, experimental.							
<b>UNIT IV</b>							
Lifestyle and community health - Preventive and promotive aspects, public education and action, alcohol, cigarette smoking, drugs, AIDS, STD, diet in chronic diseases.							
<b>UNIT V</b>							
Immunisation - Importance and schedule for children, adults and for foreign travel, problems encountered-importance of cold chain, role of individual, family and community in promoting health.							
<b>TEXTBOOK</b>							
1. Manelkar, R.K.(2004) A Textbook of Community Health for Nurses, 3 <sup>rd</sup> edition, Vora Medical Publications, Mumbai.							

**REFERENCES**

1. Manelkar, R.K. (2009) Communicable Diseases, 2<sup>nd</sup> edition, Vora Medical Pub., Mumbai.
2. Muruges, N.(2004) Health Education and Community Pharmacy, 4<sup>th</sup> edition, Sathya Publishers, Madurai.
3. Park, K. (1994) Park's Textbook of Preventive Medicine, 9<sup>th</sup> edition, M/s. Banarsidas Bhanot. Jabalpur.
4. Parmar, N.S. (2009): Health Education and Community Pharmacy, CBS Publishers and Distributors Pvt. Ltd., New Delhi.
5. Smith, G.W. (1957) Preventive Medicine and Health, 2<sup>nd</sup> edition, MacMillan Co., New York.
6. Vijay, E. (2007) Community Medicine, 3<sup>rd</sup> edition, B.I.Publications, Pvt. Ltd., Chennai.

**Open Educational Resources**

Life style - <http://ecoursesonline.iasri.res.in/course/view.php?id=218-->

COURSE OUTCOMES (COs)	PROGRAMME OUTCOMES (POs)					PROGRAMME SPECIFIC OUTCOMES (PSOs)						MEAN SCORE OF COs
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	
CO1	5	5	5	5	5	4	5	5	5	2	4	4.54
CO2	5	5	5	5	5	4	5	5	5	2	4	4.54
CO3	5	5	5	5	5	4	5	5	5	2	4	4.54
CO4	5	5	5	5	5	4	5	5	5	2	4	4.54
CO5	5	5	5	5	5	4	5	5	5	2	4	4.54
CO6	5	5	5	5	5	4	5	5	5	2	4	4.54
MEAN OVERALL SCORE												4.54

Result: The score of this course is 4.54 (Very High Relationship)

**Programme :** M.Sc. HOME SCIENCE  
**Semester :** III **NON MAJOR ELECTIVE** **Hours per week: 2** **30hrs/Semester**  
**Sub. Code :** P22NMN1 **Credits: 2**

**TITLE OF THE COURSE: NUTRITION FOR HEALTH AND FITNESS**

Pedagogy	Hours	Lecture	Peer Teaching	Demo/OER/ Tutorial	GD/Seminar/Flipped Classroom	ICT/ Blended Learning	IV/DI
	30	20	4	2	2	2	-
<b>PREAMBLE</b>							
This course will prepare the students to:							
1. Understand the components of health and fitness and the role of nutrition in exercise regimens for pre and post-natal fitness.							
2. Make nutritional, dietary and physical activity recommendations to achieve fitness and well-being.							
3. Develop ability to evaluate fitness and well-being.							
<b>COURSE OUTCOME</b>						Unit	Hrs/Sem
At the end of the Semester, the Students will be able to							
<b>CO1:</b> Identify the role of nutrition in health and fitness.						I	6
<b>CO2:</b> Apply nutrition management for exercise and fitness.						II	6
<b>CO3:</b> Assess the role of nutritional supplements for specific sports activities.						III	6
<b>CO4:</b> Plan and promote nutrition and exercise regimen for all age groups.						IV	6
<b>CO5:</b> Suggest self-help plans for stress management.						V	6
<b>CO6:</b> Impact lifestyle modifications to achieve health and fitness of the community.						I-V	
<b>SYLLABUS</b>							
<b>UNIT I</b>							
Definitions, Components of Fitness -Introduction to fitness and training, benefits of exercise, components of fitness, Specific fitness in health status. Energy input and output. Effect of specific nutrients on work performance and physical fitness.							
<b>UNIT II</b>							
<b>Nutrition, exercise, physical fitness and health:</b> Review of different energy systems for endurance and power activity, Nutrition in weight management, BMI body composition, weight imbalance-overweight underweight, unintentional weight loss. Fuels and nutrients support physical activity, Shifts in carbohydrate and fat metabolism, Mobilisation of fat stores during exercise.							
<b>UNIT III</b>							
<b>Nutrition in sports:</b> Sports specific requirement, Diet manipulation, Pre-game and post-game meals. Assessment of different nutrigenic electrolyte aids and commercial supplements. Weight cycling. Water and balance (Losses and their replenishment during exercise and sports events, effect of dehydration, sports drink).							
<b>UNIT IV</b>							
Nutrition and exercise regimens for pre and post-natal fitness. Significance of physical fitness and nutrition in the prevention and management of weight control, obesity, diabetes mellitus, CV disorders, bone health and cancer.							
<b>UNIT V</b>							
<b>Diet and Lifestyle Modifications:</b> Alternative systems for health and fitness in yoga, Meditation, Vegetarianism. Role of nutrition in Stress management. Self-help plan for lifestyle changes. Types of diet in weight maintenance.							
<b>PRACTICAL EXPERIENCE</b>							
1. Assessment of nutritional status including body composition.							
2. Physiological parameters like heart rate and blood pressure.							
3. Planning diets and formulating dietary guidelines for:							
<ul style="list-style-type: none"> <li>● Fitness and health</li> <li>● Prevention of chronic degenerative disorders</li> <li>● Obesity management</li> <li>● Management of diabetes mellitus and CVD.</li> </ul>							
4. Review of existing alternative diet related systems for physical fitness and health.							

**TEXTBOOK**

1. Ross, C. et al., (2016) 11<sup>th</sup> edition, Modern Nutrition in Health & Disease, Williams & Wilkins, New York.

**REFERENCES**

1. Mahan, L.K. Escott — Stump, S. (2000) Krause's Food, Nutrition and Diet Therapy, 10th edition, W.B. Saunders Ltd.
2. Whitney E.N. & Rolfs, S.R. (1999), Understanding Nutrition, 8th edition, West/ Wadsworth, An International Thomson Publishing Co.,
3. Ira Wolinsky (ED) (1998), Nutrition in Exercise and sports, 3rd edition, CF Press.
4. Parizkova, J. Nutrition, Physical activity and health in early life, Ed. Wolinst, CRC Press.
5. Shills, M.E. Olson, J.A., Shike, N. and Ross, A.C. (Ed), (1999), Modern Nutrition in health and Disease, 9th edition, Williams & Wilkins.
6. Mc Ardle, W. Katch, F. and Katch, V. (1996), Exercise Physiology, Energy Nutrition and Human Performance, 4th Edition, Williams and Williams and Wilkins, Philadelphia.

**JOURNALS**

1. Medicine and Science in Sports and Exercise.
2. International Journal of Sports Nutrition.

**Open Educational Resources**

Diet in exercise - [https://epgp.inflibnet.ac.in/view\\_f.php?category=558](https://epgp.inflibnet.ac.in/view_f.php?category=558)

Ergogenic Aids - [https://epgp.inflibnet.ac.in/view\\_f.php?category=558](https://epgp.inflibnet.ac.in/view_f.php?category=558)

Physical fitness - [https://epgp.inflibnet.ac.in/view\\_f.php?category=558](https://epgp.inflibnet.ac.in/view_f.php?category=558)

Health Benefits of Yoga - [https://epgp.inflibnet.ac.in/view\\_f.php?category=558](https://epgp.inflibnet.ac.in/view_f.php?category=558)

Gandhian Foods for Health and Fitness - [https://epgp.inflibnet.ac.in/view\\_f.php?category=558](https://epgp.inflibnet.ac.in/view_f.php?category=558)

COURSE OUTCOMES (COs)	PROGRAMME OUTCOMES (POs)					PROGRAMME SPECIFIC OUTCOMES (PSOs)						MEAN SCORE OF COs
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	
CO1	4	4	3	3	2	5	5	2	-	-	4	2.9
CO2	4	4	3	3	2	5	5	2	-	-	4	2.9
CO3	4	4	3	3	2	5	5	2	-	-	4	2.9
CO4	4	4	3	3	2	5	5	2	-	-	4	2.9
CO5	4	4	3	3	2	5	5	2	-	-	4	2.9
CO6	4	4	3	3	2	5	5	2	-	-	4	2.9
MEAN OVERALL SCORE												2.9

Result: The score of this course is 2.9 (Moderate Relationship)

Programme : M.Sc. HOME SCIENCE  
 Semester : IV Core Course XIII Hours per week: 6 90 hrs/Semester  
 Sub. Code : P22CN13 Credits: 4

**TITLE OF THE COURSE: INSTITUTIONAL FOOD ADMINISTRATION**

Pedagogy	Hours	Lecture	Peer Teaching	Demo/OER/ Tutorial	GD/Seminar/Flipped Classroom	ICT/ Blended Learning	IV/DI
	90	52	8	10	10	10	-
<b>PREAMBLE</b>							
<b>Objectives:</b>							
1. To develop skills in handling and maintenance of equipment							
2. To understand the key areas of institutional food service administration							
<b>COURSE OUTCOME</b>						Unit	Hrs/Sem
At the end of the Semester, the Students will be able to							
<b>CO1:</b> Differentiate food service institutions based on the objectives and customers.						I	18
<b>CO2:</b> Integrate management tools for quality assurance in food service.						II	18
<b>CO3:</b> Apply the acquired skills in handling food service equipment and procedures.						III	18
<b>CO4:</b> Plan layout of food service establishments.						IV	18
<b>CO5:</b> Manage human resources within a food service organisation.						V	18
<b>CO6:</b> Administer a food service system in an effective manner.						I-V	
<b>SYLLABUS</b>							
<b>UNIT I</b>							
<b>Food Service Industry-</b> Commercial and Non Commercial Institutions. Commercial-Hotel, Motel, Restaurant, Bar, Pub and Fast Food Restaurant; Non Commercial-Transport catering, Industrial catering, hospital catering and outdoor catering.							
<b>Menu Planning and Design:</b> Types of menu: Table d'hote, A la carte, Plat du jour, Carte du jour, Cyclic menu, Special Occasional menu. Types and factors affecting menu planning, menu sequence, menu design. Essentials of a good menu card; method of display.							
<b>UNIT II</b>							
<b>Food Service Management:</b> Types of Organization - line, line and staff, functional, project, matrix, committee, hybrid; Management - Definition and Principles. Leadership style - autocratic, laissez faire, democratic, intellectual, institutional, manipulative, paternalistic; functions of a good leader. Decision making: Types and steps in decision making; Communication - purpose and process and types; Effective communication.							
<b>Role of management in FSI:</b> Planning, organizing, directing, controlling, evaluating.							
<b>Concepts of quality assurance</b> - Total Quality Management (TQM), Management by Objectives (MBO).							
<b>UNIT III</b>							
<b>Equipment used in Food Service Industries</b> - Classification of equipment- electrical and non-electrical equipment for food storage, Preparation, serving, dishwashing and laundering. Base materials used for finishes							
<b>Food plant</b> - Types of Kitchen - Island and Shore, Layout of different food service areas - receiving and storage, kitchen, dining, cleaning, laundering, drainage, water lines, lighting and ventilation adopted in different units such as kitchen, storage and dining area, working heights in relation to equipment.							
<b>Food Management in FSI:</b> Food Purchase: Buying and accounting procedures in food service institutions, Storage; Food Hygiene and Food Safety; Waste Management in food service.							
<b>UNIT IV</b>							
<b>Personnel Management:</b> Manpower planning, recruitment procedures, selection and induction, training, job description and specification, work schedule, work analysis. Laws governing staff management - Employee Law, Trade Union Contracts and Negotiations.							
<b>Waste Management in food service</b> - rules for waste disposal- avoidance, reduction, reuse and recycle; techniques for waste disposal - incineration, landfill, recycle, composting.							

**UNIT V**

**Financial Management:** Buying and receiving procedures in food service institutions; Budget, Inventory control, Cost analysis-Cost concepts- types of cost-fixed cost, semi fixed cost, variable cost. Food cost control - factors; methods of controlling food cost. Pricing - factors affecting pricing of food.

**Role of computers in management of FSI:** menu planning. point of sale, inventory management, financial management, food safety, front office, marketing.

**TEXTBOOK**

1. Sethi, M.,Malhan,S.(2007) Catering Management: An integrated approach, New Age International

**REFERENCES**

1. Sudhir Andrews (1999) Food and Beverage Service Training Manual, Tata McGraw Hill Publishing Company Ltd New Delhi
2. Lilli Crap, D R and Cousins J A (1999) Food and Beverage Service, 4th Edition, Hodder and Stoughton.
3. Aggarwal D.K (2006) Housekeeping Management, AMAN Publications, New Delhi.
4. Singh.R.K (2006) Modern Trends in Hospitality industry, AMAN Publications,New Delhi.
5. John Wiley (2005), Book Of Yields:Accuracy in Food Costing and Purchasing,6th Edition.

**JOURNALS**

1. Journal of Foodservice Business Research
2. The Journal of Foodservice Management and Education

**Open Educational Resources**

Food service industry - [https://epgp.inflibnet.ac.in/view\\_f.php?category=547](https://epgp.inflibnet.ac.in/view_f.php?category=547)

Classification of equipment -[https://epgp.inflibnet.ac.in/view\\_f.php?category=547](https://epgp.inflibnet.ac.in/view_f.php?category=547)

Components of costing and Pricing

methods-<http://vidyamitra.inflibnet.ac.in/index.php/home/subjects?domain=Social+Sciences&subdomain=Home+Science>

COURSE OUTCOMES (COs)	PROGRAMME OUTCOMES (POs)					PROGRAMME SPECIFIC OUTCOMES (PSOs)						MEAN SCORE OF COs
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	
CO1	5	4	5	5	4	4	5	5	5	2	4	4.36
CO2	5	4	5	5	4	4	5	5	5	2	4	4.36
CO3	5	4	5	5	4	4	5	5	5	2	4	4.36
CO4	5	4	5	5	4	4	5	5	5	2	4	4.36
CO5	5	4	5	5	4	4	5	5	5	4	4	4.54
CO6	5	4	5	5	4	4	5	5	5	2	4	4.36
MEAN OVERALL SCORE												4.39

Result: The score of this course is 4.39 (Very High Relationship)

**Programme :** M.Sc. HOME SCIENCE  
**Semester :** IV **Core Course - XIV** **Hours per week:6** **90 hrs/Semester**  
**Sub. Code :** P22CN14 **Credits : 4**

**TITLE OF THE COURSE: FOOD PRODUCT DEVELOPMENT AND MARKETING**

Pedagogy	Hours	Lecture	Peer Group Teaching	Demo/OER/Tutorial	GD/Seminar	ICT/Blended	IV/DI
	90	52	8	10	10	10	-
<b>PREAMBLE</b>							
This course will enable students to:							
<ol style="list-style-type: none"> <li>1. Understand and know various aspects of food product development including food science and technology, marketing and consumer research, finance and communication.</li> <li>2. Develop products which meet consumer needs, and nutritionally and commercially viable.</li> <li>3. Recognize the potential for entrepreneurship through marketing.</li> </ol>							
<b>COURSE OUTCOME</b>						Unit	Hrs/Se m
At the end of the Semester, the Students will be able to							
<b>CO1:</b> Generate ideas to formulate novel food product development.						I	18
<b>CO2:</b> Perform quality tests to conform to food laws and standards.						II	18
<b>CO3:</b> Determine costing and pricing of the developed product.						III	18
<b>CO4:</b> Judge packaging materials and distribution methods suitable for the developed product.						IV	18
<b>CO5:</b> Explore the avenues of entrepreneurship and financial support system.						V	18
<b>CO6:</b> Recognize the potential for entrepreneurship to meet consumer needs.						I-V	
<b>SYLLABUS</b>							
<b>UNIT I</b>							
<b>New Food Products:</b> Comparison of traditional and modern food habits - generation of new product idea, new products; definition - classification and characterization - social and health concerns - calories - hygiene factors - nutrition - balanced diet.							
<b>New Food Product Planning and Development</b> Reasons for new food product development (influence of corporate, market, technology and government) – determination of needs from various perspectives.							
<b>UNIT II</b>							
<b>New Food Product Development</b> Stages in new product development; idea generation — screening — business analysis; <b>Screening Procedure</b> Sensory evaluation, shelf life testing, product integrity and conformance to standards.							
<b>UNIT III</b>							
Test marketing – Evaluating results and analyzing data. Pricing of New Product; Pricing policies; cost basis (determination of cost through cost sheet) — demand basis — cost demand basis (determination of cost through break — even charts) — competition basis, kinds of pricing — pricing strategies.							
<b>UNIT IV</b>							
<b>Promotion and Distribution of Products:</b> Sales promotion — importance — kinds of sales promotion — personal selling — advertising — advertising vs. popularity — advertising media — channels of distribution — middlemen — importance.							
<b>Entrepreneurship:</b> Choice of production — plant location — investment decisions; return on investment — payback methods — financing the projects — availing of loans from commercial banks and other agencies.							
<b>UNIT V</b>							
<b>Consumer Psychology and Consumerism:</b> Buying motives — determination of buyer behavior — buying decisions — consumerism —. New products in Food Service Industry & Food Ingredient Industry.							
<b>TEXTBOOK</b>							
1. Fuller, G.W. (1994); New Product Development: From Concept to MarketPlace CRC Press, New York.							

**REFERENCES**

1. Man, C.M.D. and Jones A.A. (1994); Shelf Life Evaluation of Foods, Blackie Academic and Professional, London.
2. R.S.N. Pillai and Bagavathi, S.Q. Modern Marketing Chand Publications, New Delhi, 2002.
3. Olickle, J K (1990) New Product Development and value added. Food Development Division, Agriculture, Canada
4. Graf E and Saguy I S (1991), Food Product Development : From concept to the MarketPlace, Van Nostrand Reinhold New York

**Open Educational Resources**

Marketing - <https://epgp.inflibnet.ac.in/ahl.php?csrno=827>

Entrepreneurship - <https://epgp.inflibnet.ac.in/ahl.php?csrno=827>

COURSE OUTCOMES (COs)	PROGRAMME OUTCOMES (POs)					PROGRAMME SPECIFIC OUTCOMES (PSOs)						MEAN SCORE OF COs
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	
CO1	5	5	5	5	3	5	5	5	5	2	5	4.54
CO2	5	5	5	5	3	5	5	5	5	2	5	4.54
CO3	5	5	5	5	3	5	5	5	5	2	5	4.54
CO4	5	5	5	5	3	5	5	5	5	2	5	4.54
CO5	5	5	5	5	4	5	5	5	5	2	5	4.63
CO6	5	5	5	5	4	5	5	5	5	2	5	4.63
<b>MEAN OVERALL SCORE</b>												4.57

Result: The score of this course is 4.57 (Very High Relationship)



**Programme :** M.Sc. HOME SCIENCE  
**Semester :** IV **Core Course XV** **Hours per week: 5** **75 hrs/Semester**  
**Sub. Code :** P22CN15P **Credits: 4**

**TITLE OF THE COURSE: FOOD PRODUCT DEVELOPMENT AND MARKETING PRACTICAL**

Pedagogy	Hours	Lecture	Practical Experience	Demo/ OER/ Tutorial	GD/ Seminar/ Flipped Classroom	ICT/ Blended Learning	IV/ DI
	75	–	50	15	-	-	10
<b>COURSE OUTCOME</b>						Unit	Hrs/Sem
At the end of the Semester, the Students will be able to							
<b>CO1:</b> Understand the policies and regulations for food product development, Conduct market survey to Identify consumer needs for novel food products						I	15
<b>CO2:</b> State the scope of a new food product which can address a problem statement						II	15
<b>CO3:</b> Generate ideas to meet the needs of the consumer related to food products						III	15
<b>CO4:</b> Formulate the steps in preparing, budgeting, pricing for the new food product						IV	15
<b>CO5:</b> Perform feasibility tests to check the versatility of the new food product						V	15
<b>CO6:</b> Prepare food labels and marketing strategies to promote sales of the new food product						I-V	
<b>SYLLABUS</b>							
<b>UNIT I</b>							
Orientation on Lab policies - FSSAI, Good Manufacturing Practices (GMP), Good Hygiene Practice (GHP), Market Survey of existing food products under different categories, Screening of existing food products to identify gaps. Stating the Problem / Need.							
<b>UNIT II</b>							
<b>Empathize:</b> Choosing the category of food product, Defining the Objective to meet the gap, Stating the scope for the new food product, consumer need - determination of needs from various perspectives.							
<b>UNIT III</b>							
<b>Ideation:</b> Idea generation to develop new product - flow chart for new product formulation, work process, budgeting, labeling details, identifying target consumers.							
<b>Formulation and Packaging :</b> Processing of Prototype - stages in new product development, choosing ingredients, finalising preparation methods, identifying suitable packaging material and storage method - trial and error method.							
<b>UNIT IV</b>							
<b>Testing and Evaluation :</b> Feasibility check, Consumer acceptability - distribution of developed food product for sensory evaluation (9 point hedonic scale) and consumer acceptance, shelf life testing.							
<b>UNIT V</b>							
<b>Marketing:</b> Preparing for sales, deciding on label labels - design and nutritional information, costing & pricing, collection of feedback from consumers for improvement, market launch.							
<b>TEXTBOOKS</b>							
1. Fuller, G.W. (1994): New Product Development from concept to market place, CRC Press, New York.							
2. FSSAI Guidelines (2020): Govt of India							

**REFERENCES**

1. Man, C.M.D. and Jones A.A. (1994); Shelf Life Evaluation of Foods, Blackie Academic and Professional, London.
2. R.S.N. Pillai and Bagavathi, S.Q. Modern Marketing Chand Publications, New Delhi, 2002.
3. Olickle, J K (1990) New Product Development and value added. Food Development Division, Agriculture, Canada
4. Graf E and Saguy I S (1991), Food Product Development : From concept to the MarketPlace, Van Nostrand Reinhold New York.

COURSE OUTCOMES (COs)	PROGRAMME OUTCOMES (POs)					PROGRAMME SPECIFIC OUTCOMES (PSOs)						MEAN SCORE OF COs
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	
CO1	5	4	4	4	3	4	5	5	3	2	3	3.81
CO2	5	4	4	4	3	4	5	5	3	2	3	3.81
CO3	5	4	4	4	3	4	5	5	3	2	3	3.81
CO4	5	4	4	4	3	4	5	5	3	2	3	3.81
CO5	5	4	4	4	3	4	5	5	3	2	3	3.81
CO6	5	4	4	4	3	4	5	5	3	2	3	3.81
MEAN OVERALL SCORE												3.81

Result: The score of this course is 3.81 (High Relationship)

**SEMESTER V**

**Sub Code: P22CNPW**

**PROJECT**

**Total 100 Marks**

Allotment of different proposals to the students to carry out the projects under the supervision of the faculty concerned and viva voce by External Examiners.

**Programme : M.Sc. HOME SCIENCE**  
**Semester : IV Discipline Specific Elective Course IV(a) Hours per week: 5 75 hrs/Semester**  
**Sub. Code : P22DSN4A Credits : 4**

**TITLE OF THE COURSE: TEXTILES AND CLOTHING**

Pedagogy	Hours	Lecture	Peer Group Teaching	Demo/OER/Tutorial	GD /Seminar	ICT/Blended Learning	IV/DI
	75	65	2	3	2	3	-
<b>PREAMBLE</b>							
To enable the students to							
1. Understand the textile fibers, their properties and uses							
2. Impart knowledge on spinning, fabric production							
3. Acquire knowledge on the finishing, dyeing, printing and laundering processes							
4. Know the selection and care of clothing							
<b>COURSE OUTCOME</b>						Unit	Hrs/Sem
At the end of the Semester, the Students will be able to							
<b>CO1:</b> Classify textile fibres based on origin, properties and uses.						I	15
<b>CO2:</b> Familiarize with spinning and weaving.						II	15
<b>CO3:</b> Identify fabric processing and finishing methods.						III	15
<b>CO4:</b> Exhibit skills in identification, selection and care of clothing for different age groups.						IV	15
<b>CO5:</b> Choose appropriate methods of dyeing and printing of textiles and clothing.						V	15
<b>CO6:</b> Demonstrate stain removal techniques in fabrics.						I-V	
<b>SYLLABUS</b>							
<b>UNIT I</b>							
<b>Fiber</b> – Definition, Meaning, Classification of Textiles Fibers - Natural fiber - cotton, flax, silk, wool - origin, manufacturing process, properties and end uses. Minor Textile fibers, properties and uses. Synthetic Fibers - Nylon, Dacron, Orlon and Acrylic - origin, manufacturing process, properties and end uses.							
<b>UNIT II</b>							
<b>Spinning and Weaving:</b> Spinning – Definition, meaning, types of spinning. Yarn and Twist – Definition, counts of yarns. Meaning and Classification of natural, manmade and Novelty yarns. Blends and Mixtures. Weaving - Definition, Meaning, parts and functions of simple loom. Types of weaves - Basic weaves and fancy weaves. Non - woven - Classification of non-woven fabric - Bonding and Felting. Knitting – Definition, classification of knitting, braiding. Types of laces.							
<b>UNIT III</b>							
<b>Wet processing</b> - Importance of wet processing of textiles - Fiber, Yarn and Fabric processing. Basic finishes - Singeing, Desizing, Scouring, Bleaching, Calendering, Mercerizing, Napping, Sanforizing, Special finishes, finishes suitable to Natural and manmade fibers.							
<b>UNIT IV</b>							
<b>Dyeing</b> -Definition, Meaning and concept of Dyes, Classification of dyes, Methods of Dyeing.							
<b>Printing</b> – Definition, Methods of printing -Block printing, Roller, Screen, Resist Printing – Batik, Tie and Dye, stencil.							
<b>UNIT V</b>							
Laundry – Method of washing, laundry agents, Laundry finishing of different fabrics, Clothing budget – selection, factors influencing the choice of clothing materials for different age groups. Stain removal – types, principles and techniques							
<b>Related Practical Experiences</b>							
Fiber, Yarn and Fabric – Identification							
Stain Removal - removal of food stains. blood, ink							
Field Visit to Dyeing and Printing units							

**TEXTBOOK**

1. Dantiyagi, S. (1996). **Fundamentals of Textiles and Their Care**, New Delhi. Orient Longman limited.

**REFERENCES**

1. E.P.G. Gohl, L.D. Velensky, (2003). **Textile Science**, New Delhi :CBS Publishers and Distributors, New Delhi
2. A.J. Hall. (2004). **The standard hand book of Textiles**, Wood head Publishing 8<sup>th</sup> edition.
3. P.V. Vidyasagar (2005). **Hand Book of Textiles**, Mittal Publications.
4. Sara J. Kadolph (2007). **Textiles**, Prentice Hall, 10<sup>th</sup> edition.

**Open Educational Resources**

Textile Finishing

<http://vidyamitra.inflibnet.ac.in/index.php/home/subjects?domain=Social+Sciences&subdomain=Home+Science>

Textile fiber - <https://epgp.inflibnet.ac.in/ahl.php?csrno=827>

COURSE OUTCOMES (COs)	PROGRAMME OUTCOMES (POs)					PROGRAMME SPECIFIC OUTCOMES (PSOs)						MEAN SCORE OF COs
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	
CO1	5	4	3	3	3	3	1	2	5	2	3	3.09
CO2	5	4	3	3	3	3	1	2	5	2	3	3.09
CO3	5	4	3	3	3	3	1	2	5	2	3	3.09
CO4	5	4	3	3	3	3	1	2	5	2	3	3.09
CO5	5	4	3	3	3	3	1	2	5	2	3	3.09
CO6	5	4	3	3	3	3	1	2	5	2	3	3.09
MEAN OVERALL SCORE												3.09

Result: The score of this course is 3.09 (High Relationship)

**Programme :** M.Sc. HOME SCIENCE  
**Semester :** IV **Discipline Specific Elective Course – IV(b) Hours per week: 5 75hrs/Semester**  
**Sub. Code :** P22DSN4B **Credits : 4**

**TITLE OF THE PAPER: GENDER STUDIES**

Pedagogy	Hours	Lecture	Peer Group Teaching	Demo/OER/Tutorial	GD/Seminar	ICT/Blended Learning	IV/DI	
	75	65	2	3	2	3	-	
<b>PREAMBLE</b>								
To help the student to								
1. Raise the information level and awareness regarding women's issues, personal, social, legal and political.								
2. Acquaint with some of the major development programmes for women.								
<b>COURSE OUTCOME</b>							Unit	Hrs/Sem
At the end of the Semester, the Students will be able to								
<b>CO1:</b> Interpret factors influencing sex role development in India with gender concepts.							I	15
<b>CO2:</b> Explore the history of women's status in the post – independence era.							II	15
<b>CO3:</b> Collect and analyse the role of women in different spheres of life.							III	15
<b>CO4:</b> Integrate the Government policy implications to women's issues.							IV	15
<b>CO5:</b> Apply women's rights and laws to women's issues.							V	15
<b>CO6:</b> Integrate development programmes for women empowerment.							I-V	
<b>SYLLABUS</b>								
<b>UNIT I</b>								
Introduction to Gender Studies: Sex-role development: biological, psychological and socio-cultural factors. Concept of Gender and Sex. Trends in women's movement with special reference to India.								
<b>UNIT II</b>								
Status of Indian women. Post –independence - legal, political, economic, social and educational status - relevant statistics.								
<b>UNIT III</b>								
Women in Society - Education and employment, Women and mass media.								
<b>UNIT IV</b>								
Issues related to women and policy implications - dowry, divorce, prostitution and sexual exploitation.								
<b>UNIT V</b>								
Women and Law - Rights of Women, Laws related to marriage, divorce and dowry.								
<b>TEXTBOOK</b>								
Jayapalan, N. (2000) Women Studies, Atlantic Publisher And Distributors, New Delhi.								
<b>REFERENCES</b>								
1. Menon,L. (1998) Women Empowerment And Challenge Of Change Kanishka Publisher and Distributors New Delhi.								
2. Khanna,G & Varghese, M.A.(1978) Indian Women Today, Vikas Publishing House Pvt.Ltd., New Delhi.								
3. Rehman,M.M. & Biswal, K.K.(1993), Education , Work and Women, Commonwealth Publishers, New Delhi.								
4. Sharma,O.C.(1994) Crime Against Women, Sterling Publishers Pvt. Ltd., New Delhi.								
<b>Open Educational Resources</b>								
Status of Indian women								
<a href="http://vidyavitra.inflibnet.ac.in/index.php/home/subjects?domain=Social+Sciences&amp;subdomain=Home+Science">http://vidyavitra.inflibnet.ac.in/index.php/home/subjects?domain=Social+Sciences&amp;subdomain=Home+Science</a>								
Women and law - <a href="http://vidyavitra.inflibnet.ac.in/index.php/home/subjects?domain=Social+Sciences&amp;subdomain=Home+Science">http://vidyavitra.inflibnet.ac.in/index.php/home/subjects?domain=Social+Sciences&amp;subdomain=Home+Science</a>								

COURSE OUTCOMES (COs)	PROGRAMME OUTCOMES (POs)					PROGRAMME SPECIFIC OUTCOMES (PSOs)						MEAN SCORE OF COs
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	
CO1	5	4	4	4	5	5	3	2	3	3	5	3.90
CO2	5	4	4	4	5	5	3	2	3	3	5	3.90
CO3	5	4	4	4	5	5	3	2	3	3	5	3.90
CO4	5	4	4	4	5	5	3	3	3	3	5	4.0
CO5	5	4	4	4	5	5	3	3	3	3	5	4.0
CO6	5	4	4	4	5	5	3	2	3	3	5	3.90
MEAN OVERALL SCORE												3.93

Result: The score of this course is 3.93 (High Relationship)