B.Sc., NUTRITION AND DIETETICS

Course structure with Syllabus

PROGRAMME CODE:3USNUD

2024-2025

SENGAMALA THAYAAR EDUCATIONAL TRUST WOMEN'S COLLEGE (AUTONOMOUS)

(Affiliated to Bharathidasan University, Tiruchirappalli) (Accredited by NAAC) | (An ISO 9001:2015 Certified Institution)

Sundarakkottai, Mannargudi–614 016,
Thiruvarur(Dt.),Tamil Nadu, India.

SENGAMALA THAYAAR EDUCATIONAL TRUST WOMEN'S COLLEGE

(AUTONOMOUS)

(Affiliated to Bharathidasan University, Tiruchirappalli)

Accredited by NAAC-An ISO 9001:2015 Certified Institution

SUNDARAKKOTTAI, MANNARGUDI–614016.

TAMILNADU, INDIA.

B.Sc., NUTRITION AND DIETETICS

CHOICE BASED CREDIT SYSTEM– LEARNING OUTCOME BASED CURRICULUM FRAME WORK (CBCS–LOCF)

(For the candidates admitted in the academic year 2024–2025)

CHOICE BASED CREDIT SYSTEM

The credit based semester system provides flexibility in designing curriculum and assigning credits based on the course content and hours of teaching. The choice based credit system provides a 'cafeteria' type approach in which the students can take courses of their choice, learn at their own pace, undergo additional courses and acquire more than the required credits, and adopt an interdisciplinary approach to learning. Our College has moved to CBCS and implemented the grading system.

OUTCOME-BASED EDUCATION (OBE)

LEARNING OUTCOME-BASED CURRICULUM FRAMEWORK (LOCF)

The fundamental premise underlying the learning outcomes-based approach to curriculum planning and development is that higher education qualifications are awarded on the basis of demonstrated achievement of outcomes (expressed in terms of knowledge, understanding, skills, attitudes and values) and academic standards expected of graduates of a programme of study. Learning outcomes specify what graduates completing a particular programme of study are expected to know, understand and be able to do at the end of their programme of study. The expected learning outcomes are used as reference points that would help to formulate graduate attributes, qualification descriptors, programme learning outcomes and course learning outcomes which in turn will help in curriculum planning and development, and in the design, delivery and review of academic programmes. They provide general guidance for articulating the essential learnings associated with programmes of study and courses with in a programme, maintain national standards and international comparability of learning outcomes and academic standards to ensure global competitiveness, and to facilitate student/graduate mobility and provide higher education

institutions an important point of reference for designing teaching-learning strategies, assessing student learning levels, and periodic review of programmes and academic standards.

Some important aspects of the Outcome Based Education Course: is defined as a theory, practical or theory cum practical subject studied in a semester.

Course Outcomes (COs): are statements that describe significant and essential learning that learners have achieved, and can reliably demonstrate at the end of a course. Generally three or more course outcomes may be specified for each course based on its weightage.

Programme: is defined as the specialization or discipline of a Degree.

Programme Outcomes (POs): Programme outcomes are narrower statements that describe what students are expected to be able to do by the time of graduation. POs are expected to be aligned closely with Graduate Attributes.

Programme Specific Outcomes (PSOs): PSOs are what the students should be able to do at the time of graduation with reference to a specific discipline. **Some important terminologies repeatedly used in LOCF.**

Core Courses (CC) A course, which should compulsorily be studied by a candidate as a core requirement is termed as a Core course. These are the courses which provide basic understanding of their main discipline. In order to maintain a requisite standard certain core courses must be included in an academic program. This helps in providing a universal recognition to the said academic program.

Discipline Specific Elective Courses (DSE) Elective course may be offered by the main discipline/subject of study is referred to as Discipline Specific Elective (DSE). These courses offer the flexibility of selection of options from a pool of courses. These are considered specialized or advanced to that particular programme and provide extensive exposure in the area chosen; these are also more applied in nature.

Generic Elective Courses An elective course chosen generally from an **unrelated discipline/subject,** with an intention to seek exposure is called a Generic Elective. Generic Elective courses are designed for the students of **other disciplines**. Thus, as per the CBCS policy, the students pursuing particular disciplines would have to opt Generic Elective courses offered by other disciplines, as per the basket of courses offered by the college. The scope of the Generic Elective (GE) Courses is positively related to the diversity of disciplines in which programmes are being offered by the college.

Non Major Elective (NME). A student shall choose at least two Non – major Elective Courses (NME) from outside his /her department. Non –Major Elective I – Those who choose Tamil in Part

I can choose a non –major elective course offered by other departments. Those who do not choose Tamil in Part I must choose either a) Basic Tamil if Tamil language was not studies in school level or b) Special Tamil if Tamil language was studies upto 10^{th} &12^{th} std.

Skill Enhancement Courses (SECs) These courses focus on developing skills or proficiencies in the student, and aim at providing hands-on training. Skill enhancement courses can be opted by the students of any other discipline, but are highly suitable for students pursuing their academic programme. These courses may be chosen from a pool of courses designed to provide value-based and/or skill-based knowledge**.**

Field Study/Industrial Visit/Case Study: It has to be completed during the fifth semester ofthe degree programme. Credit for this course will be entered in the fifth semester's marks statement.

Internship: Students must complete internship during summer holidays after the fourth semester. They have to submit a report of internship training with the necessary documents and have to appear for a viva-voce examination during fifth semester. Credit for internship will be entered in the fifth semester's mark statement.

Extra Credit Courses: In order to facilitate the students, gaining knowledge/skills by attending online courses MOOC, credits are awarded as extra credits, the extra credit are at three semesters after verifying the course completion certificates. According to the guidelines of UGC, the students are encouraged to avail this option of enriching their knowledge by enrolling themselves in the Massive Open Online Courses (MOOC) provided by various portals such as SWAYAM, NPTEL etc.

Undergraduate Programme:

Programme Pattern: The Under Graduate degree programme consists of **FIVE** vital components. They are as follows:

Part -I : Languages (Tamil / Hindi / French / Sanskrit)

Part-II : General English

Part-III: Core Course (Theory, Practicals, Generic Elective courses, Discipline Specific Electivecourses, Compulsory and Optional Allied courses, Project)

Part-IV: Non Major Elective, Foundation Course, Value Education, Environmental studies, Skill Enhancement Courses/ Soft Skills, Internship / field visit / industrial visit/ Case Study), Professional Competency Course

Part –V: Health and Wellness, Extension activity, Gender studies

EXAMINATION

Continuous Internal Assessment (CIA):

UG - Distribution of CIA MarksPassing Minimum: 40 %

Assisgnment-3	=	30%
Tests-2	=	50%
Seminar	=	10%
Attendance	=	10%

Question Paper Pattern

Part A:

Part A 1 (10X1=10 marks)
One word question/ Fill in/ True or False/ Multiple Choice QuestionsTwo Questions from Each unit

Part A 2 (5X2=10 marks)
Match the following
Short Answers
One question from Each unit
Total Marks – 20
Part B: (5X5=25 marks)
Paragraph Answers
Either/ or type, One Question from each unit
Part C: (10X3=30)
Essay Type Answers
Answer 3 out of 5 Questions
One Question from each unit
Part A: K1 Level
Part B: K2, K3 and K4 Level
Part C: K5 and K6 Level

Knowledge levels for assessment of Outcomes based on Blooms Taxonomy

S. No.	Level	Parameter	Description
1	K1	Knowledge/Remembering	**It is the ability to remember the previously learned**
2	K2	Comprehension/ Understanding	**The learner explains ideas or concepts**
3	K3	Application/Applying	**The learner uses information in a new way**
4	K4	Analysis/Analysing	**The learner distinguishes among different parts**
5	K5	Evaluation/Evaluating	**The learner justifies a stand or decision**
6	**K6**	**Synthesis /Creating**	**The learner creates a new product or point of view**

WEIGHTAGE of K – LEVELS IN QUESTION PAPER

(Cognitive Level) K- LEVELS →	Lower Order Thinking			Higher Order Thinking			Total
	K1	K2	K3	K4	K5	K6	
END SEMESTER EXAMINATIONS (ESE)	20	25		30			**75**
Continuous Internal Assessment (CIA)	20	25		30			**75**

QUESTION PATTERN FOR END SEMESTER EXAMINATION/Continuous Internal Assessment

PART		**MARKS**
PART –A I. (No choice ,One Mark) **TWO** questions from each unit **II.** (No choice ,Two Mark) **ONE** question from each unit	10x1 =10) (5x2 =10)	20
PART -B (Either/ or type ,5-Marks) **ONE** questions from each unit	(5x5 =25)	25
PART -C (3 out of 5) (10 Marks) **ONE** question from each unit	(3x10 =30)	30
	Total	**75**

BLUE PRINT OF QUESTION PAPER FOR END SEMESTER EXAMINATION							
DURATION: 3. 00 Hours.							**Max Mark : 75**
K- LEVELS / **PART**	**K1**	**K2**	**K3**	**K4**	**K5**	**K6**	**Total Marks**
PART –A (One Mark, No choice) (10x1 =10)	10						10
(2-Marks, No choice) (5x2=10)	10						10
PART –B (5- Marks) (Either/or type) (5x5=25)		5	10	10			25
PART -C (10 Marks) (3 out of 5) (3x10=30)Courses having only **K5,K6** levels, K5 level- 3 Questions, K6 level- 2 Questions **(One K6 level question is compulsory)**					20	10	30
Total	**20**	**05**	**10**	**10**	**20**	**10**	**75**

EVALUATION

GRADING SYSTEM

Once the marks of the CIA and the end-semester examination for each of the courses are available, they will be added and converted as final mark. The marks thus obtained will then be graded as per the scheme provided in Table-1.

Grade Point Average (GPA) will be calculated from the first semester onwards for all semester. From the second semester onwards, the total performance within a semester and the continuous performance starting from the first semester are indicated by semester Grade Point Average (GPA) and Cumulative Grade Point Average (CGPA) , respectively. These two are calculated by the following formulae:

$GPA = \frac{\sum_{i=1}^{n} C_i G_i}{\sum_{I=1}^{n} C_i}$	$WAM\ (Weighted\ Average\ Marks) = \frac{\sum_{i=1}^{n} C_i M_i}{\sum_{I=1}^{n} C_i}$
Where, C_i is the Credit earned for the Course i G_i is the Grade Point obtained by the student for the Course i M_i is the marks obtained for the course i and n is the number of Courses **Passed** in that semester.	

CGPA: Average GPA of all the Courses starting from the first semester to the current semester.

CLASSIFICATION OF FINAL RESULTS:

1. For each of the first three parts, there shall be separate classification on the basis of CGPA, as indicated in Table-2.
2. For the purpose of declaring a candidate to have qualified for the Degree of Bachelor of Arts/Science/Commerce/Management as Outstanding/Excellent/Very Good/Good/Above Average/Average, the marks and the corresponding CGPA earned by the candidate in Part-III alone will be the criterion, provided the candidate has secured the prescribed passing minimum in the all the Five parts of the Programme.
3. Grade in Part –IV and Part-V shall be shown separately and it shall not be taken into account for classification.
4. A Pass in PART- V will be mandatory although the marks will not count for the calculation of the CGPA.
5. Absence from an examination shall not be taken an attempt.

Table-1: Grading of the Courses - UG

Marks Range	Grade Point	Corresponding Grade
90 and above	10	O
80 and above and below 90	9	A+
70 and above and below 80	8	A
60 and above and below 70	7	B+
50 and above and below 60	6	B
40 and above and below 50	5	C
Below 40	NA	RA

The candidate's performance in every current semester is indicated by **Semester Grade Point Average (SGPA)** and from the second semester onwards, the continuous performance including pervious semester /s is indicated by **Cumulative Grade Point Average (CGPA).**

Table-3: Final Result

CGPA	Corresponding Grade	Classification of Final Result
9.00 and above	O	Outstanding
8.00 to 8.99	A+	Excellent
7.00 to 7.99	A	Very Good
6.00 to 6.99	B+	Good
5.00 to 5.99	B	Above Average
4.00 to 4.99	C	Average
Below 4.00	RA	Re-appearance

The candidates who have passed in the first appearance and within the prescribed duration of the UG programme are eligible. If the candidate's Grade is O/A+ with more than one attempt, the performance is fixed as "Very Good".

Vision

Providing value based education in Nutritional Sciences, Dietetics and Public Health Nutrition to the ruralwomen students to construct the healthy and blooming society.

Mission

- Mentoring the students by imparting skill based knowledge to suit hospital and hospitality
- Industry requirements and promote a healthy society Conscientise the students on food,nutrition and diet and to develop entrepreneurial skills for self employment

PROGRAMME OUTCOMES FOR B.Sc.,DEGREE PROGRAMMES

PO No.	Programme Outcomes *(Upon completion of the B.Sc. Degree Programme, the Undergraduate will be able to)*
PO-1	**Disciplinary knowledge**: Demonstrate comprehensive knowledge and understanding of one or more disciplines that form a part of an undergraduate program of study in Bachelor of Science.
PO-2	**Critical thinking, Problem Solving and Reflective thinking: t**hink critically about the issues and identify, critically analyze and solve problems from the disciplines of concern using appropriate tools and techniques and the knowledge, skills and attitudes acquired and extrapolate the same to real life situations; show critical sensibility to life experiences, with self awareness and reflexivity of both self and society.
PO-3	**Analytical & Scientific Reasoning:** evaluate the reliability and relevance of evidence; identify logical flaws and holes in the arguments of others; analyze and synthesize data from a variety of sources; draw valid conclusions and support them with evidence and examples and addressing opposing viewpoints; critically evaluate ideas, evidence, and experiences from an open minded and reasoned perspective.
PO-4	**Research-related Skills:** develop a sense of capability for relevant/appropriate inquiry and asking questions, synthesize, articulate and report results and to recognize and predict cause and effect relationships, define problems, formulate and establish hypothesis, analyze and interpret and draw conclusions from data, execute and report the results of an experiment or investigation.
PO-5	**Digital literacy and Effective Communication:** use ICT in a variety of learning situations and **s**peak, read, write and listen clearly in person and through electronic media in English and in one or more Indian languages, and make meaning of the world by connecting people, ideas , books, media and technology; efficiently communicate thoughts and ideas in a clear and concise manner.
PO-6	**Individual and Team Work:** effectively accomplish tasks individually as well as work effectively and respectfully as member or leader with diverse teams, facilitate cooperative or coordinated effort on the part of a group, and act together as a group or a team in the interest so for a common cause and work efficiently as a member of a team.
PO-7	**Multicultural Competence and Social Interaction:** understand the values and beliefs of multiple cultures, global perspectives, engage and interact respectfully with diverse groups and elicit views of others, mediate disagreements and help reach conclusions in group settings.
PO-8	**Awareness of Ethical issues, Human values and Gender Issues:** embrace moral/ethical values in conducting one's life, formulate a position/argument about an ethical issue from multiple perspectives, and use ethical practices in all work and understand the value of relationship between self and the community and aware of the various issues concerning women and society.
PO-9	**Awareness of Environment and Sustainability:** understand the impacts of technology and business practices in societal and environmental contexts, and sustainable development.
PO-10	**Self directed and Lifelong learning:** acquire knowledge and skills, including learning "how to learn", that are necessary for participating in learning activities throughout life and to engage in independent and life-long learning in the broadest context of socio-technological changes.

PROGRAMME SPECIFIC OUTCOME (PSO)

PSO No.	Program Specific Outcomes **(B.Sc., Nutrition and Dietetics)**
PSO1	**Placement:** To prepare the students who will demonstrate respectful engagement with others' ideas, behaviors, beliefs and apply diverse frames of reference to decisions and Actions
PSO2	**Entrepreneur:** To create effective entrepreneurs by enhancing their critical thinking, problemsolving, decision making and leadership skill that will facilitate startups and high potential organizations
PSO3	**Research and Development:** Design and implement HR systems and practices grounded in research that comply with employment laws, leading the organization towards growth and development.
PSO4	**Contribution to Business World:** To produce employable, ethical and innovative professionals to sustain in thedynamic business world.
PSO5	**Contribution to the Society:** To contribute to the development of the society by collaborating with stakeholders for mutual benefit

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B.Sc., NUTRITION AND DIETETICS

COURSE STRUCTURE UNDER CHOICE BASED CREDIT SYSTEM - LEARNING OUTCOME BASED CURRICULUM FRAMEWORK (CBCS - LOCF)

(For the candidates admitted from the academic year 2024-2025)

ELIGIBILITY: A Pass in 10+2 with Biology and Chemistry as two of the core subjects

Sem	Part	Nature of the Course	Course Code	Title of the Course	Ins. Hours/ Week	Ins. Hours/ Week				Credit	Exam Hours	Marks		Total
						L	T	P	S			CIA	ESE	
I	I	Language Course-I	U24LC101	Pothu Tamil – I Tamil Elakkiya Varalaru-I	6	5	1	-	-	3	3	25	75	100
	II	English Language Course-I	U24ELC101	General English – I	6	5	1	-	-	3	3	25	75	100
	III	Core Course-I	U24ND101	Food Science	5	4	1	-	-	5	3	25	75	100
		Core Practical I	U24ND102P	Food Science (P)	4	-	-	4	-	4	3	25	75	100
		Allied Course-I	U24AND101	Food Chemistry	3	2	1	-	-	2	3	25	75	100
		Allied Practical I	U24AND102P	Food Chemistry (P)	2	-	-	2	-	-	-	-	-	-
	IV	Non Major Elective -I			2	1	1	-	-	2	3	25	75	100
		Foundation Course	U24FCND11	Prospects of Nutrition and Dietetics	2	1	1	-	-	2	3	25	75	100
			TOTAL		**30**	**18**	**6**	**6**	**-**	**21**	-	-	-	**700**
II	I	Language Course- II	U24LC201	Pothu Tamil – II Tamil Elakkiya Varalaru-II	6	5	1	-	-	3	3	25	75	100
	II	English Language Course-II	U24ELC201	General English – II	6	5	1	-	-	3	3	25	75	100
	III	Core Course–II	U24ND203	Human Physiology	5	4	1	-	-	5	3	25	75	100
		Core Practical -II	U24ND204P	Human Physiology (P)	4	-	-	4	-	4	3	25	75	100
		Allied Course-II	U24AND203	Food Microbiology	3	2	1	-	-	2	3	25	75	100
		Allied Practical -I	U24AND102P	Food Chemistry (P)	2	-	-	2	-	2	3	25	75	100
	IV	Non Major Elective -II			2	1	1	-	-	2	3	25	75	100
		Skill Enhancement Course-I	U24SEND21	Human Development	2	1	1	-	-	2	3	25	75	100
				TOTAL	**30**	**18**	**6**	**6**	**-**	**23**	-	-	-	**800**
III	I	Language Course- III	U24LC303	Pothu Tamil – III Tamilaga Varalarum Panpadum-III	6	5	1	-	-	3	3	25	75	100
	II	English Language Course-III	U24ELC303	General English – III	6	5	1	-	-	3	3	25	75	100
	III	Core Course-III	U24ND305	Human Nutrition	4	3	1		-	4	3	25	75	100
		Core Practical- III	U24ND306P	Human Nutrition (P)	4	-	-	4	-	4	3	25	75	100
		Allied Course-III	U24AND304	Food Preservation and Processing	2	1	1	-	-	2	3	25	75	100
		Allied Practical -II	U24AND305P	Food Preservation and Processing (P)	2	-	-	2	-	--	--	--	--	--
	IV	Skill Enhancement Course –II	U24SEND32	Bakery and Confectionary	2	1	1	-	-	2	3	25	75	100
		Skill Enhancement Course –III	U24SEND33	Resource Management and Interior Design	2	1	1	-	-	2	3	25	75	100
	V	Special Course	24UGSC	Health and Wellness	2	-	-	2	-	1	-	-	-	-
				TOTAL	**30**	**16**	**6**	**8**	**-**	**21**		-	-	**700**
IV	I	Language Course - IV	U24LC404	Pothu Tamil-IV Tamilum Ariviyalum-IV	6	5	1	-	-	3	3	25	75	100
	II	English Language Course-IV	U24ELC404	General English-IV	6	5	1	-	-	3	3	25	75	100
		Core Course-IV	U24ND407	Nutrition Through Life Cycle	5	4	1	-	-	5	3	25	75	100

Sem	Part	Nature of the Course	Course Code	Title of the Course	Ins. Hours /Week	Ins. Hours/ Week				Credit	Exam Hours	Marks		Total
						L	T	P	S			CIA	ESE	
	III	Core Practical IV	U24ND408P	Nutrition Through Life Cycle (P)	4	-	-	4	-	4	3	25	75	100
		Allied Course-IV	U24AND406	Nutritional Biochemistry	3	2	1	-	-	2	3	25	75	100
		Allied Practical - II	U24AND305P	Food Preservation and Processing (P)	2	-	-	2	-	2	3	25	75	100
	IV	Skill Enhancement Course–IV	U24SEND44	Textile Science	2	1	1	-	-	2	3	25	75	100
		Skill Enhancement Course –V	U24SEND45	Computer Applications in Home Science	2	1	1	-	-	2	3	25	75	100
				TOTAL	**30**	**18**	**6**	**6**	**-**	**23**	-	-	-	**800**
V	III	Core Course-V	U24ND509	Dietetics I	6	5	1	-	-	5	3	25	75	100
		Core Course-VI	U24ND510	Food Service Management	5	4	1	-	-	5	3	25	75	100
		Core Course-VII	U24ND511	Nutritional Assessment	5	4	1	-	-	4	3	25	75	100
		Core Practical - V	U24ND512P	Dietetics I (P)	4	-	-	4	-	4	3	25	75	100
		Elective Course–I	U24NDE51A/U24NDE51B/U24ND51C	Basics in Research Methodology and Computer Applications/ Functional Foods for Chronic Disease / Geriatric Care	4	3	1	-	-	3	3	25	75	100
		Elective Course–II	U24NDE52A/U24NDE52B/U24NDE52C	Changing Trends in Extension Education / Family and Child Welfare/Family Dynamics	4	3	1	-	-	3	3	25	75	100
	IV	Environmental Studies	24UGCES	Environmental Studies	2	2	-	-	-	2	3	25	75	100
		Internship/ Industrial visit/Field visit	U24NDI51	Internship/ Industrial Visit/Field Visit	-	-	-	-	-	2	-	-	-	-
				TOTAL	**30**	**21**	**5**	**4**	**-**	**28**		-	-	**700**
VI	III	Core Course-VIII	U24ND613	Dietetics II	6	5	1	-	-	4	3	25	75	100
		Core Practical - VI	U24ND614P	Dietetics II (P)	6	-	-	6	-	4	3	25	75	100
		Core Project	U24NDPW	Project with Viva- Voce/ Group Project	5	-	1	4	-	5	3	25	75	100
		Elective Course-III	U24NDE63A/U24NDE63B/U24NDE63C	Food Product Development/ Food Standard and Quality Control / Entrepreneurship Development	4	3	1	-	-	3	3	25	75	100
		Elective Course-IV	U24NDE64A/U24NDE64B/U24NDE64C	Sports Nutrition/ Clinical Nutrition/ Nutrition in Special Condition	4	3	1	-	-	3	3	25	75	100
	IV	Value Education	24UGVED	Value Education	2	2	-	-	-	2	3	25	75	100
		Professional competency Course	U24PCND61	Competitive Examinations for Home Science	2	2	-	-	-	2	3	25	75	100
	V	Gender Studies	24UGGS	Gender Studies	1	1	-	-	-	1	3	25	75	100
		Extension activity		Extension Activity	-	-	-	-	-	1	-	-	-	-
				TOTAL	**30**	**16**	**4**	**10**	**-**	**25**	-	-	-	**800**
				GRAND TOTAL	**180**	**107**	**33**	**40**	**-**	**141**	-	-	-	**4500**
Extra Credit				Value Added Courses (At least One / Year)	**-**	-	**-**	**-**	**-**	**2**	-	-	-	**-**

L-Lecture T-Tutorial P-Practical S-Seminar

Credit Distribution for B.Sc., Nutrition and Dietetics

S.No	Part	Subject	No. of Courses	Total Credits
1.	I	Language Course	4	12
2.	II	English Language Course	4	12
3.	III	Core Course –Theory	8	37
4.		Core Practical	6	24
5.		Core Project	1	05
6.		Allied Course–Theory	4	08
7.		Allied Course -Practical	2	04
8.		Elective Course	4	12
9.	IV	Non-Major Elective	2	04
10.		Foundation Course	1	02
11.		Skill Enhancement Course	5	10
12.		Internship/ Industrial Visit/ Field Visit	1	02
13.		Environmental Studies	1	02
14.		Value Education	1	02
15.		Professional Competency Course	1	02
16.	V	Special Course	1	01
		Gender Studies	1	01
17.		Extension Activity	1	01
Total			**48**	**141**

Note:

		CIA	ESE
1	Theory	25	75
2	Practical	25	75

3 Separate passing minimum is prescribed for Internal and External marks

FOR THEORY

The passing minimum for CIA shall be 40% out of 25 marks [i.e. 10 marks]

The passing minimum for University Examinations shall be 40% out of 75 marks [i.e. 30 marks]

FOR PRACTICAL

The passing minimum for CIA shall be 40% out of 25 marks [i.e. 10 marks]

The passing minimum for University Examinations shall be 40% out of 75 marks [i.e. 30 marks]

NON MAJOR ELECTIVE (NME) OFFERED BY THE DEPARTMENT

Semester	Part	Course	Course Code	Title of the Course
	IV	NME-I	U24NMEND11	Basics of Nutrition
II		NME-II	U24NMEND22	Women's Health and Wellness

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(For the candidate admitted from the academic year 2024-2025)
DEPARTMENT OF NUTRITION AND DIETETICS
B.Sc., NUTRITION AND DIETETICS

Semester :V - CC-V: Dietetics I
Ins Hrs. /Week:6 Course Credit: 5 Course Code: U24ND509

UNIT-I: Dietetics Professional and Nutrition Care Process (19 Hours)

a. Dietitian**:** Definition, educational qualification of dietitian, types and role of dietitian. Difference between Registered Dietitian and Nutritionist, tools used by dietitian.

b.Nutrition Care Process**:** Definition, Steps. Nutrition Interventions- Definition, objectives, Nutrition Monitoring and Evaluation. Evaluation of Nutrition care- Definition, objectives ,components and goals.

UNIT-II: Therapeutic Diets and Febrile Conditions (20 Hours)

a. Diet therapy and progressive modifications: Definition, principles of therapeutic diet. Routine hospital diets and progressive modifications - Clear fluid diet, full fluid diet, soft diet, regular normal diet, bland diet. Specially modified therapeutic diets – High and low calorie, high and low protein, high and low residue diets, high and low-fat diets. Special feeding methods Enteral and Parenteral feeding-indications, types (oral nutritional supplements, tube feeding, peripheral parenteral nutrition, total parental nutrition) methods of administration, monitoring and associated complications.

b. Nutritional care in febrile condition: Metabolic changes during fever and types of fever (acute and chronic), aetiology, clinical findings and dietary management of Typhoid, Influenza, Malaria, Tuberculosis and HIV.

UNIT -III: Dietary Management in Digestive and Liver Disorders (18 Hours)

a. Nutritional care for diseases of the gastrointestinal tract: Peptic ulcer, Diarrhoea, Constipation, Haemorrhoids and Malabsorption syndrome – aetiology, clinical findings and dietary management. b.Nutritional care for diseases of biliary tract: Jaundice, fatty liver disease, hepatitis, cirrhosis, and hepatic coma , Cholelithiasis and Cholecystitis- aetiology, clinical findings and dietary management

UNIT -IV: Management of Malnutrition and Deficiency Disorders (16 Hours)

a. Nutritional care for obesity and underweight: Obesity - Definition, etiology, types, assessment, complications, prevention and dietary management. Underweight- Definition, aetiology, prevention and dietary management.

b. Diet in Deficiency Disorders - Causes, symptoms and dietary management - Protein Energy Malnutrition – Kwashiorkor and Marasmus. Deficiencies of water-soluble vitamins- B-complex and C, fat -soluble vitamin- Vitamin A, D, E and K. Mineral – Calcium, Iron, Magnesium and Iodine.

UNIT –V: Dietary Care in Eating Disorders, Alcoholism and Special Conditions

(17 Hours)

a.Anorexia nervosa and Bulimia nervosa: Definition, types, symptoms, causes, risk factors, complications,treatment, nutritional management. Alcoholism: Introduction, symptoms, causes, diagnosis, treatment, nutritional management. Nutrient - drug interactions: Classification mechanisms, effects of drug on nutritional status, stages of drug absorption and common nutrient-drug interactions. Common Nutrient Deficiencies in Recovering Addicts, nutritional planning for pre and post rehabilitation.

b. Nutritional care for children with special needs- Down's syndrome, Cerebral Palsy, Autism and Attention Deficit Hyperactivity Disorder – Clinical findings, nutritional care and feeding difficulties.

Total Lecture Hours-90

COURSE OUTCOME

The students will be able to

1. Understand the role of a dietitian and the basic steps in the nutrition care process.
2. Describe different types of therapeutic diets and their applications in various health conditions.
3. Explain dietary management for digestive and liver-related disorders.
4. Identify the causes and symptoms of malnutrition and deficiency diseases.
5. Understand the dietary care needed for eating disorders, alcoholism, nutrient–drug interactions and children with special needs.

TEXT BOOK(S)

1. Shubhangini A. Joshi. 2023. Nutrition and Dietetics. 5th Edition. McGraw Hill Education, New Delhi.
2. Sharma, A. 2022. Principles of Therapeutic Nutrition and Dietetics. CBS Publishers & Distributors Pvt. Ltd., New Delhi.
3. Srilakshmi B. 2023. Dietetics. 8th Edition. New Age International Publishers, New Delhi.
4. Swaminathan M. 2021. Principles of Nutrition and Dietetics. BAPPCO Publishers, Bangalore.
5. Williams S.R. & Hopper P.D. 2022. Nutrition and Diet Therapy. 12th Edition. Elsevier Publications**.**

REFERENCE BOOK(S)

1. Avantina Sharma. 2025. Principles of Therapeutic Nutrition and Dietetics. CBS Publishers & Distributors Pvt. Ltd.
2. Krause MV and Mahan, M.A. 2022. Food Nutrition and Diet Therapy. W.B. Saunders Company, Philadelphia, London.
3. Michael J. Gibney, Ian A. Macdonald and Helen M. Roche 2004. Nutrition and Metabolism. Blackwell Publishing Company, Bangalore.
4. Mozumder & Bibhas Chandra Mazumdar. 2025 Textbook of Human Nutrition and Dietetics. Daya Publishing House.
5. Robinson CH. Lawler, M.R.. Chenoweth WL. Garwick AE. 1990. Normal and Therapeutic Nutrition. The Macmillan Company, New York.

E - RESOURCES

1. https://www.nin.res.in
2. https://www.who.int/health-topics/nutrition
3. https://www.fao.org/nutrition/en
4. https://pubmed.ncbi.nlm.nih.gov
5. https://www.medscape.com/nutrition

MAPPING WITH PROGRAMME OUTCOMES AND PROGRAMME SPECIFIC OUTCOMES

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	3	3	3	1	3	3	2	1	3	3	3	3	3	3
CO2	3	3	3	3	1	3	3	2	1	3	3	3	3	3	3
CO3	3	3	3	3	1	3	3	2	1	3	3	3	3	3	3
CO4	3	3	3	3	1	3	3	2	1	3	3	3	3	3	3
CO5	3	3	3	3	2	3	3	1	2	3	3	3	3	3	3

S-Strong (3) **M-Medium (2)** **L-Low(1)**

SENGAMALA THAYAAR EDUCATIONAL TRUST WOMEN'S COLLEGE
(AUTONOMOUS)
SUNDARAKKOTTAI, MANNARGUDI – 614016
(For the candidate admitted from the academic year 2024-2025)
DEPARTMENT OF NUTRITION AND DIETETICS

B.Sc., NUTRITION AND DIETETICS

Semester : V - CC- VI: Food Service Management
Ins Hrs. /Week: 5 Course Credit: 5 Course Code: U24ND510

UNIT- I: Food Service Institutions and Menu planning (15 Hours)

a) Food service institutions: Definition, Objectives and types - profit oriented, service oriented and public health facility oriented.

b) Food Service Systems: Conventional system, commissary system, ready prepared (cook –chill, cook – freeze) and fast -food service systems, cloud kitchen and digital food service systems.

c)Menu planning: Definition, functions and types of menu, Principles of menu planning, menu writing, designing and format. Standardization of recipes -Definition, methods of standardization, standard recipe format and uses. Portion control and portioning equipment.

UNIT - II: Food Procurement and Storage (15 Hours)

a) Purchasing: Food buyer, purchasing procedure, methods of purchasing, standard purchase specification.

b) Receiving: Receiving Area- Location, space allocation, layout planning, delivery types and receiving procedure.

c) Storage: Principles of storage (FIFO, LIFO, Bin cards), types of storage, recommended temperatures for storage and inventory control.

d) Role of computers and information technology in modern food service operations.

UNIT- III : Food Production and Distribution (15 Hours)

a) Equipment: Classification, selection, materials used for construction (base materials and surface finishes),care and maintenance of equipment, traditional and modern equipment.

b) Food Production: Location, space allocation, planning and layout, pre-preparation techniques, objectives and methods of cooking, effective use of leftover foods.

c) Food distribution: Centralized and decentralized service systems in hospitals and other institutional food service settings.

d) Cooking fuel: Types, uses, merits, limitations and fuel economy.

UNIT - IV: Human Resource and Financial Management (15 Hours)

a) Human Resource Management: Introduction to Management: Definition, principles, functions and tools of management. Organization-principles and types. Manpower Planning –definition, steps and benefits. Sources of recruitment, selection process, induction, orientation. Training – Benefits and types. Performance appraisal process and methods.

b) Financial Management: Budget - Importance, types (Master, Cash, Operating and Capital budget), steps in budget planning. Components of costs, behaviour of costs, food cost control, methods of controlling food costs. Cost calculation - break-even analysis and contribution margin and standard dish costing. Bookkeeping, systems of bookkeeping. Books of accounts– Cash Book, Purchase Book, Sales Book, Purchase Returns and Sales Returns Book.

UNIT-V: Hygiene, Sanitation and Safety (15 Hours)

a) Hygiene and Sanitation: Environmental hygiene and sanitation, hygiene in food handling, personnel hygiene. Food Waste Management- Food waste disposers.

b) Safety: Accident due to structural inadequacies, accidents from improper placement of equipment, accidents due to nature and behaviour of people at work, accidents from improper selection, maintenance and storage of equipment. Safety- "3 Es of safety" (safety engineering, safety education, safety enforcement), legal responsibilities of a food service manager, Laws Governing food service establishments: Labour laws governing working conditions – The Factories Act, 1948; Welfare -The Employees Provident Fund Act, 1952; Health and safety-Employees State Insurance Act, 1948.

Total Lecture Hours-75

COURSE OUTCOME

The students will be able to

1. Explain the principles of food service institutions, food service systems, and menu planning..
2. Analyze the food procurement and storage process
3. Evaluate the food production and distribution techniques.
4. Manage the human and financial resources in food service organization.
5. Apply hygienic sanitation and safety practices in food service establishments.

TEXT BOOK(S)

1. Arora R.K. 2022. Food Service and Catering Management. Updated Edition. APH Publishing Corporation, New Delhi.
2. Payne-Palacio, J. & Theis, M. 2023. Foodservice Management: Principles and Practices. 14th Edition. Pearson Education.
3. Mohini Sethi & Surjeet Malhan. 2025. Catering Management: An Integrated Approach. 4th Edition. New Age International Pvt. Ltd., New Delhi.
4. Tripathi PC. 2000. Personnel Management and Industrial Relations. Sultan Chand and Sons.
5. Umesh Kumar.2023. Food Service Management. Revised Edition. Random Publications, New Delhi.

REFERENCE BOOK (S)

1. Kaufman R. 2023. Mega Planning: Practical Tools for Organizational Success. Revised Edition. Sage Publications Inc.
2. Y.P. Shring. 2022. Effective Food Service Management. Updated Edition. Anmol Publications Pvt. Ltd., New Delhi.
3. Stephen B. Shiring, William S. Jardine & Richard J. Ninemeier. 2021. Introduction to Catering: Ingredients for Success. 3rd Edition. Cengage Learning/Delmar.
4. West, B.B., Wood, L. & Harger, V.F. 2022. *Food Service in Institutions*. Wiley Publications..
5. Yadav C.P. 2024. Management of Hotel and Catering Industry. Revised Edition. Anmol Publishers & Institute of Sustainable Development, New Delhi.

E-RESOURCES

1. https://www.fssai.gov.in
2. https://eatrightindia.gov.in
3. https://www.nifa.usda.gov
4. https://www.ifcaonline.com
5. https://www.nestleprofessional.com

MAPPING WITH PROGRAMME OUTCOMES AND PROGRAMME SPECIFIC OUTCOMES

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	3	1	2	2	3	2	2	1	2	3	2	3	3	2
CO2	3	3	2	2	3	3	3	2	1	2	3	2	2	3	2
CO3	3	2	3	2	2	3	1	1	2	2	2	3	3	3	2
CO4	3	3	3	2	3	**3**	2	3	2	3	3	3	2	3	2
CO5	3	3	3	3	3	2	1	2	2	3	2	3	3	3	2

S-Strong (3) **M-Medium (2)** **L-Low(1)**

SENGAMALA THAYAAR EDUCATIONAL TRUST WOMEN'S COLLEGE

(AUTONOMOUS)

SUNDARAKKOTTAI, MANNARGUDI – 614016

(For the candidate admitted from the academic year 2024-2025)

DEPARTMENT OF NUTRITION AND DIETETICS

B.Sc., NUTRITION AND DIETETICS

Semester :V - CC- VII : Nutritional Assessment

Ins Hrs. /Week: 5 **Course Credit: 4** **Course Code: U24ND511**

UNIT- I: Assessment of Nutritional Anthropometry (15 Hours)

Introduction, Definition of Nutritional Status, Objectives and Classification of Nutritional Assessment Methods - Nutritional Anthropometry, Definition, Instruments, Standard of Reference, Age Assessment, Measurement Techniques, Weight, linear measurements, circumferences, skinfold thickness and anthropometric indicators.

UNIT- II: Clinical Examination and Dietary Survey (15 Hours)

Clinical Examination – Objectives, General Clinical Examination, Specific Deficiency Signs, Nutritional and Non-Nutritional Signs, Grouping of Clinical Signs.

Dietary Assessment – Objectives, Methods and Types of Dietary Survey, General Survey, Special Survey, Food intake assessment and comparison with nutrient requirements.

UNIT –III: Biochemical Tests and Biophysical Methods (15 Hours)

Biochemical Assessment – Definition, Objectives, Collection and Handling of Samples. Assessment of Specific Nutrients: Protein, Vitamin A, Vitamin D, Ascorbic Acid, Thiamine, Riboflavin, Niacin, Iron, Folic Acid and Vitamin B12.

Biophysical Methods – Definition, Functional Tests, Tests for Physical Functions, Radiographic Examination and Cytological Tests.

UNIT- IV: Nutritional Epidemiology in Public Health (15 Hours)

Introduction to Nutritional Epidemiology, Nutritional Monitoring and Surveillance, Community-based Epidemiological Studies. Basic Concepts and Applications of Epidemiology in Public Health, Measurement of Disease Frequency, Person-time exposure, Measures of Association and Impact, Health and nutrition related outcomes.

UNIT –V: Indirect Nutritional Assessment (15 Hours)

Indirect Nutritional Assessment – Vital Statistics, Age-Specific Mortality Rate, Morbidity and Cause-Specific Mortality. Ecological Factors influencing Nutritional Status – Methods of Obtaining Information, Background Data, General and Special Surveys, Food Production and Consumption Patterns, Conditioning Influences and Nutritionally Relevant Infections, Cultural Factors, Socio-economic Profile, Medical and educational services.

Total Lecture Hours - 75

COURSE OUTCOME:

The students will be able to,

1. Evaluate critically the methodologies for nutritional assessment.
2. Describe the current state of epidemiological evidence for relationships of diet to the development of selected diseases.
3. Identify and apply the diagnostic tools in the evaluation of diseases.
4. Interpret and evaluate epidemiological data in relation to nutrition and health.
5. Create a database on nutritional assessment and epidemiology for target groups.

TEXT BOOK(S):

1. Mahtab S. Bamji, N. Prahlad Rao & Vinodini Reddy. 2021. Textbook of Human Nutrition. 4th Edition. Oxford & IBH Publishing Co. Pvt. Ltd., New Delhi.
2. Kenneth J. Rothman, Sander Greenland & Timothy L. Lash. 2021. Modern Epidemiology. 4th Edition. Wolters Kluwer/Lippincott Williams & Wilkins.
3. Srilakshmi B. 2023. Nutrition Science. Revised Edition. New Age International Pvt. Ltd., New Delhi.
4. Swaminathan, M. 2023. Advanced Textbook on Food and Nutrition. Volumes I & II. BAPPCO Publishers, Bangalore.
5. Walter Willett. 2024. Nutritional Epidemiology. 4th Edition. Oxford University Press.

REFERENCE BOOK(S)

1. Amal K. Mitra & Divya Vanoh (Eds.). 2025. Essentials of Clinical and Public Health Nutrition. Springer Nature, Switzerland.
2. Beaton, G.H. Reprint Edition. Criteria of an Adequate Diet. Lea & Febiger Publications.
3. Kennedy J.F. 2023. Quality in Nutritional Assessment: Role of Nutrition Assessment Tools in Clinical Practice. Updated Edition. Clinical Nutrition Publications.
4. Park, K. 2025. Park's Textbook of Preventive and Social Medicine. 28th Edition. Banarsidas Bhanot Publishers, Jabalpur.
5. Robert M. Kliegman & Joseph St. Geme. 2024. Nelson Textbook of Pediatrics – Nutrition and Nutritional Assessment Sections. Elsevier Publications

E-RESOURCES

1. https://www.nin.res.in
2. https://pubmed.ncbi.nlm.nih.gov
3. https://www.who.int/data
4. https://www.cdc.gov/nutrition
5. https://www.fao.org/nutrition

MAPPING WITH PROGRAMME OUTCOMES AND PROGRAMME SPECIFIC OUTCOMES

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	3	2	3	2	2	1	2	2	3	3	3	3	2	2
CO2	3	3	3	3	2	1	1	2	2	3	2	1	3	2	2
CO3	3	3	3	3	2	2	1	2	2	2	2	2	3	2	2
CO4	3	3	3	3	2	2	2	2	3	3	2	2	3	2	3
CO5	3	3	3	3	3	2	1	2	2	3	2	2	3	3	3

S-Strong(3) **M-Medium(2)** **L-Low(1)**

SENGAMALA THAYAAR EDUCATIONAL TRUST WOMEN'S COLLEGE

(AUTONOMOUS)

SUNDARAKKOTTAI, MANNARGUDI – 614016

(For the candidate admitted from the academic year 2024-2025)

DEPARTMENT OF NUTRITION AND DIETETICS

B.Sc., NUTRITION AND DIETETICS

Semester: V - Core Practical- V: Dietetics I(P)

Ins Hrs. /Week: 4 **Course Credit: 4** **Course Code: U24ND512P**

Practical Contents:

Planning, preparation and calculation of following diets:

- Therapeutic Diet-Normal, clear fluid, full fluid and soft diet.
- High and low calorie diets
- High and low protein diets
- High and low fibre diets
- Low cholesterol and cholesterol controlled diets
- Febrile Conditions: Typhoid, Malaria, Tuberculosis
- Digestive Disorders: Peptic ulcer, Diarrhoea, Constipation, Haemorrhoids and Malabsorption syndrome .
- Liver Disorders: Jaundice, fatty liver disease, hepatitis, cirrhosis, hepatic coma, cholelithiasis and cholecystitis.
- Malnutrition- Obesity and Underweight
- Deficiency Disorders: Protein Energy Malnutrition, Vitamin A, Iron, Calcium and Iodine deficiency
- Eating Disorders and Special Conditions: Anorexia nervosa and Bulimia nervosa, Special Condition: Down Syndrome, Cerebral Palsy, Autism Spectrum Disorder and Attention Deficit Hyperactivity Disorder.

COURSE OUTCOME:

The students will be able to

1. Identify and prepare basic hospital diets such as normal, clear fluid, full fluid, and soft diets.
2. Modify and demonstrate therapeutic diets based on calorie, protein, fibre, and fat requirements.
3. Plan and present appropriate diets for patients with fever, digestive, and liver disorders.
4. Develop suitable diets for managing malnutrition and deficiency disorders.
5. Design and apply feeding strategies for eating disorders and special conditions.

TEXT BOOK(S)

1. Srilakshmi B. 2023. Dietetics. 8th Edition. New Age International Publishers, New Delhi.
2. Shubhangini A. Joshi. 2023. Nutrition and Dietetics. 5th Edition. McGraw Hill Education, New Delhi.
3. Sharma, A. 2022. Principles of Therapeutic Nutrition and Dietetics. CBS Publishers & Distributors Pvt. Ltd., New Delhi.
4. Swaminathan M. 2021. Principles of Nutrition and Dietetics. BAPPCO Publishers, Bangalore.
5. Williams S.R. & Hopper P.D. 2022. Nutrition and Diet Therapy. 12th Edition. Elsevier Publications.

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1. Avantina Sharma. 2025. Principles of Therapeutic Nutrition and Dietetics. CBS Publishers & Distributors Pvt. Ltd.
2. Krause MV and Mahan, M.A. 2022. Food Nutrition and Diet Therapy. W.B. Saunders Company,Philadelphia, London.
3. Micheal J.Gibney I.Macdonald A and Helan M. Roche. 2024. Nutrition and Metabolism. Blackwell Publishing Company, Bangalore.
4. Mozumder & Bibhas Chandra Mazumdar. 2025. Textbook of Human Nutrition and Dietetics. Daya Publishing House.
5. Robinson, C.H. Lawles, M.R. Chenoweth WL. Garwick AE. 2022. Normal and Therapeutic Nutrition. The Macmillan Company, New York.

E- RESOURCES

1. https://www.nin.res.in
2. https://pubmed.ncbi.nlm.nih.gov
3. https://www.who.int/health-topics/nutrition
4. https://www.fao.org/nutrition
5. https://www.medscape.com/nutrition
6. https://www.gillettechildrens.org/your-visit/patient-education/full-liquid-diet

MAPPING WITH PROGRAMME OUTCOMES AND PROGRAMME SPECIFIC OUTCOMES

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CO2	2	2	3	3	1	3	3	2	1	3	3	3	3	3	3
CO3	2	2	3	3	1	2	2	2	1	1	2	2	3	3	3
CO4	2	2	2	3	1	3	3	2	1	2	2	2	3	3	3
CO5	32	2	2	2	3	3	3	1	2	3	2	2	2	3	2

S-Strong (3) **M-Medium (2)** **L-Low(1)**

SENGAMALA THAYAAR EDUCATIONAL TRUST WOMEN'S COLLEGE

(AUTONOMOUS)

SUNDARAKKOTTAI, MANNARGUDI – 614016

(For the candidate admitted from the academic year 2024-2025)

DEPARTMENT OF NUTRITION AND DIETETICS

B.Sc., NUTRITION AND DIETETICS

Semester: V – EC- I: Basics in Research Methodology and Computer Applications

Ins Hrs./Week:4 **Course Credit:3** **Course Code: U24NDE51A**

UNIT –I: Fundamentals of Research and Research Design (12 Hours)

Definition, objectives, importance and characteristics of research. Steps in research process. Research problem – Definition, selection, Necessity of defining a research problem, Technique involved in defining a research problem, Types of Research- Descriptive, Analytical, Applied, Fundamental, Quantitative, Qualitative, Conceptual and Empirical research. Research Design - Meaning and Types, research design in exploratory research studies, descriptive and diagnostic research studies and research design in hypothesis-testing research studies.

UNIT– II: Sampling and Scaling Techniques (12 Hours)

Sampling Methods: Probability and Non-probability Sampling Techniques. Sampling and non sampling errors, sample size, sampling fundamentals and theory of sampling. Scaling Techniques: Comparative and Non-comparative Scales and their applications in research.

UNIT– III: Data Collection and Analysis (12 Hours)

Primary Data Collection Methods –, Interview and Questionnaire Methods; Preparation of Schedules and Questionnaires; Training of Interviewers. Secondary Data Collection Method-Sources, Reliability, suitability, adequacy of data. Processing of Data – Editing, Coding, Classification and Tabulation. Measures of central tendency- Mean, median, mode, Measures of Dispersion and Variability- range, variance, standard deviation, standard error and coefficient of variation.

UNIT– IV: Research report writing and Research Ethics (12 Hours)

Components of a Thesis - Introduction, review of literature, methodology, results and discussion, summary and conclusion, bibliography, footnotes and appendix. Types of report- Technical reports, popular reports. Scientific Writing: Original Articles, Review Articles, Abstracts, and Research Papers.. Research ethics- Principles of research ethics, publication ethics, publication misconduct.

UNIT-V: Use of Computer Applications in Research (12 Hours)

Use of MS Excel for data management, Data Analysis and Interpretation, Tabulation and Graphical Representation of Data, Reference Management Software and Plagiarism Detection Tools. Academic Integrity: Quoting, Paraphrasing, Citation Practices, and Avoiding Plagiarism..

Total Lecture Hours- 60

COURSE OUTCOME

The students will be able to

1. Identify the research problem and research design
2. Illustrate the methods involved in sampling, collection of data and processing
3. Apply manuscript writing techniques for various purposes
4. Analyze data using suitable statistical analysis and computer applications
5. Assess the character of the research and be capable of drawing research conclusions tailored to specific requirements

TEXT BOOK(S)

1. Devadas R.P. 2023. Handbook on Methodology of Research. Sri Ramakrishna Vidyalaya, Coimbatore.
2. Gupta. S.P. 2023. Statistical Methods. Revised Edition. Sultan Chand & Sons, New Delhi.
3. Gurumani. N 2024. Research Methodology for Biological Sciences. Revised Edition. MJP Publishers, Chennai.
4. Kothari C.R & Gaurav Garg. 2023. Research Methodology: Methods and Techniques. 4th Edition. New Age International Publishers, New Delhi.

Saravanavel, P. 2013. Research Methodology. Kitab Mahal, Allahabad

REFERENCE BOOK(S)

1. Ghosh.B.N 2023. Scientific Methods and Social Research. Revised Edition. Sterling Publishers Pvt. Ltd., New Delhi
2. Kulbir Singh Sidhu,2006. Methodology of Research in Education. Sterling Publishers Pvt. Ltd., New Delhi.
3. Srivastava, A.B.L. & Sharma, K.K. 2003. Elementary Statistics in Psychology and Education. Sterling Publishers Pvt. Ltd., New Delhi.
4. Ramadas P. & Wilson A. 2024. Research and Writing. MJP Publishers, Chennai.
5. Vivek Kumar, 2023.Discover the Editor in You copyediting as a career. ISBN: 978939488731

E-RESOURCES:

1. https://shodhganga.inflibnet.ac.in
2. https://swayam.gov.in
3. https://ndl.iitkgp.ac.in
4. https://www.researchgate.net
5. https://www.mendeley.com

MAPPING WITH PROGRAMME OUTCOMES AND PROGRAMME SPECIFIC OUTCOMES

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2	PSO3	PSO4	PSO5
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CO2	2	2	3	3	2	2	1	3	2	3	3	3	3	3	3
CO3	3	3	3	3	1	2	2	3	2	3	3	3	3	3	3
CO4	2	3	3	3	2	3	2	2	3	3	3	3	3	3	3
CO5	2	2	2	2	2	3	3	2	3	3	2	2	2	3	3

S-Strong(3) **M-Medium(2)** **L-Low(1)**

SENGAMALA THAYAAR EDUCATIONAL TRUST WOMEN'S COLLEGE
(AUTONOMOUS)
SUNDARAKKOTTAI, MANNARGUDI – 614016

(For the candidates admitted in the academic year 2024–2025)

DEPARTMENT OF NUTRITION AND DIETETICS

B.Sc., NUTRITIONAND DIETETICS

Semester :V- EC – I: Functional Foods for Chronic Disease

Ins. Hrs. /Week: 4 Course Credit: 3 Course Code: U24NDE51B

UNIT - I : Introduction to Functional Foods (12Hour)

Definition, concept and history of functional foods ,Difference among conventional foods, functional foods, and nutraceuticals ,Classification of functional foods (natural, fortified, enriched, enhanced foods) .Bioactive components-phytochemicals, antioxidants, probiotics, prebiotics ,Mechanisms of action of functional foods in disease prevention Role of functional foods in health promotion and longevity.

UNIT - II: Functional Foods in Obesity and Gastrointestinal Disorders (12 Hours)

Overview of obesity and metabolic syndrome ,Role of functional foods in weight management ,Low-calorie, high-fibre, and satiety-enhancing functional foods Probiotics and prebiotics in gut health Functional foods for digestive disorders (Irritable Bowel Syndrome (IBS), constipation) Synbiotics and their health benefits .Lifestyle and dietary modifications of obesity and gastrointestinal disorders.

UNIT - III: Functional Foods in Cardiovascular Diseases (CVD) (12 Hours)

Overview of cardiovascular diseases and risk factors ,Role of dietary fats: omega-3 fatty acids, MUFA, PUFA ,Functional foods for heart health: whole grains, nuts, seeds, fatty fish ,Role of antioxidants (polyphenols, flavonoids) in reducing oxidative stress ,Dietary fibre and cholesterol reduction . Principles and applications of the DASH and Mediterranean dietary patterns.

UNIT - IV: Functional Foods in Diabetes Mellitus (12 Hours)

Overview of diabetes mellitus, Concepts of Glycemic Index (GI) and Glycemic Load (GL).,Role of functional foods in glycemic control ,Whole grains, millets, legumes, and fiber-rich foods ,Bioactive compounds: chromium, magnesium, polyphenols .Role of probiotics in glucose metabolism ,Dietary strategies for prevention and management.

UNIT - V: Functional Foods in Cancer and Immune Disorders (12 Hours)

Introduction to cancer and immune-related disorders Role of antioxidants in cancer prevention. Functional foods for cancer prevention and immune enhancement.Phytochemicals: carotenoids, flavonoids, glucosinolates Anti-inflammatory foods and immune modulation , Role of gut microbiota and functional foods in immune modulation.

Total Lecture Hours - 60

COURSE OUTCOME:

The students will be able to

1. Explain the concepts, classifications, and bioactive components of functional foods.
2. Analyze the role of functional foods in the prevention and management of chronic diseases.
3. Evaluate the effectiveness of functional foods in cancer prevention, immune modulation, and metabolic disorders.
4. Apply functional food components in planning therapeutic diets.
5. Assess current research and applications of functional foods in public health.

TEXT BOOK(S):

1. Israel Goldberg. 2023. Functional Foods: Designer Foods, Pharmafoods, Nutraceuticals. Springer/Chapman & Hall Publications, New York.
2. Gibson, G.R. and Williams, C.M. 2022. Functional Foods: Concept to Product. Woodhead Publishing, Cambridge.
3. David M. Martirosyan. 2024. Functional Foods for Chronic Diseases. 3rd Edition. Food Science Publisher, USA.
4. Robert E. C. Wildman and Judith A. Bruno. 2023. Handbook of Nutraceuticals and Functional Foods. CRC Press, USA.
5. Shahidi F. & Ambigaipalan P. 2023. Functional Foods and Nutraceuticals: Bioactive Components, Formulations and Innovations. Wiley-Blackwell Publications.

REFERENCE BOOK(S):

1. Aluko, R. E. 2024. Functional Foods and Nutraceuticals: Bioactive Components, Formulations and Applications. Springer Nature, Switzerland.
2. Granato, D. & Barba, F.J. 2024. Functional Foods and Human Health. Springer.
3. Gupta, R. C. 2023. Nutraceuticals: Efficacy, Safety and Toxicity (2nd Edition). Academic Press, Elsevier, USA.
4. Martirosyan, D. M. 2024. Introduction to Functional Food Science (Revised Edition). Functional Food Center, USA.
5. Shahidi, F., & Alasalvar, C. 2024. Functional Foods and Nutraceuticals: Health Benefits and Applications. CRC Press, Boca Raton.

E- RESOURCES

1. https://www.efsa.europa.eu
2. https://www.ift.org
3. https://www.nutraingredients.com
4. https://www.ncbi.nlm.nih.gov
5. https://www.frontiersin.org/journals/nutrition

MAPPING WITH PROGRAMME OUTCOMES AND PROGRAMME SPECIFIC OUTCOMES

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	3	1	2	2	2	2	2	2	2	3	3	3	2	3
CO2	2	3	3	2	2	2	2	2	2	2	3	2	2	2	3
CO3	3	2	1	3	2	2	2	2	2	2	2	2	3	2	3
CO4	3	2	3	2	3	2	2	2	2	2	3	2	3	2	3
CO5	3	2	1	3	3	2	2	2	2	2	3	3	3	2	3

S-Strong(3) **M-Medium(2)** **L-Low(1)**

SENGAMALA THAYAAR EDUCATIONAL TRUST WOMEN'S COLLEGE
(AUTONOMOUS)
SUNDARAKKOTTAI, MANNARGUDI – 614016

(For the candidates admitted in the academic year 2024–2025)

DEPARTMENT OF NUTRITION AND DIETETICS

B.Sc., NUTRITIONAND DIETETICS

Semester :V- EC – I: Geriatric Care

Ins. Hrs. /Week: 4 **Course Credit: 3** **Course Code: U24NDE51C**

UNIT- I: **Introduction to Ageing and Geriatrics** **(12 Hours)**

Concept, Definition and Scope of Geriatric Care. Meaning and Differences between Gerontology and Geriatrics. Ageing Process and Theories of Ageing. Classification of Ageing – Chronological, Biological, Psychological and Social Ageing. Physiological, Biochemical and Anatomical Changes during Ageing. Age-related Changes and Common Health Problems in the Elderly.

Healthy and Successful Ageing. Role of Healthcare Professionals and Geriatric Care Services. National Programmes and Policies for Elderly Welfare in India.

UNIT- II: Nutrition and Health in Elderly **(12 Hours)**

Nutritional Requirements of the Elderly – Macronutrients and Micronutrients. Age-related Changes affecting Digestion, Absorption and Metabolism. Factors Affecting Food Intake and Nutritional Status. Nutritional Assessment of the Elderly. Malnutrition, Obesity and Nutritional Deficiency Disorders in Old Age. Dietary Modifications, Meal Planning and Dietary Guidelines for the Elderly. Role of Physical Activity and Hydration. Role of Functional Foods, Antioxidants and Nutraceuticals in Healthy Ageing. Nutrition and Immunity in Degenerative Diseases.

UNIT- III: **Psychosocial Aspects of Ageing** **(12 Hours)**

Psychological Theories of Ageing. Emotional, Cognitive and Personality Changes during Ageing. Stress and Adjustment Problems in Old Age. Depression, Dementia and Other Mental Health Issues in the Elderly. Loneliness, Social Isolation and Social Withdrawal. Social Changes in Ageing – Family Structure, Retirement, Financial Insecurity and Support Systems. Elder Abuse and Neglect.

Coping Strategies, Counselling and Mental Health Promotion for Elderly Individuals. Recreational Activities, Active Ageing and Quality of Life in the Elderly.

UNIT- IV: Geriatric Diseases and Management **(12 Hours)**

Cardiovascular Diseases, Diabetes Mellitus, Osteoporosis and Arthritis in the Elderly. Neurodegenerative Disorders – Alzheimer's Disease and Parkinson's Disease. Respiratory, Renal and Gastrointestinal Disorders in Old Age. Common Infections, Sensory Disorders, Falls and Fractures in the Elderly.

Multimorbidity, Disability and Functional Decline. Prevention and Management Strategies, Early Diagnosis and Screening. Lifestyle Modification and Pain Management. Rehabilitation Therapies and Palliative Care.

UNIT- V: **Geriatric Care Practices and Support Systems** **(12 Hours)**

Activities of Daily Living (ADL) and Functional Assessment. Personal Hygiene, Safety Measures and Mobility Assistance for Elderly Individuals. Home-based Care, Institutional Care and Community-based Geriatric Services. Assistive Devices and Care for Bedridden Elderly. Medication Management and Polypharmacy. Communication Skills, Caregiver Support and Stress Management. Health Promotion, Preventive Care, Telehealth and Technology inGeriatric Care. Government Policies, Welfare Programmes and Legal and Ethical Issues related to Elderly Care**.**

Total Lecture Hours - 60

COURSE OUTCOME:

The students will be able to

1. Understand the concept and process of ageing.
2. Explain nutritional needs of the elderly.
3. dentify psychological and social changes in ageing.
4. Recognize common geriatric diseases and their management.
5. Apply geriatric care practices and support systems

TEXT BOOKS:

1. Eliopoulos, C. 2024. Gerontological Nursing. Ninth Edition, Wolters Kluwer, USA
2. Hazzard, W.R. 2020. Principles of Geriatric Medicine and Gerontology. McGraw Hill, USA.
3. Mauk, K.L. 2023. Gerontological Nursing: Competencies for Care. Fifth Edition, Jones & Bartlett Learning, USA.
4. Kane, R.L. and Ouslander, J.G. 2017. Essentials of Clinical Geriatrics. McGraw Hill, USA.
5. Sharma, O.P. 2022. Geriatric Care*:* A Textbook of Geriatrics and Gerontology. *CBS* Publishers, New Delhi.

REFERENCE BOOKS:

1. Brown, J. E. 2023. Nutrition Through the Life Cycle (8th Edition). Cengage Learning, USA.
2. Heimburger, D. C., & Ard, J. D. 2022. Handbook of Clinical Nutrition (Updated Edition). Elsevier/Mosby, USA.
3. Sharma, A. 2026. Principles of Therapeutic Nutrition and Dietetics (2nd Edition). CBS Publishers & Distributors Pvt. Ltd., New Delhi.
4. Sohi, D. 2023. A Comprehensive Textbook of Nutrition and Therapeutic Diets (Revised Edition). Jaypee Brothers Medical Publishers, New Delhi.
5. Williams, S. R. 2023. Williams' Essentials of Nutrition and Diet Therapy (13th Edition). Elsevier, USA.

E–RESOURCES

1. https://egyankosh.ac.in/handle/123456789/44151
2. https://egyankosh.ac.in/handle/123456789/41571
3. https://egyankosh.ac.in/handle/123456789/33371
4. https://www.who.int/news-room/fact-sheets/detail/ageing-and-health
5. https://en.wikipedia.org/wiki/Geriatrics

MAPPING WITH PROGRAMME OUTCOMES AND PROGRAMME SPECIFIC OUTCOMES

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	3	3	3	3	3	2	2	2	1	3	3	3	3	3
CO2	3	3	3	3	3	3	2	2	2	1	3	3	3	3	3
CO3	3	3	3	3	3	3	2	2	2	1	3	3	3	3	3
CO4	3	3	3	3	3	3	2	2	2	1	3	3	3	3	3
CO5	3	3	3	3	3	3	2	2	2	1	3	3	3	3	3

S-Strong(3) **M-Medium(2)** **L-Low(1)**

SENGAMALA THAYAAR EDUCATIONAL TRUST WOMEN'S COLLEGE

(AUTONOMOUS)

SUNDARAKKOTTAI, MANNARGUDI – 614016

(For the candidate admitted from the academic year 2024-2025)

DEPARTMENT OF NUTRITION AND DIETETICS

B.Sc., NUTRITION AND DIETETICS

Semester: V - EC- II: Changing Trends in Extension Education

Ins Hrs./Week:4 **Course Credit:3** **Course Code: U24NDE52A**

UNIT- I: Concept of Home Science Extension Education (11 Hours)

Concept of Extension Education: Meaning, objectives and principles of Extension Education, need, scope and Home Science Extension Education; Role of home science in developing a community. Historical review of extension education in India and abroad; Role, functions and qualities of Extension Workers and Extension Educators; Role of Home Science in National Development.

UNIT-II: Community Development and Panchayat Raj (13 Hours)

Community Development and Panchayat Raj: Meaning, Principles, Objectives, Scope and Philosophy of community development in India. Historical review of community development in India; Evolution, structure and functions of Panchayat Raj at the Central, State, District, Block and village level, Three tier system and the principle of Democratic decentralization; Problems and limitations of Community Development and Panchayat Raj , e-Governance in Panchayat Raj

UNIT- III: Community Participation (12 Hours)

Community Participation: Meaning, Importance, Factors influencing community participation, measures to improve community participation. Recent extension approaches: Participatory Rural Appraisal (PRA), Role play and action-oriented extension methods, child-to-child approach, Woman-to-Woman approach, Rapid Rural Appraisal (RRA). Digital extension services ,Mobile-based extension approaches ,ICT-enabled community participation.

UNIT- IV: Communication and Extension Teaching Methods (11 Hours)

Communication: concept, elements and characteristics; forms and types of communication, Communication Aids, Communication process – concept: Extension teaching Methods- Individual, Group and Mass contacts; Audio visual aids in extension work. Conventional aid - motion pictures, slides, flannel graphs, flash cards, graphs, puppet shows and Mass media. ICT and social media communication. Social media for extension education, E-learning and virtual extension platforms, Digital communication tools and mobile applications.

UNIT – V: Program Planning (13 Hours)

Programme Planning – Meaning, importance, principles and steps involved in programme planning. Evaluation – Meaning and types. Five-Year Plans and Social Welfare. National and International Agencies for the development and welfare of women and children – UNICEF, CARE, WHO, ICDS, ICPS, TRYSEM, DWCRA, and POSHAN Abhiyaan. Special Programmes – Pradhan Mantri Matritva Vandana Yojana (PMMVY), Sukanya Samriddhi Yojana, Rashtriya Mahila Kosh, Kasturba Gandhi Balika Vidyalaya, and Deen Dayal Antyodaya Yojana. Emerging Trends in Extension Education – Digital India initiatives, e-Governance, ICT-enabled extension services, Self-Help Groups (SHGs), and Sustainable Development Goals (SDGs).

Total Lecture Hours- 60

COURSE OUTCOME

The students will be able to

1. Explain the concepts and principles of extension education and community development.
2. Analyze the structure and functions of Panchayat Raj institutions and rural development programmes.
3. Apply participatory approaches and communication methods in community development.
4. Develop extension programmes using modern communication and planning techniques.
5. Evaluate the role of national and international agencies in community welfare and development.

TEXT BOOK(S)

1.Bhattacharya SA. 2025. Community Development - An Analysis of the Programme in India. Academic Publishers, Calcutta.

2.Bhattacharya SN. 2024. Rural Development in India and other Developing Countries. Metropolitan Publishers, New Delhi.

3.Gupta DK. 2026. Mass Communication in Information Era. Rajat Publications, New Delhi.

4.Khan PM and Somani LL. 2025. Fundamentals of Extension Education. Agro Tech Publishing Academy, Udaipur.

5.Reddy A.A. 2024. Extension Education. Sree Lakshmi Press, Andhra Pradesh.

REFERENCE BOOK(S)

1.Dahama OP and Bhat Nagar OP. 2024. Extension and Communication for Development. Oxford and IBH Publishing Company, New Delhi.

2.Desai AR. 2025. Rural Sociology in India. Popular Prakashan Publishers, Mumbai.

3.Ray GL. 2025. Extension Communication and Management. Kalyani Publishers, New Delhi.

4.Reddy A. 2024. Extension Education. Sree Lakshmi Press, Bapatla, Andhra Pradesh.

5.Sharma SK and Malhotra SL. 2024. Integrated Rural Development. Abhinar Publications, New Delhi.

E- RESOURCES

1. https://www.manage.gov.in
2. https://www.nirdpr.org.in
3. https://swayam.gov.in
4. https://egyankosh.ac.in
5. https://vikaspedia.in

MAPPING WITH PROGRAMME OUTCOMES AND PROGRAMME SPECIFIC OUTCOMES

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2	PSO3	PSO4	PSO5
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CO2	2	2	2	3	3	2	2	2	2	1	2	3	2	2	2
CO3	3	2	3	2	3	2	2	2	2	1	2	3	2	2	2
CO4	2	2	2	2	3	3	2	3	2	1	3	3	3	3	3
CO5	2	2	2	2	2	3	2	2	3	3	2	3	2	3	3

S-Strong(3) **M-Medium(2)** **L-Low(1)**

Semester: V- EC-II : Family and Child Welfare

Ins. Hrs. /Week: 4 Course Credit: 3 Course Code: U24NDE52B

Unit -I: Family and Child Welfare (12 Hours)

Concept, meaning, objectives, and scope of family and child welfare: Importance of the family in shaping nutritional and health practices, Structure and types of families – joint, nuclear, extended, and single-parent families;Changing family patterns, family life cycle, and their influence on child health and nutrition.Child welfare: definitions, goals, and guiding principles. Constitutional provisions and child rights, especially the right to nutrition and health.

Unit -II: Child Development and Nutritional Needs (12 Hours)

Growth and development stages: infancy, early childhood, middle childhood, adolescence. Nutritional requirements and common deficiencies during different stages of childhood. Interrelationship between nutrition, health, and child development. Role of the family in promoting healthy eating behavior. Malnutrition, under nutrition, obesity in children – causes, consequences, and family impact.

Unit- III: Family Problems and Nutritional Implications (12 Hours)

Socioeconomic challenges affecting family nutrition: poverty, food insecurity, illiteracy. Issues like child labour, child abuse, neglect, and their impact on nutritional status. Children with special needs – nutritional management and family support. Effect of family disorganization (divorce, migration, conflict) on child welbeing and nutrition. Role of nutritional counselling and family support systems.

Unit -IV: Child Welfare Programs and Schemes (12 Hours)

Overview of national child welfare and nutrition programs: Integrated Child Development Services (ICDS),Mid-Day Meal Scheme, POSHAN Abhiyaan, National Nutrition Mission,Supplementary Nutrition Programme, Beti Bachao, Beti Padhao, Childline 1098.Institutional care services: Anganwadi centres, creches, orphanages, and foster care – their role in nutrition and child care. Role of the state, NGOs, and international agencies (UNICEF, FAO) in promoting child nutrition and welfare. Sustainable Development Goals (SDGs) related to child health, nutrition, education, and well-being.

Unit- V: Role of Workers and Community in Child Welfare (12 Hours)

Role of nutritionists, dietitians, public health workers, Anganwadi workers, ASHA workers in family and child welfare. Community education and outreach for improving child nutrition and hygiene.

Use of IEC (Information, Education, Communication) materials in promoting maternal and child nutrition. Advocacy for child rights, food safety, and household food security. Career avenues in child and family welfare with specialization in nutrition.

Total Lecture Hours- 60

COURSE OUTCOME

The students will be able to

1. Explain the importance of family and child welfare.
2. Describe the stages of child growth and their nutritional needs.
3. Discuss how family problems affect child health and nutrition.
4. Outline major child welfare programs related to health and nutrition.
5. State the role of professionals and community workers in child welfare.

TEXT BOOK(S)

1. Chowdhry DP. 2024. Child Welfare Development. Atma Ram & Sons, New Delhi. ISBN: 9788185421197
2. Devadas RP and Jaya N. 2025. A Textbook of Child Development. Macmillan India, New Delhi. ISBN: 9780333935600
3. Kapur M. 2024. Mental Health in Indian Children. Sage Publications India, New Delhi. ISBN: 9780803992305
4. Srilakshmi B. 2026. Nutrition Science. New Age International Publishers, New Delhi. ISBN: 9788122436976
5. Swaminathan M. 2025. Handbook of Food and Nutrition. The Bangalore Printing and Publishing Co. Ltd., Bengaluru. ISBN: 9788185095534

REFERENCE BOOK(S)

1. Ahuja R. 2025. Social Problems in India. Rawat Publications, Jaipur. ISBN: 9788131606896
2. Park K. 2026. Preventive and Social Medicine. Banarsidas Bhanot Publishers, Jabalpur. ISBN: 9788194802804
3. Rao CN. 2024. Sociology: Principles of Sociology with an Introduction to Social Thought. S. Chand Publishing, New Delhi. ISBN: 9788121910361
4. Sharma SK and Malhotra SL. 2024. Integrated Rural Development. Abhinar Publications, New Delhi.
5. Shelat KN. 2024. Evaluation of Rural Development. Kathan Education Communication Unit, Ahmedabad.

E-RESOURCES

1. https://www.scribd.com/document/439637627/Nutrition-Science-by-B-Srilakshmi-PDF
2. https://archive.org/details/handbook-of-food-and-nutrition-m-swaminathan
3. https://ir.avinuty.ac.in/handle/avu/3549
4. https://archive.org/details/parks-psm-e-25
5. https://www.unicef.org/media/165156/file/SOWC-2024-full-report-EN.pdf

MAPPING WITH PROGRAMME OUTCOMES AND PROGRAMME SPECIFIC OUTCOMES

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2	PSO3	PSO4	PSO5
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CO2	3	3	3	3	3	3	2	2	2	1	3	3	3	3	3
CO3	3	3	3	3	3	3	2	2	2	1	3	3	3	3	3
CO4	3	3	3	3	3	3	2	2	2	1	3	3	3	3	3
CO5	3	3	3	3	3	3	2	2	2	1	3	3	3	3	3

S-Strong(3) **M-Medium(2)** **L-Low(1)**

Semester: V- EC-II: Family Dynamics

Ins. Hrs. /Week: 4 Course Credit: 3 Course Code: U24NDE52C

UNIT – I: Family Dynamics (10 Hours)

Meaning and significance of family as a basic social institution; Types and characteristics of family with special reference to India; Family dynamics – meaning and significance; Role and status of man, woman and child in the family and society; Functions of the family and changing family roles; Changing trends in family patterns in India – structural and functional changes; Alternative family lifestyles and emerging family forms.

UNIT – II: Contemporary Alternative Family Patterns and Relationships (14 Hours)

Family life cycle – stages and sub-stages; Singlehood – historical and contemporary perspectives, reasons, successful singlehood, loneliness and fulfillment; Cohabitation – types, stability of relationships and legal issues; Child-free families and voluntary childlessness; Single-parent families – divorce, binuclear families and child custody patterns; Step families – phases, adjustment and challenges; Individual roles, rights and responsibilities within the family; Areas of adjustment during different stages of the family life cycle and coping strategies for family adjustment.

UNIT – III: Marriage – Concepts of Marital Behaviour (10 Hours)

Selection of a life partner – meaning, preparation, motives and factors influencing mate selection; Functions and types of marriage; Characteristics of high-quality marital relationships; Factors affecting marital relationships – religion, socioeconomic status, career, social and emotional issues and financial concerns; Marital adjustments – physiological, domestic, social and in-law relationships; Marital satisfaction and marital stability; Changes and contemporary challenges in marriage

UNIT – IV: Parent–Child Relationships in Diverse Contexts (14 Hours)

Parent–child relationships in diverse contexts – planned parenthood and parental responsibilities; Parenting styles and child-rearing practices; Small family norms and family planning; Family process and relationship variables; Reciprocity between parents and children; Parental attitudes and behaviour and their influence on children; Parental support, psychological and behavioural control and autonomy granting; Parent–child relationships in changing social contexts.

UNIT – V: Family Crisis – Contemporary Issues and Counselling (12 Hours)

Families with marital disharmony; Causes and factors responsible for stress and violence in families; Family conflicts – parent–child conflict and inter-parental conflict; Intergenerational family problems affecting children, women and the elderly; Interventions for families in crisis – scope, needs and assessment; Counselling services – premarital and marital counselling; Helplines, welfare programmes and support services for families.

Total Lecture Hours-60

COURSE OUTCOME:

1. Describe key elements of family dynamics across a range of family issues
2. Explain Family Patterns and Relationships
3. Understand the main content and concepts of marriage
4. Identify family roles and explain theoretical Perspectives and Ecology of Parent Child Relations
5. Introduction to Significant contemporary issues and concerns regarding family crisis

TEXT BOOK(S)

1. Barik S. 2024. Domestic Violence in India. Adhyayan Publishers, New Delhi.
2. Goel M. 2025. Marital Disputes and Counselling Methodology. APH Publishing Corporation, New Delhi.
3. Khan MZ. 2024. Trends in Family Welfare Planning. International Publishers, New Delhi.
4. Lewis D and Ravichandran N. 2025. NGOs and Social Welfare. Rawat Publications, New Delhi.
5. Mathur HM. 2024. The Family Welfare Programmes in India. Vikas Publishing House, New Delhi.

REFERENCE BOOK(S)

1. Ahuja R. 2025. Social Problems in India. Rawat Publications, Jaipur.
2. Strong B, DeVault C and Cohen TF. 2024. The Marriage and Family Experience: Intimate Relationships in a Changing Society. Cengage Learning, Boston.
3. Olson DH and DeFrain J. 2025. Marriages and Families: Intimacy, Diversity and Strengths. McGraw Hill Education, New York.
4. Sharma BK. 2024. Family Dynamics. Goel Publishing House, Meerut.
5. Singh A and Nayak RB. 2024. Family Counselling and Guidance. Discovery Publishing House, New Delhi

E-RESOURCES

1. https://egyankosh.ac.in
2. https://ncert.nic.in
3. https://www.unicef.org/parenting
4. https://www.who.int/health-topics/family-planning
5. https://www.childlineindia.org.in

MAPPING WITH PROGRAMME OUTCOMES AND PROGRAMME SPECIFIC OUTCOMES

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2	PSO3	PSO4	PSO5
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CO3	3	3	3	3	3	3	2	2	2	1	3	3	3	3	3
CO4	3	3	3	3	3	3	2	2	2	1	3	3	3	3	3
CO5	3	3	3	3	3	3	2	2	2	1	3	3	3	3	3

S-Strong(3) **M-Medium(2)** **L-Low(1)**

SENGAMALA THAYAAR EDUCATIONAL TRUST WOMEN'S COLLEGE

(AUTONOMOUS)

SUNDARAKKOTTAI, MANNARGUDI – 614016

(For the candidate admitted from the academic year 2024-2025)

DEPARTMENT OF NUTRITION AND DIETETICS

B.Sc., NUTRITION AND DIETETICS

Semester: V : Environmental Studies

Ins. Hrs. /Week: 2 **Course Credit: 2** **Course Code: 24UGCES**

Unit: 1 The Multidisciplinary nature of environmental studies

Definition- scope and importance. **(2 lectures)**

Need for public awareness

Unit: 2 Natural Resources

Renewable and non-renewable resources:

Natural resources and associated problems.

a) Forest resources: use and over-exploitation- deforestation- case studies. Timber extraction- mining- dams and their effects on forests and tribal people.

b) Water resources: Use and over-utilization of surface and ground water- floods- drought- conflicts over water- dams benefits and problems.

c) Mineral resources: Use and exploitation- environmental effects of extracting and using mineral resources- case studies.

d) Food resources: World food problems- changes caused by agriculture and overgrazing- effects of modern agriculture- fertilizer-pesticide problems- water logging- salinity- case studies.

e) Energy resources: Growing energy needs- renewable and non renewable energy sources- use of alternate energy sources. Case studies.

f) Land resources: Land as a resources- land degradation- man induced Landslides- soil erosion and desertification.Role of an individual in conservation of natural resources. Equitable use of resources for sustainable lifestyles.

Unit: 3 Ecosystems **(8 lectures)**

Concept of an ecosystem.

Structure and function of an ecosystem.

Producers- consumers and decomposers

Energy flow in the ecosystem

Ecological succession.

Food chains- food webs and ecological pyramids

Introduction- types- characteristic features- structure and function of the following ecosystem:-

a. Forest ecosystem

b. Grassland ecosystem

c. Desert ecosystem

d. Aquatic ecosystems- (ponds- streams- lakes- rivers- oceans- estuaries)

Unit: 4 Biodiversity and its conservation (6 lectures)

Introduction – Definition: Genetic- species and ecosystem diversity Biogeographical classification of India

Value of biodiversity: consumptive use- productive use- social- ethical- aesthetic and option values

Biodiversity at global- National and local levels India as a mega-diversity nation

Hot-spots of biodiversity

Threats to biodiversity: habitat loss- poaching of wildlife- man-wildlife conflicts.

Endangered and endemic species of India

Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity.

Biological Diversity Act 2002/ BD Rules- 2004

Unit: 5 Environmental Pollution (8 lectures)

Definition

Causes- effects and control measures of:

a. Air Pollution

b. Water Pollution

c. Soil Pollution

d. Marine Pollution

e. Noise pollution

f. Thermal Pollution

g. Nuclear hazards

Solid waste Management: Causes- effects and control measures of urban and industrial wastes.

Role of an individual in prevention of pollution

Pollution case studies

Disaster management: floods- earthquake- cyclone and landslides.

Ill-Effects of Fireworks: Firework and Celebrations- Health Hazards- Types of Fire- Firework and Safety

Unit: 6 Social Issues and the Environment (8 lectures)

From Unsustainable to Sustainable development.

Urban problems related to energy.

Water conservation- rain water harvesting- watershed management.

Resettlement and rehabilitation of people; its problems and concerns.

Case studies

Environmental ethics: Issues and possible solutions.

Climate change- global warming- acid rain- ozone layer depletion- nuclear accidents and holocaust. Case studies.

Wasteland reclamation.

Consumerism and waste products.

Environment Protection Act.

Air (Prevention and Control of Pollution) Act.

Water (Prevention and Control of Pollution) Act.

Wildlife Protection Act.

Forest Conservation Act.

Issues involved in enforcement of environmental legislation Public awareness.

Unit: 7 Human Population and the Environment **(7 lectures)**

Population growth- variation among nations.
Population explosion – Family Welfare Programmes
Environment and human health
Human Rights - Value Education
HIV/ AIDS - Women and Child Welfare
Role of Information Technology in Environment and human health
Case studies.

Unit: 8 Field Work

Visit to a local area to document environmental assets-river / forest/ grassland/ hill / mountain

COURSE OUTCOMES

The students will be able to

1. Understand the environmental importance including interactions across local to global scales.
2. The learners to update and analyze environmental relationships and interactions of environmental components
3. The student to gain knowledge on importance of natural resources in a systematic way.
4. The course content is introduce the concept of renewable and non-renewable energy resources and its scenario in India and at global level
5. The students will know the relationship between biodiversity and ecosystem functions- direct and indirect values of biodiversity resources and their bio prospecting opportunities.
6. The learners can gain awareness related on environmental pollution- causes and pollution control with case studies.
7. Student to obtain the environmental ethics and gain knowledge about the sustainable development.
8. Learners should realize the environmental legislation and policies of national and international regime and know the regulations applicable to industries and other organizations with significant Environmental aspects.

REFERENCES

1. Agarwal- K.C. 2001 Environmental Biology- Nidi Public Ltd Bikaner.
2. Bharucha Erach- The Biodiversity of India- Mapin Publishing Pvt ltd- Ahamedabad – 380013- India- E-mail: mapin@icenet.net(R)
3. Brunner R.C. 1989- Hazardous Waste Incineration- McGraw Hill Inc 480 p
4. Clark R.S. Marine Pollution- Clanderson Press Oxford (TB)
5. Cunningham- W.P.Cooper- T.H.Gorhani E & Hepworth- M.T. 2001.
6. De A.K. Environmental Chemistry- Wiley Eastern Ltd
7. Down to Earth- Centre for Science and Environment (R)
8. Gleick- H.P. 1993. Water in crisis- Pacific Institute for Studies in Dev.- Environment & Security. Stockholm Env. Institute Oxford University- Press 473p.
9. Hawkins- R.E. Encyclopedia of India Natural History- Bombay Natural History Society- Bombay (R)
10. Heywood- V.H & Watson- R.T. 1995. Global Biodiversity Assessment. Cambridge University Press
11. Jadhav- H & Bhosale- V.M. 1995. Environmental Protection and Laws Himalaya Pub. House- Delhi

12.Mckinney- M.L. & Schoch R.M. 1996. Environmental Science systems & Solutions- Web enhanced edition 639 p.
13. Mhaskar A.K. Matter Hazardous- Techno-Science Publications (TB)
14. Miller T.G. Jr. Environmental Science- Wadsworth Publishing Co. (TB)
15. Odum- E.P. 1971 Fundamentals of Ecology. W.B. Saunders Co. USA. 574 p

16. Rao MN & Datta- A.K. 1987 Waste Water treatment- Oxford & IBH Publication Co. Pvt Ltd 345 p.
17. Sharma B.K. 2001 Environmental chemistry Goel Publ House- Meerut.
18. Survey of the Environment- The Hindu (M).
19. Townsend C. Harper- J and Michael Begon- Essentials of Ecology- Blackwell science (TB)
20. Trivedi R.K. Handbook of Environmental Laws- Rules- Guidelines- Compliances and Standards- Vol. I and II- Enviro Media (R).
21. Trivedi R.K. and P.K. Goel- Introduction to air pollution- Techno-Science Publications (TB).
22. Wagner K.D. 1998 Environmental Management. W.B. Saunders Co. Philadelphia USA499 p
(M) Magazine (R) Reference (TB) Textbook
23. http://nbaindia.org/uploaded/Biodiversityindia/Legal/33%20Biological%20Diversity%20

SENGAMALA THAYAAR EDUCATIONAL TRUST WOMEN'S COLLEGE

(AUTONOMOUS)

SUNDARAKKOTTAI, MANNARGUDI – 614016

(For the candidate admitted from the academic year 2024-2025)

DEPARTMENT OF NUTRITION AND DIETETICS

B.Sc., NUTRITION AND DIETETICS

Semester : VI - CC- VIII: Dietetics II

Ins Hrs./Week:6 **Course Credit: 4** **Course Code: U24ND613**

UNIT - I: Dietary Care in Diabetes and Hormonal Disorders (20 Hours)

a. Nutritional care for Diabetes Mellitus: Definition, aetiology and predisposing factors, symptoms, classification and diagnostic criteria of diabetes mellitus, complications, insulin resistance, screening tests, HbA1c interpretation, principles of medical nutrition therapy, food exchange list, glycemic index, glycemic load, carbohydrate counting, role of dietary fibre and artificial sweeteners, lifestyle modification and dietary management

Nutritional care for Endocrine Disorders: Aetiology, symptoms, complications and dietary management of Cushing's syndrome, Addison's disease, hypothyroidism, hyperthyroidism and Polycystic Ovarian Syndrome (PCOS).

UNIT- II*:* Nutrition for Heart Diseases and Cancer (16 Hours)

a. Nutritional care for cardiovascular diseases: Aetiology, risk factors, clinical manifestations and dietary management of hyperlipidemia, hypertension, atherosclerosis, congestive cardiac failure and metabolic syndrome. Principles of DASH diet and Mediterranean diet.

b. Nutritional care for Neoplastic Diseases: Cancer –Cancer – types, stages and tumor markers; nutrition in the etiology of cancer; nutritional effects of cancer and cancer therapy; nutritional management during chemotherapy and radiotherapy; enteral and parenteral nutrition; dietary management of cancer patients.

UNIT–III: Dietary Management of Bone Disorders, Burns, and Allergies (19 Hours)

a.Nutritional care for diseases of the musculoskeletal system: Definition, causes, symptoms, complications and dietary management of osteoarthritis, rheumatoid arthritis, osteoporosis, osteomalacia, sarcopenia and gout.

b.Nutritional care for burns: Types, causes, pathophysiology of burns, metabolic response to burns, nutritional requirements and medical nutrition therapy for burn patients.

c.Nutritional care for allergy - Definition, food allergens, food allergy and food intolerance, clinical manifestations, diagnosis, elimination diet and dietary management of food allergies.

UNIT-IV: Nutritional Care in Kidney and Metabolic Disorders (19 Hours)

a. Nutritional care for Renal diseases: Aetiology, predisposing factors, symptoms, complications and

dietary management of nephritis, nephrosis, acute and chronic renal failure and urinary calculi. Dialysis – types, electrolyte balance, fluid management and dietary modifications during dialysis.
b. Nutritional care for Inborn errors of metabolism: Causes, symptoms and dietary management of phenylketonuria, galactosemia, fructosuria, Niemann–Pick disease and maple syrup urine disease

UNIT–V: Nutritional Counseling and Computer Applications in Dietetics (16 Hours)

a. Nutritional Counseling: Concept and importance of nutrition counseling, roles and responsibilities of clients and counselors, communication skills, attributes of a successful counselor, counseling process, counseling guidelines, ethics in counseling and motivational interviewing
b. Computers in Management of Nutrition Practice: General information – data input, data output, data analysis, data communication, clinical care – communication in patient care and nutritional therapy, Computer application in Preparation of dietary charts for patients. Tele-nutrition and Digital Health Applications.

Total Lecture Hours-90

COURSE OUTCOME

The students will be able to

1. Identify the causes, symptoms, and dietary care for diabetes and common hormonal disorders.
2. Explain the dietary management of heart diseases and the nutritional care for cancer patients.
3. Describe the dietary care needed for bone disorders, burns, and food allergies.
4. Analyze the nutritional needs in kidney diseases and inborn errors of metabolism.
5. Apply the principles of nutrition counseling and computer usage in dietetic practice.

TEXT BOOK(S)

1. Bamji, M.S., Krishnaswamy, K. & Brahmam, G.N.V. 2020. Textbook of Human Nutrition, 4th Edition, Oxford & IBH Publishing Co. Pvt. Ltd., New Delhi.
2. Garrow, J.S., James, W.P.T. & Ralph, A. 2023. Human Nutrition and Dietetics, 14th Edition, Churchill Livingstone, Elsevier.
3. Raymond, J.L. & Morrow, K. 2023. Krause and Mahan's Food and the Nutrition Care Process, 16th Edition, Elsevier.
4. Srilakshmi, B. 2023. Dietetics, 8th Edition, New Age International Publishers, New Delhi.
5. Williams, S.R. & Schlenker, E.D. 2021. Essentials of Nutrition and Diet Therapy, 12th Edition, Elsevier.

REFERENCE BOOK(S)

1. Cardenas, D. & Blackburn, G.L. 2023. Handbook of Clinical Nutrition, Saunders Elsevier.
2. Grodner, M., Escott-Stump, S. & Dorner, S. 2022. Nutritional Foundations and Clinical Applications: A Nursing Approach, 7th Edition, Elsevier.
3. Reinhard, T. & Witthuhn, M. 2023. The Essential Pocket Guide for Clinical Nutrition, Lippincott Williams & Wilkins (LWW).
4. Katz, D.L., Friedman, R.S. & Lucan, S.C. 2023. Nutrition in Clinical Practice, 4th Edition, Wolters Kluwer.
5. Van Horn, L. & Beto, J.A. 2024. Research: Successful Approaches in Nutrition and Dietetics, 5th Edition, Academy of Nutrition and Dietetics.

E-RESOURCES

1. https://www.who.int

2. https://www.nin.res.in
3. https://www.fssai.gov.in
4. https://pubmed.ncbi.nlm.nih.gov
5. https://www.medscape.com

MAPPING WITH PROGRAMME OUTCOMES AND PROGRAMME SPECIFIC OUTCOMES

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	3	2	2	2	2	1	1	1	1	3	3	2	2	2
CO2	3	3	3	2	2	2	1	1	1	1	3	3	3	2	2
CO3	3	2	2	2	2	2	1	1	1	1	2	2	2	2	2
CO4	3	3	3	3	2	2	1	1	1	1	3	3	3	3	2
CO5	2	2	2	2	3	3	2	2	2	2	2	2	3	3	3

S-Strong(3) **M-Medium(2)** **L-Low(1)**

SENGAMALA THAYAAR EDUCATIONAL TRUST WOMEN'S COLLEGE

(AUTONOMOUS)

SUNDARAKKOTTAI, MANNARGUDI – 614016

(For the candidate admitted from the academic year 2024-2025)

DEPARTMENT OF NUTRITION AND DIETETICS

B.Sc., NUTRITION AND DIETETICS

Semester : VI – CP- VI: Dietetics II (P)

Ins Hrs./Week:6 **Course Credit: 4** **Course Code:U24ND614P**

Practical Contents:

Planning, preparation and calculation of following diets:

- Diabetes Mellitus.
- Endocrine Disorders -Cushing's syndrome, Addison's disease, Hypothyroidism and Hyperthyroidism.
- Cardiovascular diseases **-**Hyperlipidemia, Hypertension, Atherosclerosis and Congestive cardiac failure.
- Cancer
- Musculoskeletal disorders -Arthritis, Osteoporosis, Osteomalacia, Sarcopenia and Gout
- Renal diseases: Nephritis, Nephrosis, Renal failure and Urinary calculi.
- Inborn errors of metabolism-Phenylketonuria, Galactosemia, Fructosuria, Niemann – pick disease

COURSE OUTCOME:

The student will be able to

1. Understand the importance of nutrition in the treatment of various diseases.
2. Plan and prepare suitable diets for people with Diabetes Mellitus.
3. Prepare balanced diets for hormonal problems like Cushing's syndrome, Addison's disease, Hypothyroidism, and Hyperthyroidism.
4. Plan diets for heart diseases, cancer, arthritis, osteoporosis, gout, and kidney-related problems.
5. Provide proper dietary care for people with inherited metabolic disorders.

TEXT BOOK(S)

1. Bamji, M.S., Krishnaswamy, K. & Brahmam, G.N.V. 2020. Textbook of Human Nutrition, 4th Edition, Oxford & IBH Publishing Co. Pvt. Ltd., New Delhi.
2. Garrow, J.S., James, W.P.T. & Ralph, A. 2023. Human Nutrition and Dietetics, 14th Edition, Churchill Livingstone, Elsevier.
3. Raymond, J.L. & Morrow, K. 2023. Krause and Mahan's Food and the Nutrition Care Process, 16th Edition, Elsevier.

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5. Van Horn, L. & Beto, J.A. 2024. Research: Successful Approaches in Nutrition and Dietetics, 5th Edition, Academy of Nutrition and Dietetics

E RESOURCES

1. https://www.diabetes.org
2. https://www.kidney.org
3. https://www.cancer.gov
4. https://www.heart.org
5. https://pubmed.ncbi.nlm.nih.gov

MAPPING WITH PROGRAMME OUTCOMES AND PROGRAMME SPECIFIC OUTCOMES

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	2	2	2	2	2	1	1	1	1	3	2	2	2	2
CO2	3	3	3	2	2	2	1	1	1	1	3	3	3	2	2
CO3	3	3	3	2	2	2	1	1	1	1	3	3	3	2	2
CO4	3	3	2	3	2	2	1	1	1	1	3	3	2	3	2
CO5	2	2	2	2	3	3	2	2	2	2	2	2	3	3	3

S-Strong(3) **M-Medium(2)** **L-Low(1)**

SENGAMALA THAYAAR EDUCATIONAL TRUST WOMEN'S COLLEGE

(AUTONOMOUS)

SUNDARAKKOTTAI, MANNARGUDI – 614016

(For the candidate admitted from the academic year 2024-2025)

DEPARTMENT OF NUTRITION AND DIETETICS

B.Sc., NUTRITION AND DIETETICS

Semester: VI - EC- III: Food Product Development

Ins Hrs./Week:4 **Course Credit: 3** **Course Code: U24NDE63A**

UNIT-I: Introduction to Food Product Development (13 Hours)

Definition, significance and scope of food product development. Consumer needs, food habits and consumer preferences. Basic principles and concepts of food product development. Product development cycle – idea generation, screening, concept development, product formulation, standardization, prototype development, consumer testing and commercialization.Trends in food consumption patterns. Economic, psychological and sociological dimensions influencing food choices. Consumer acceptability studies, food innovation and entrepreneurship opportunities in food product development.

UNIT- II: Formulation of new food products (13 Hours)

Formulation and development of food products for infants, preschool children, adolescents, pregnant and lactating women, elderly persons, sports persons and armed forces personnel. Therapeutic food products for special dietary needs.

Development of traditional foods, weaning foods, convenience foods, Ready-to-Eat (RTE) foods, Ready-to-Cook (RTC) foods, Ready-to-Serve (RTS) foods, extruded foods, intermediate moisture foods (IMF), specialty foods, health foods, nutritional supplements, functional foods, nutraceuticals, designer foods, sports foods, defense foods and space foods. Development of fortified, probiotic, prebiotic and plant-based food products.

UNIT-III Sensory and Objective Evaluation, Intellectual Property Rights (13 Hours)

Sensory evaluation – importance, establishment and training of sensory panels, preparation of score cards, hedonic rating scale, triangle test and sensory evaluation methods. Shelf-life studies and storage stability analysis.

Objective evaluation – physical, chemical, physicochemical and microbiological evaluation of food products and instruments used for quality assessment.

Intellectual Property Rights (IPR) – concepts and importance, patents, patent laws related to food products, trademarks, copyrights, branding, licensing, franchising and product warranty. Quality assurance and food safety standards in product development.

UNIT- IV:Packaging and labelling (10 Hours)

Importance and functions of packaging. Types of packaging materials and factors affecting the selection of packaging materials. Aseptic packaging, modified atmosphere packaging (MAP), controlled atmosphere packaging (CAP), active packaging and smart packaging.

Packaging design, graphics and labeling requirements. Sustainable and biodegradable packaging materials. Nutritional labeling, barcoding and food labeling regulations under FSSAI.

UNIT- V:Marketing the product **(11 Hours)**

Concept, approaches and functions of marketing. Market structure, marketing efficiency and market integration. Product life cycle. Costing and pricing of food products. Advertising, promotion, branding, test marketing, digital marketing and social media marketing of food products.

Role of Government and export promotion agencies in food marketing. Online marketing, e-commerce platforms and entrepreneurship opportunities in food product development. Economic feasibility and commercialization of new food products.

Total Lecture Hours -60

COURSE OUTCOME

The students will be able to

1. Understand the basic concepts and steps involved in new food product development.
2. Formulate and standardize food products using appropriate methods.
3. Apply sensory and objective techniques to evaluate food quality and shelf life.
4. Gain knowledge of food packaging types, labelling, and related regulations.
5. Explain intellectual property rights and commercialization of food products.

TEXT BOOK(S)

1. Brody, A.L. & Lord, J.B. 2022. Developing New Food Products for a Changing Marketplace, 3rd Edition, CRC Press, Boca Raton.
2. Fuller, G.W. 2024. New Food Product Development: From Concept to Marketplace, 4th Edition, CRC Press, Taylor & Francis Group.
3. Manay, N.S. & Shadaksharaswamy, M. 2022. Food Facts and Principles, New Age International Publishers, New Delhi.
4. Roday, S. 2023. Food Hygiene and Sanitation, 4th Edition, McGraw Hill Education, New Delhi.
5. Sharma, A. 2023. Textbook of Food Science and Technology, International Book Distributing Company, Lucknow.

REFERENCE BOOK(S)

1. Bagchi, D. & Nair, S. 2022. Developing New Functional Food and Nutraceutical Products, Academic Press, Elsevier.
2. Baker, R.C. 2022. Fundamentals of New Food Product Development, Elsevier Science Publishers.
3. Earle, M., Earle, R. & Anderson, A. 2022. Food Product Development: Maximising Success. Woodhead Publishing.Rao, D.G. 2023. Fundamentals of Food Engineering, 3rd Edition, PHI Learning Private Limited, New Delhi.
4. Schaffner, D.J. & Schroder, W.R. 2022. Food Marketing and International Perspectives, McGraw Hill Education.

E-RESOURCES:

1. https://nzifst.org.nz/resources/foodproductdevelopment/Chapter-3.htm
2. https://nzifst.org.nz/resources/creatingnewfoods/documents/CreatingNewFoodsCh5.pdf
3. https://cwsimons.com/steps-in-food-product-development/
4. https://www.eufic.org/en/food-production/article/processed-food
5. https://www.destechpub.com/wp-content/uploads/2015/01/Methods-for-Developing-New-Food-Products-preview.pdf

MAPPING WITH PROGRAMME OUTCOMES AND PROGRAMME SPECIFIC OUTCOMES

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	3	2	2	2	2	1	1	1	1	3	2	2	2	2
CO2	3	3	3	3	2	2	1	1	1	1	3	3	3	2	2
CO3	3	3	3	2	3	2	1	1	1	1	3	3	3	2	2
CO4	3	2	2	3	3	2	1	1	1	1	3	2	2	3	2
CO5	2	2	2	2	3	3	2	2	2	2	2	2	3	3	3

S-Strong(3) **M-Medium(2)** **L-Low(1)**

SENGAMALA THAYAAR EDUCATIONAL TRUST WOMEN'S COLLEGE
(AUTONOMOUS)
SUNDARAKKOTTAI, MANNARGUDI – 614016
(For the candidates admitted in the academic year 2024–2025)
DEPARTMENT OF NUTRITION AND DIETETICS
B.Sc., NUTRITION AND DIETETICS

Semester: VI- EC-III: Food Standard and Quality Control

Ins. Hrs. /Week: 4 **Course Credit: 3** **Course Code: U24NDE63B**

UNIT- I: Food Standard ,Safety and Quality (12 Hours)

a) Food Standard, Safety and Quality: Evolution of food regulations in India, Food standards – concept, objectives and importance of food standards in ensuring food quality and safety, Quality features of foods, quality checking of raw materials and processed foods, Factors affecting food quality, Food quality indices – cereals, pulses, nuts and oil seeds, vegetables, fruits, milk and milk products, non-vegetarian foods, oils, spices and condiments, processed foods – canned foods, baked products and preserved foods.

b) Quality Control Measures - objectives, and advantages of quality control and stages of quality control.

UNIT-II: Food Additives and their specifications (12 Hours)

a) Food Additives: - Classification of food additives, functions, applications and permissible limits of food additives – Food colors, Flavoring agents, leavening agents, preservatives, Acidity regulators, Anti-caking agent, Anti -foaming agent, Bulking agent, Foaming agent, Artificial sweeteners, Emulsifiers and Stabilizers.

b) Food specifications: objectives and advantages, Food specification for various food products – starchy foods, milk and milk products, fruit products, beverages, spices and condiments, oils and fats, preserved foods.

UNIT- III: Quality Evaluation of Food (12 Hours)

a) Subjective evaluation: Sensory characters of food, organs involved in assessment – physiological process, types of sensory tests ,requirements to conduct sensory evaluation, Roles, responsibilities and common errors of panel members in sensory evaluation,essential qualities of a panel member, procedure of sensory evaluation, and Points to be considered in preparing score card.

b)Objective evaluation: objectives, requirements, different tests and instruments used for objective evaluation: sugar content - Refractometer, acidity - pH meter, viscosity - Rheometer, moisture - Moisture balance, colour - Colorimetry, Texture analysis – Texture Analyzer, Penetrometer, advantages and limitations**.**

UNIT –IV Food Toxins and Adulterants (12 Hours)

a) Food Toxins: Mycotoxins – aflatoxins, aspergillus and Penicillium species, mushroom poisoning, sea food toxins. Other toxins naturally occurring in foods: Lathyrogens, haemagglutinins, goitrogens. Toxic minerals and other inorganic compounds in food and water; selenium, fluorine, nitrates and nitrites, oxalates and phytates.

b)Food Adulteration: Definition, Types, common food adulterants; tests for detecting food adulterants, contamination with toxic metals, pesticides and insecticides; effects of food adulteration and contamination, measures to control food adulteration, Prevention of Food Adulteration Act (PFA), 1954 and Food Safety and Standards Act (FSSA), 2006.

UNIT- V: Food Standards and Regulations (12 Hours)

Food Standards and Regulations: a) Hazard Analysis- Physical hazards (metals, glass, etc.), Chemical hazards (food additive toxicology, pesticides, antibiotics, heavy metals and packaging components), Biological hazards (epidemiology of biological pathogens: virus, bacteria and fungi), Hazard Analysis and Critical Control Point (HACCP)

b) Food Standards and Food Laws Voluntary standards and Certification system – BIS and AGMARK, International Food Standards - Codex Alimentarius Commission (CAC), Food Safety and Standards Authority of India (FSSAI). Good Manufacturing Practice (GMP), National and International Regulatory Agencies (FSSAI, FDA, EFSA)

Total Lecture Hours-60

COURSE OUTCOME

The students will be able to

1. Identify food safety hazards and their role in food contamination and food-borne illnesses.
2. Explain food additives, permissible limits and common food adulterants.
3. Gain better understanding on subjective and objective testing methods on foods.
4. Apply HACCP principles in food safety and quality management..
5. Explain food safety standards, quality assurance systems and food regulations.

TEXT BOOK(S)

1. .Pulkit Mathur 2023. Food Safety and Quality Control. Orient Blackswan Pvt. Ltd., Hyderabad. Latest Edition. ISBN-13: 978-9352873791.
2. Suri Malhotra 2022. Food Science, Nutrition and Safety. Pearson Education India. Revised Edition. ISBN-13: 978-8131771105.
3. Virag Gupta 2024. Food Safety and Standards Act, 2006 along with Rules and Regulations. Commercial Law Publishers (India) Pvt. Ltd., New Delhi. Latest Edition. ISBN-13: 978-9385075605.
4. Y. Pomeranz and C.E. Meloan 2023. Food Analysis: Theory and Practice. CBS Publishers & Distributors Pvt. Ltd., New Delhi. Revised Edition.
5. Ranganna S. 2022. Handbook of Analysis and Quality Control for Fruit and Vegetable Products. Tata McGraw Hill Publishing Co. Ltd., New Delhi. Revised Reprint Edition.

REFERENCE BOOK(S)

1. Early 2022. Guide to Quality Management Systems for the Food Industry. Springer Publications, London.
2. Gould.W.A and R.W. Gould 2021. Total Quality Assurance for the Food Industries. CBS Publishers & Distributors, New Delhi.
3. Hagstad.H.V and W.T. Hubbert 2020. Food Quality Control: Foods of Animal Origin. Iowa State University Press, Ames.
4. FSSAI 2023. Manual of Food Safety Management Systems. Food Safety and Standards Authority of India, New Delhi.
5. Sunetra Roday 2022. Food Hygiene and Sanitation. McGraw Hill Education, New Delhi.
6. Marriott, Schilling and Gravani 2023. Principles of Food Sanitation. Springer Publications.

E-RESOURCES

1. https://www.imedpub.com/articles/food-spoilage-microorganisms-and-their-prevention.pdf
2. https://byjus.com/biology/food-adulteration/
3. http://ecoursesonline.iasri.res.in/mod/page/view.php?id=1034
4. https://www.food.actapol.net/pub/7_2_2007.pdf
5. http://ecoursesonline.iasri.res.in/mod/page/view.php?id=3857

MAPPING WITH PROGRAMME OUTCOMES AND PROGRAMME SPECIFIC OUTCOMES

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	3	3	3	2	2	1	1	1	1	3	3	2	2	2
CO2	3	3	2	3	2	2	1	1	1	1	3	3	2	2	2
CO3	3	3	3	3	3	2	1	1	1	1	3	3	3	2	2
CO4	3	3	3	3	3	2	1	1	1	1	3	3	3	3	2
CO5	3	2	2	3	2	3	2	2	2	2	3	2	2	3	3

S-Strong(3) **M-Medium(2)** **L-Low(1)**

SENGAMALA THAYAAR EDUCATIONAL TRUST WOMEN'S COLLEGE

(AUTONOMOUS)

SUNDARAKKOTTAI, MANNARGUDI – 614016

(For the candidates admitted in the academic year 2024–2025)

DEPARTMENT OF NUTRITION AND DIETETICS

B.Sc., NUTRITION AND DIETETICS

Semester: VI -EC-III: Entrepreneurship Development

Ins. Hrs. /Week: 4 **Course Credit: 3** **Course Code: U24NDE63C**

UNIT- I: Introduction to Entrepreneurship (12 Hours)

Entrepreneurship – meaning, concept and importance; Entrepreneur and enterprise; Definition and characteristics of entrepreneurship; Objectives of entrepreneurship development; Scope and phases of entrepreneurship development; Role of entrepreneurship in economic and social development; Qualities and competencies of successful entrepreneurs. Entrepreneurial ecosystem ,emerging trends in entrepreneurship

UNIT-II: Entrepreneur and Entrepreneurial Process (11 Hours)

Entrepreneur – meaning and functions; Types of entrepreneurs; Entrepreneurial motivation; Stages in entrepreneurial process; Business idea generation; Identification of business opportunities; Role of entrepreneur in economic development; Entrepreneurship opportunities in food, nutrition and allied health sectors.

UNIT- III: Women and Rural Entrepreneurship (12 Hours)

Women entrepreneurship – concept, characteristics, functions, growth and development; Problems faced by women entrepreneurs; Measures to promote women entrepreneurship.

Rural entrepreneurship – meaning, need and importance; Problems of rural entrepreneurs; Development of rural entrepreneurship; Role of NGOs, SHGs and microfinance institutions in promoting rural entrepreneurship; Entrepreneurship opportunities in food processing and nutrition.

UNIT- IV: Government Development Schemes (12 Hours)

Government Development Schemes - Prime Minister Employment Generation Programme (PMEGP), Stand-Up India Scheme , Startup India Scheme, Pradan Mantri Mudra Yojana (PMMY), Entrepreneurship and Skill Development Programmes (ESDP) Micro, Small and Medium Enterprises (MSME) NABARD schemes for rural entrepreneurship**,** Pradhan Mantri Formalisation of Micro Food Processing Enterprises Scheme (PMFME) National Rural Livelihoods Mission (NRLM) .State government entrepreneurship development scheme. role of District Industries Centre (DIC); incentives and subsidies for small and medium enterprises with special reference to food and nutrition-based enterprises.

UNIT –V: Financial Assistance Standard Operating Procedure (13 Hours)

Institutions providing financial assistance - Loan schemes offered by SIDBI, SIDC's, SIIC's, NSIC and NABARD- Difficulties in procuring Institutional finance Agencies for Urban and Rural Development – Government, District Industries Centre (DIC) District Rural Development Agencies (DRDA). Loan schemes and institutional finance; Difficulties in procuring finance; Preparation of project proposal/business plan; Standard Operating Procedures (SOP) for small food enterprises; Registration and licensing procedures for small businesses

Total Lecture Hours-60

COURSE OUTCOME:

The students will be able to

1. Explain the concept and significance of entrepreneurship.
2. Analyze the types of entrepreneurs and their roles in economic development.
3. Identify financial institutions and apply suitable loan schemes for establishing a business.
4. Evaluate the challenges faced by women and rural entrepreneurs.
5. Develop a business proposal by utilizing appropriate government financial schemes.

TEXT BOOK(S)

1. Gupta,C.B and Srinivasan,N.P 2021. Entrepreneurial Development. Sultan Chand & Sons, New Delhi.
2. Jayshree Suresh 2021. Entrepreneurial Development. Margham Publications, Chennai
3. Khanka,S.S 2022. Entrepreneurial Development. S. Chand & Company Ltd., New Delhi.
4. Poornima M. Charantimath 2022. Entrepreneurship Development and Small Business Enterprises. Pearson Education, New Delhi.
5. Rakesh Saxena 2024. Government Schemes, Missions, Campaigns and Programmes in India. Prabhat Prakashan, New Delhi.
6. Vasant Desai 2023. Dynamics of Entrepreneurial Development and Management. Himalaya Publishing House, Mumbai.

REFERENCE BOOK(S)

1. Dutta and Sundaram 2023. Indian Economy. S. Chand Publications, New Delhi.
2. MSME Development Institute 2023. Entrepreneurship Development Handbook. Government of India.
3. NABARD 2024. Rural Entrepreneurship and Microfinance Initiatives. NABARD Publications.
4. Sreedhar and Rajasekhar 2022. Rural Development in India: Strategies and Process. Concept Publishing Company, New Delhi.
5. Singh ,.S.K 2021. Rural Development Policies and Programmes. Northern Book Centre, New Delhi

E-RESOURCES

1. http://www.simplynotes.in
2. https://www.iare.ac.in
3. https://www.yourarticlelibrary.com
4. https://ccsuniversity.ac.in
5. https://www.creditmantri.com

MAPPING WITH PROGRAMME OUTCOMES AND PROGRAMME SPECIFIC OUTCOMES

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2	PSO3	PSO4	PSO5
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CO2	2	3	3	1	3	2	1	1	1	3	2	2	2	3	3
CO3	2	3	3	2	3	2	1	1	1	3	2	2	2	3	3
CO4	2	3	2	2	3	3	2	2	2	3	2	2	2	3	3
CO5	2	3	3	3	3	2	1	1	2	3	2	2	3	3	3

S-Strong(3) **M-Medium(2)** **L-Low(**

SENGAMALA THAYAAR EDUCATIONAL TRUST WOMEN'S COLLEGE

(AUTONOMOUS)

SUNDARAKKOTTAI, MANNARGUDI – 614016

(For the candidates admitted in the academic year 2024–2025)

DEPARTMENT OF NUTRITION AND DIETETICS

B.Sc., NUTRITION AND DIETETICS

Semester-VI-EC-IV: Sports Nutrition

Ins. Hrs./Week:4 **Course Credit:3** **Course Code:U24NDE64A**

UNIT-I : Fuel Sources for Muscle and Exercise Metabolism (12 Hours)

Sources of energy for muscle contraction ,fuel stores in skeletal muscle. Energy systems: ATP-PC, glycolytic and oxidative pathways. Regulation of energy metabolism during exercise, acute metabolic responses to exercise, chronic metabolic adaptations to training. Factors influencing fuel selection during exercise, components of energy expenditure and energy balance.

UNIT-II: Macro and Micro Nutrients in Sports Nutrition (12 Hour)

Role of carbohydrates before, during and after exercise ,carbohydrate loading strategies, Protein requirements and muscle protein synthesis, Amino acids as ergogenic aids and associated risks,Fat metabolism during exercise and fat adaptation. Micronutrients in sports: vitamins, minerals, antioxidants, Ergogenic effects of selected nutrients. Fluid balance, thermoregulation, dehydration and heat illness, Fluid guidelines for athletes.

UNIT-III: Weight Management and Body Composition (12 Hours)

Ideal body weight and body composition ,weight management strategies in athletes, evidence-based approaches to weight loss and weight gain, rapid weight loss practices and associated risks. Eating disorders: types, causes, prevalence, and prevention, Effects of eating disorders on sports performance. Body composition assessment techniques and interpretation.

UNIT- IV: Practical Sports Nutrition (12 Hours)| |

Pre-event and post-event meal planning, Nutritional strategies for competition preparation. Management of exercise-related issues: cramps, stitch, and GI distress ,electrolyte balance and sports drinks, Nutrition timing for anaerobic and aerobic performance, Recovery nutrition strategies ,Guidelines for travelling athletes. Nutrition for special populations: child, ageing, diabetic, vegetarian, and differently-abled athletes

UNIT-V: Ergogenic aids and supplements (12 Hours)

Overview of sports supplements and sports foods, Evidence-based evaluation of ergogenic aids,Performance-enhancing substances and ethical considerations, Anabolic steroids and associated risks ,Sports foods: bars, gels, drinks, meal replacements Protein supplements: types and effectiveness Ergogenic compounds: creatine, glutamine, BCAA, HMB, caffeine, bicarbonate, citrate, glycerol Anti-doping regulations and WADA guidelines

Total lecture Hours-60

COURSE OUTCOME:

The students will be able to

1. Understand the exercise metabolism and fuel sources.
2. Gain knowledge on the role of macro and micronutrients in Sports Nutrition..
3. Assess and interpret the body composition and weight management
4. Plan diets for athletes involved in aerobic and anaerobic sports.
5. Understand the need of supplements and sports foods in exercise.

TEXTBOOK(S)

1. Anita Bean 2022. The Complete Guide to Sports Nutrition. 9th Edition, Bloomsbury Publishing, London.
2. Dan Benardot 2022. Advanced Sports Nutrition. 3rd Edition, Human Kinetics.
3. ICMR–NIN (2024). Dietary Guidelines for Indians. National Institute of Nutrition, Hyderabad.
4. Louise Burke and Vicki Deakin 2021. Clinical Sports Nutrition. 6th Edition, McGraw-Hill Education, Australia.
5. Michael Gleeson and Asker Jeukendrup 2023. Sport Nutrition: An Introduction to Energy Production and Performance. Human Kinetics.
6. Suzanne Girard Eberle 2021. Endurance Sports Nutrition. Human Kinetics.

REFERENCEBOOK(S)

1. Burke, Louise 2023. Practical Sports Nutrition. Human Kinetics.
2. Jeukendrup, Asker 2023. Sports Nutrition: From Lab to Kitchen. Meyer & Meyer Sport.
3. Maughan, Burke and Coyle 2022. Food, Nutrition and Sports Performance. Routledge Publications.
4. McArdle, Katch and Katch 2022. Exercise Physiology: Nutrition, Energy and Human Performance. Wolters Kluwer.
5. Ron Maughan 2021. Sports Nutrition. Wiley-Blackwell Publications.

E-RESOURCES:

1. http://www.aco.org.nz/pdf/nutrition-for-sports
2. https://www.researchgate.net/publication/258630492_Sports_Nutrition_Book2013
3. https://themedicalbiochemistrypage.org
4. https://www.betterhealth.vic.gov.au/health/healthyliving/sporting-performance-and-food
5. https://stillmed.olympics.com/media/Documents/Athletes/Medical-Scientific/Consensus-Statements/2018_dietary-supplements-high-performance-athlete.pdf

MAPPING WITH PROGRAMME OUTCOMES AND PROGRAMME SPECIFIC OUTCOMES

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	3	2	2	1	1	1	1	1	1	3	2	2	2	2
CO2	3	3	3	2	2	1	1	1	1	1	3	3	3	2	2
CO3	3	3	3	3	2	2	1	1	1	1	3	3	3	3	2
CO4	3	3	3	3	3	2	2	2	1	2	3	3	3	3	3
CO5	3	3	2	2	3	2	2	2	2	3	3	3	3	3	3

S-Strong(3) **M-Medium(2)** **L-Low(1)**

SENGAMALA THAYAAR EDUCATIONAL TRUST WOMEN'S COLLEGE
(AUTONOMOUS)
SUNDARAKKOTTAI, MANNARGUDI – 614016
(For the candidates admitted in the academic year 2024–2025)
DEPARTMENT OF NUTRITION AND DIETETICS
B.Sc., NUTRITIONAND DIETETICS

Semester :VI- EC - IV: Clinical Nutrition
Ins. Hrs. /Week: 4 Course Credit: 3 Course Code: U24NDE64B

UNIT I: Foundations of Clinical Nutrition (12 Hours)
Concept, definition and scope of clinical nutrition. Role of clinical nutritionist in healthcare. Nutritional assessment methods: anthropometric, biochemical, clinical, dietary history and functional assessment. Nutrition screening tools; Nutrition Care Process (NCP)- assessment, diagnosis, intervention, monitoring and evaluation. Medical records and documentation.

UNIT II: Nutrition in Metabolic and Endocrine Disorders (12 Hours)
Pathophysiology, risk factors, clinical features and complications of diabetes mellitus, obesity, metabolic syndrome and thyroid disorders. Biochemical parameters (blood glucose, HbA1c, lipid profile, thyroid hormones). Insulin resistance and metabolic alterations. Clinical evaluation and monitoring of patients. Lifestyle modification and preventive strategies.

UNIT III: Nutrition in Cardiovascular and Renal Disorders (12 Hours)
Etiology, pathophysiology, and clinical manifestations of hypertension, atherosclerosis, coronary artery disease and stroke. Risk assessment and diagnostic markers. Overview of renal disorders: acute kidney injury, chronic kidney disease, nephrotic syndrome. Fluid-electrolyte balance and clinical monitoring. Role of nutrition in disease management, progression and prevention.

UNIT IV: Nutrition in Gastrointestinal and Hepatic Disorders (12 Hours)
Clinical features and pathophysiology of gastrointestinal disorders: gastritis, peptic ulcer, GERD, diarrhea, constipation, inflammatory bowel disease and malabsorption. Liver diseases: hepatitis, cirrhosis, fatty liver. Pancreatic and gallbladder disorders. Diagnostic procedures and clinical interpretation. Role of gut microbiota and gastrointestinal functional alterations in disease conditions.

UNIT V: Nutrition Support in Critical Care and Special Conditions (12 Hours)
Metabolic response to injury, infection and stress. Clinical overview of cancer, HIV/AIDS, burns, trauma and surgical conditions. Nutritional support systems: enteral and parenteral nutrition; patient monitoring, clinical outcomes and ethical considerations. Interdisciplinary approach in patient care and rehabilitation.

Total Lecture Hours-60

COURSEOUTCOME:
The students will be able to

1. Explain the principles, scope, and clinical applications of nutrition in healthcare.
2. Assess nutritional status using clinical, biochemical, and anthropometric methods.
3. Analyze the pathophysiology and clinical features of major diseases related to nutrition.
4. Interpret diagnostic parameters and monitor disease progression in patients.
5. Apply clinical nutrition knowledge in patient care, documentation, and interdisciplinary practice.

TEXT BOOK(S)

1. Antia.F.P and Philip Abraham 2021. Clinical Dietetics and Nutrition. Oxford University Press, India.
2. Mahan,L.K and Janice L. Raymond 2024. Krause's Food & the Nutrition Care Process. 16th Edition, Elsevier, USA.
3. Marcia Nahikian-Nelms and Sara Long Roth 2023. Nutrition Therapy and Pathophysiology. 5th Edition, Cengage Learning, USA.
4. Shubhangini A. Joshi 2022. Nutrition and Dietetics. McGraw Hill Education, India.
5. Srilakshmi.B 2023. Dietetics. New Age International Publishers, New Delhi.

REFERENCE BOOK(S)

1. Catharine Ross et al. 2020. Modern Nutrition in Health and Disease. 12th Edition, Wolters Kluwer, USA.
2. Eleanor Noss Whitney and Sharon Rady Rolfes 2022. Understanding Nutrition. 16th Edition, Cengage Learning, USA.
3. Jim Mann and Stewart Truswell 2023. Essentials of Human Nutrition. 6th Edition, Oxford University Press, UK.
4. Molly Kellogg 2021. Nutrition Care Process and Model. Academy of Nutrition and Dietetics.
5. Sareen S. Gropper and Jack L. Smith 2022. Advanced Nutrition and Human Metabolism. 8th Edition, Cengage Learning, USA.
6. Sue Rodwell Williams 2021. Basic Nutrition and Diet Therapy. Elsevier, USA.

E-RESOURCES

1. https://www.nin.res.in/nutrition
2. https://www.who.int/health-topics/nutrition
3. https://www.fao.org/nutrition/en/
4. https://pubmed.ncbi.nlm.nih.gov/?term=clinical+nutrition
5. https://egyankosh.ac.in/handle/123456789/42204

MAPPING WITH PROGRAMME OUTCOMES AND PROGRAMME SPECIFIC OUTCOMES

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO 9	PO10	PSO 1	PSO2	PSO 3	PSO 4	PSO5
CO1	3	3	2	2	1	1	1	1	2	1	3	2	2	2	2
CO2	3	3	3	2	2	2	1	1	1	1	3	3	3	2	2
CO3	3	3	3	3	2	2	1	1	1	1	3	3	3	3	2
CO4	3	3	3	3	3	2	2	2	1	2	3	3	3	3	3
CO5	3	3	3	3	3	3	2	2	2	2	3	3	3	3	3

S-Strong(3) **M-Medium(2)** **L-Low(1)**

SENGAMALA THAYAAR EDUCATIONAL TRUST WOMEN'S COLLEGE
(AUTONOMOUS)
SUNDARAKKOTTAI, MANNARGUDI – 614016
(For the candidates admitted in the academic year 2024–2025)
DEPARTMENT OF NUTRITION AND DIETETICS
B.Sc., NUTRITIONAND DIETETICS

Semester : VI -EC - IV: Nutrition in Special Condition

Ins. Hrs. /Week: 4 **Course Credit: 3** **Course Code: U24NDE64C**

UNIT I: Overview of Nutrition in Special Conditions (12 Hours)
Meaning and scope of special conditions in nutrition. Importance of adequate nutrition **in** supporting health and recovery. Types of special conditions. Interaction between nutrition and disease. Determinants of nutritional status. Basic understanding of metabolic changes during illness and healthcare support.

UNIT II: Nutrition in Stress, Trauma, and Burns (12 Hours)
Metabolic response to injury and stress. Physiological and biochemical changes in trauma, burns and post-surgical conditions. Inflammatory response and catabolism. Role of nutrition in promoting wound healing and tissue repair. Monitoring clinical parameters and patient outcome

UNIT III: Nutrition in Cancer and Immunocompromised Condition (12 Hours)
Pathophysiology of cancer and its metabolic effects. Cachexia and muscle wasting. Nutritional complications in cancer therapy. Overview of HIV/AIDS and its impact on nutritional status. Contribution of nutrition in enhancing immune function and quality of life. Clinical monitoring and supportive care.

UNIT IV: Nutrition in Developmental and Neurological Conditions (12 Hours)
Overview of Autism Spectrum Disorder, ADHD, cerebral palsy and other neurodevelopmental disorders, Nutritional challenges - selective eating, sensory issues and gastrointestinal disturbances. Role of micronutrients in brain function and behavior. Role of gut-brain axis in neurodevelopmental and behavioral outcomes. Clinical considerations and monitoring**.** Impact of nutrition in supporting cognitive function and behavioral outcomes.

UNIT V: Nutrition in Special Physiological and Other Clinical Conditions (12 Hours)
Nutrition in elderly, pregnancy, lactation and pediatric conditions. Nutrition management of eating disorders, allergies and genetic/metabolic disorders. Nutritional considerations in critically ill patients and ICU care. Principles of enteral and parenteral nutrition. Importance of nutrition in physiological stability and improving recovery outcomes**.** Ethical issues and interdisciplinary care.

Total Lecture Hours-60

COURSE OUTCOME
The students will be able to
1. Explain the concept and relevance of nutrition in special conditions.
2. Identify metabolic and physiological changes in various special conditions.
3. Analyze the clinical features of conditions such as cancer, HIV/AIDS, and Autism Spectrum Disorder.
4. Interpret clinical and nutritional assessment parameters in special conditions.
5. Apply knowledge of nutrition in supporting patient care and recovery

TEXT BOOK (S)

1. Mahan,L.K and Janice L. Raymond 2022 Krause's Food & the Nutrition Care Process (16th Edition) Elsevier, USA. Krause's Food & the Nutrition Care Process
2. Marcia Nahikian-Nelms, Kathryn P. Sucher and Sara Long Roth 2019 Nutrition Therapy and Pathophysiology (4th Edition) Cengage Learning, USA. Nutrition Therapy and Pathophysiology
3. B. Srilakshmi 2018 Dietetics (8th Edition) New Age International Publishers, New Delhi. Dietetics by B Srilakshmi
4. Antia,F.P and Philip Abraham 2016 Clinical Dietetics and Nutrition (5th Edition) Oxford University Press, India. Clinical Dietetics and Nutrition
2. Staci Nix McIntosh 2020 Williams' Basic Nutrition & Diet Therapy (15th Edition) Elsevier, USA. Williams' Basic Nutrition & Diet Therapy

REFERENCE BOOK (S)

1. Ross, A.C., Caballero, B., Cousins, R.J., Tucker, K.L., & Ziegler, T.R. (2020). Modern Nutrition in Health and Disease (12th ed.). Wolters Kluwer, USA.
2. Nahikian-Nelms, M. (2019). Clinical Nutrition: A Functional Approach (5th ed.). Cengage Learning, USA.
3. Srilakshmi, B. (2023). Diet Therapy (8th ed.). New Age International Publishers, New Delhi.
4. Williams, S.R. (2021). Basic Nutrition and Diet Therapy. Elsevier, USA.
5. Antia, F.P., & Abraham, P. (2025). Clinical Dietetics and Nutrition (5th ed.). Oxford University Press, India.

E-RESOURCES:

1. https://www.nin.res.in
2. https://www.who.int/health-topics/nutrition
3. https://www.fao.org/nutrition/en/
4. https://pubmed.ncbi.nlm.nih.gov/?term=clinical+nutrition
5. https://egyankosh.ac.in/handle/123456789/42204

MAPPING WITH PROGRAMME OUTCOMES AND PROGRAMME SPECIFIC OUTCOMES

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CO1	3	3	2	2	1	1	1	1	2	1	3	2	2	2	2
CO2	3	3	3	3	2	2	1	1	1	1	3	3	3	2	2
CO3	3	3	3	3	3	2	2	2	1	2	3	3	3	3	2
CO4	3	3	3	3	3	3	2	2	2	2	3	3	3	3	3
CO5	3	3	3	3	3	3	2	2	2	3	3	3	3	3	3

S-Strong(3) **M-Medium(2)** **L-Low(1)**

SENGAMALA THAYAAR EDUCATIONAL TRUST WOMEN'S COLLEGE

(AUTONOMOUS)

SUNDARAKKOTTAI, MANNARGUDI – 614016

(For the candidate admitted from the academic year 2024–2025)

DEPARTMENT OF NUTRITION AND DIETETICS

B.Sc., NUTRITION AND DIETETICS

Semester: VI - Value Education (Revised syllabus)

Ins. Hrs. /Week: 2 **Course Credit: 2** **Course Code: 24UGVED**

OBJECTIVES

1. To understand the philosophy of life and values through Thirukural
2. To analyse the components of values education to attain the sense of citizenship
3. To understand different types of values towards National Integration and international understanding
4. To learn yoga as value education to promote mental and emotional health
5. To understand human rights- women rights and other rights to promote peace and harmony

UNIT I : PHILOSOPHY OF LIFE AND SOCIAL VALUES

Human Life on Earth (Kural 629) -Purpose of Life (Kural 46) -Meaning and Philosophy of Life (Kural 131-226) -Family (Kural 45)- Peace in Family (Kural 1025) Society (Kural 446)- The Law of Life (Kural 952)- Brotherhood (Kural 807) Five responsibilities / duties of Man (a) to himself (b) to his family (c) to his environment (d) to his society- (e) to the Universe in his lives (Kural 43- 981).

UNIT-II – HUMAN VALUES AND CITIZENSHIP

Aim of education and value education: Evolution of value oriented education- Concept of Human values: types of Values- Character Formation – Components of Value education A P J Kalam's ten points for enlightened citizenship- The role of media in value building.

UNIT-III VALUE EDUCATION TOWARDS NATIONAL AND GLOBAL DEVELOPMENT

Constitutional or national values: Democracy- socialism- secularism- equality- Justice- liberty- freedom and fraternity - Social Values: Pity and probity- self-control- universal brotherhood - Professional Values - Knowledge thirst- sincerity in profession- regularity- punctuality and faith -Religious Values: Tolerance- wisdom- character - Aesthetic Values- Love and appreciation of literature and fine arts and respect for the same- National Integration and International Understanding.

UNIT IV : YOGA AND HEALTH

Definition- Meaning- Scope of Yoga - Aims and objectives of Yoga - Yoga Education with modern context - Different traditions and schools of Yoga - Yoga practices: Asanas- Pranayama and Meditation.

UNIT V : HUMAN RIGHTS

Concept of Human Rights: Indian and international perspectives- Evolution of Human Rights- definitions under Indian and International documents -Broad classification of Human Rights and Relevant Constitutional Provisions: Right to Life- liberty ad Dignity- Right to equality- Right against exploitation- Cultural and Educational Right- Economic Rights- Political Rights- Social Rights - Human Rights of Women and Children – Peace and harmony.

COURSE OUTCOMES

The student will be able to

1. Apply the values in thirukural to be peaceful- dutiful and responsible in family and society
2. Develop character formation and sense of citizenship
3. Be secular- self-control- sincere- respectful and moral.
4. Master yoga- asana and meditation to promote mental health
5. Be attitudinal to follow the constitutional rights

REFERENCE BOOK(S)

1. Thirukkural with English Translation of Rev. Dr. G.U. Pope- Uma Publication- 156- Serfoji Nagar- Medical College Road- Thanjavur 613 004.
2. □□□□□□□□□□□□□-□□.□□. □□□□ □□□□□□□ □□□□□□□□□□□□□□□□□□□- □□□ □□□□- □□□□□□□□□□□□□□-□□□□□□□□□□
3. Leah Levin- Human Rights- NBT- 1998
4. V.R. Krishna Iyer- Dialetics and Dynamics of Human Rights in India- Tagore Law Lectures.
5. Yogic Thearpy - Swami Kuvalayananda and Dr.S.L.Vinekar- Government of India- Ministry of Health- New Delhi.
6. SOUND HEALTH THROUGH YOGA - Dr.K.Chandrasekaran- Prem Publications- Sedaptti- 1999. 7. Grose. D. N – "A text book of Value Education' New Delhi (2005)
7. Gawande . EN – "Value Oriented Education" – Vision for better living. New Delhi (2002) Saruptsons 9. Brain Trust Aliyar- "Value Education for Health- Happiness and Harmony" Erode (2004) Vethathiri publications

SENGAMALA THAYAAR EDUCATIONAL TRUST WOMEN'S COLLEGE

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SUNDARAKKOTTAI, MANNARGUDI – 614016

(For the candidate admitted from the academic year 2024-2025)

DEPARTMENT OF NUTRITION AND DIETETICS

B.Sc., NUTRITION AND DIETETICS

Semester: VI - PCC: Competitive Examinations for Home Science

Ins. Hrs. /Week: 2 **Course Credit: 2** **Course Code: U24PCND61**

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UNIT-I:Textiles **(06 Hours)**

Textile terminologies- fibre, yarn, weave, fabric, classification of fibres, yarns and weaves, Identification of fibres and weaves. Manufacturing process of major natural and man made fibres, properties and their end. Different methods of fabric construction-woven, knitted and non-woven fabrics, their properties. Textile finishes-classification, processing and purposes of finishes.Testing and identification of fibres and fabrics. .

UNIT-II: Apparel Designing **(07 Hours)**

Body measurements-procedure, needs, figure types and anthropometry, Equipment and tools used for manufacturing garments-advancements and attachments used for sewing. Types of machines and parts. Elements and principles of design and its application to apparel. Illustrations and parts of Garments. Fashion-Terminologies, fashion cycle, fashion theories, fashion adoption, fashion forecasting and factors affecting fashion. Pattern making-drafting, draping and flat pattern-making techniques, pattern alteration and dart manipulation techniques..

UNIT-III: Family Studies **(05 Hours)**

Dynamics of marriage and family relationships. Family welfare approaches, programmes and challenges, role in national Development. Domestic violence, marital disharmony, conflict, resolution of conflicts. Parent education, positive parenting, community education. Family disorganization, single parent families. Family life cycle and stages of family development.

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UNIT-IV: Child/Human Development **(06 Hours)**

Principles of growth and development, care during pregnancy, prenatal and neonatal development. Theories of human development and behaviour. Developmental milestones across different age stages. Early childhood care and education – activities to promote holistic development.Influence of family, peers, school, community and culture on personality development.

UNIT -V: **Extension Management and Community Development** **(06 Hours)**

Historical perspectives of extension–genesis of extension education and extension systems in India and other countries, objectives of extension education and extension service, philosophy and principles of extension programme development. Programme Management- need assessment, situation analysis, planning, organization, implementation, monitoring and evaluation. Extension methods and materials-interpersonal, small and large group methods, audiovisual aids-need, importance.

Total Lecture Hours-30

COURSE OUTCOME:

The students should be able to,

1. Acquire knowledge about different types of fabric and manufacturing process.
2. Analyze the apparel design and manufacturing
3. Develop a theoretical understanding of families and children.
4. Understand the physical, psychological, and social development of the individual from infancy to old age.
5. Understand the extension systems in India and community development.

TEXT BOOK(S):

1. Adivi Reddy 2021. Extension Education. Sree Lakshmi Press, Andhra Pradesh.
2. Ajit K. Singh 2021. Family and Child Welfare. Centrum Press, New Delhi. ISBN-13: 978-9381293706.
3. Bernard P. Corbman 2022. Textiles: Fiber to Fabric. Revised Edition, McGraw Hill Education, New Delhi.
4. Elizabeth B. Hurlock 2022. Child Development. McGraw Hill Education, New York.
5. Krathwohl, D.R. 2002. A Revision of Bloom's Taxonomy: An Overview. Theory into Practice, Vol. 41(4), Ohio State University.

REFERENCE BOOK(S)

1. Dahama O.P and Bhatnagar O.P. 2022. Education and Communication for Development. Oxford & IBH Publishing Co., New Delhi.
2. Hari Mohan Mathur 2021. Family Welfare Programmes in India. Vikas Publishing House, New Delhi.
3. Gohl E.P. and. Vilensky L.D 2021. Textile Science. CBS Publishers & Distributors, New Delhi.
4. Karen McCurdy and Elizabeth Jones 2020. Supporting Families: Lessons from the Field. Sage Publications, USA
5. Sharma B.K 2022. Extension Education and Rural Development. CBS Publishers, New Delhi.

E- RESOURCES

1. https://egyankosh.ac.in/bitstream/123456789/92818/1/Block-2.pdf
2. https://egyankosh.ac.in/bitstream/123456789/42204/1/Unit-1.pdf\
3. https://en.wikipedia.org/wiki/Family_studies
4. https://en.wikipedia.org/wiki/Child_development
5. https://egyankosh.ac.in/bitstream/123456789/62177/1/Unit-1.pdf
6. https://textilelearner.net/classification-of-textile-fibers/

MAPPING WITH PROGRAMME OUTCOMES AND PROGRAMME SPECIFIC OUTCOMES

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CO3	3	3	3	3	3	2	2	2	1	2	3	3	3	3	2
CO4	3	3	3	3	3	2	2	2	2	2	3	3	3	3	3
CO5	3	3	3	3	3	3	2	2	2	3	3	3	3	3	3

S-Strong(3) **M-Medium(2)** **L-Low(1)**

SENGAMALA THAYAAR EDUCATIONAL TRUST WOMEN'S COLLEGE

(AUTONOMOUS)

SUNDARAKKOTTAI, MANNARGUDI – 614016

(For the candidate admitted from the academic year 2024-2025)

DEPARTMENT OF NUTRITION AND DIETETICS

B.Sc., NUTRITION AND DIETETICS

Semester: VI – Gender Studies

Ins. Hrs. /Week: 1 **Course Credit: 1** **Course Code: 24UGGS**

OBJECTIVES:

1. To make students to aware of Gender constructions and gendering Process
2. To explore existing gender biases in the society and to understand the need to work towards the inclusive society
3. To inculcate sensitivity and build gender perspectives.
4. To use the course to bring attitudinal cum behavioral changes towards gender neutral ambience and promote the humanistic values

UNIT- I INTRODUCTION TO GENDER STUDIES CONCEPTS

Gender Spectrum.-Sex – Gender distinction – Biological Determinism – Patriarchy – Feminism –Gender Socialization and Stereotyping-Gender Discrimination – Gender Division of labour and roles– Gender Sensitivity and awareness – Gender Equity – Equality – Gender Main streaming and Gender Analysis.

UNIT- II UGC INITIATIVES ON WOMEN'S STUDIES

Definition of Women's Studies –Gender Studies –UGC Initiatives and guidelines on Women's Studies - Beijing Conference- UN Initiatives – Convention on Elimination of All forms of Discrimination Against Women (CEDAW)- Sustainable Development Goals on Gender Equality (SDG 5) and targets.

UNIT- III AREAS OF GENDER DISCRIMINATION

Gender Socialization- Sex Ratio– Health and Nutrition– – Literacy and Education Employment- Governance – participation in decision making- politics- property rights and access to credit- gender based violence- Social institutions –Family- Caste- Class- religion- gender- State. Market – Media – Politics – Judiciary.

UNIT -IV WOMEN DEVELOPMENT AND GENDER EMPOWERMENT

Towards Equality Report of Status of Women in India 1974 – International Women's Decade – International Women's Year – National Policy for Empowerment of Women 2001.

UNIT -V WOMEN'S MOVEMENTS AND SAFEGUARDING MECHANISM

In India National /State Commission for Women(NCW) – All Women Police Station – Family Court Legislations safeguarding women –Transgender Policy—Constitutional amendments for women's political participation.

UNIT - VI CURRENT CONTOURS: (for continuous internal assessment only)

Tamil Nadu State Policy for Women 2021- National Policy for Women 2015 – Prevention of Sexual Harassment at Work places Act 2013- Protection of Children from Sexual Offences Act- 2012 - Analysis of regressive and progressive High court and supreme court judgments- women proactive policies- programmes- interventions

COURSE OUTCOMES

1. Students would have gained a perspective and understood the social reality of gender society understood the differences of gender and sex and may resort to building alternative perspectives and critical thinking.
2. Gained knowledge on the various social institutions governing gender and the intersectionality.
3. Exposed to the kind of initiatives of the State towards gender equality

REFERENCE BOOK(S)

1. Bhasin Kamala- Understanding Gender : Gender Basics - New Delhi : Women Unlimited - 2004
2. Bhasin Kamala- Exploring Masculinity: Gender Basics - New Delhi: Women Unlimited -2004
3. Bhasin Kamala - What is Patriarchy? : Gender Basics- New Delhi :Women Unlimited -1993
4. Arya Sadhna Women -Gender Equality and the State -New Delhi :Deep &Deep Publication -2000
5.“□□□□□ □□□□□□□□ □□□□□□□□ □□□□□□□□□- □□□□□: □□□□□″
6. Mishra .O.P-Law Relating to Women &Child -Allahabad :Central Law Agency -2001
7. Uma Chakravarti- Gendering Caste Through a Feminist Lens- Sage Publication 2003.
8. Bhattacharya Malini - Sexual Violence and Law -Kolkata; West Bengala Commission for Women -2002
9. Sexual Harassment at the Workplace – A Guide - New Delhi ;Sakshi-1999
10.□□□□□□□□ □□□□□□□□□□□□□□□□□□ □□□□□□□□□□□□ □□□□□□□- 2005- □□□□□ : □□□□□ 2005″
11. https://www.schooloflegaleducation.com/women-and-law-in-india-e-book/