

M.Sc., FOOD SERVICE MANAGEMENT AND DIETETICS

Course Structure with Syllabus

PROGRAMME CODE :2PSFSM

2026-2027



**SENGAMALA THAYAAR EDUCATIONAL TRUST
WOMEN'S COLLEGE (AUTONOMOUS)**

(Affiliated to Bharathidasan University, Tiruchirappalli)
(Accredited by NAAC)

**Sundarakkottai, Mannargudi-614016,
Thiruvarur(Dt.),Tamil Nadu, India.**



SENGAMALA THAYAAR EDUCATIONAL TRUST WOMEN'S COLLEGE (AUTONOMOUS)

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**SUNDARAKKOTTAI, MANNARGUDI-614016.
TAMILNADU, INDIA.**

M.Sc., FOOD SERVICE MANAGEMENT AND DIETETICS CHOICE BASED CREDIT SYSTEM - LEARNING OUTCOME BASED CURRICULUM FRAMEWORK (CBCS-LOCF) (For the candidates admitted in the academic year 2026-2027)

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 within 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 Centric Elective Courses (DCEC): Elective course may be offered by the main discipline/subject of study is referred to as Discipline Centric Elective (DSEC). 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 Course (NMEC): A student shall choose at least two Non-major Elective Courses (NMEC) from outside his/her department.

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 of the 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.

EXAMINATION

Continuous Internal Assessment (CIA):

PG - Distribution of CIA Marks

Passing Minimum: 50 %

Assignments – 3 = 30%

Tests- 2 = 50%

Seminar = 10 %

Attendance = 10 %

Question Paper Pattern

Part A: includes two subsections

Part A 1 (10X1=10 marks)

One word question/ Fill in/ True or False/ Multiple Choice Questions
Two 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: (5X4=20 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	20			30		70
Continuous Internal Assessment (CIA)	20	20			30		70

QUESTION PATTERN FOR END SEMESTER EXAMINATION/ Continuous Internal Assessment

PART	MARKS
PART –A I. (No choice, One Mark) TWO questions from each unit (10x1=10)	20
II. (No choice, Two Mark) ONE question from each unit (5x2=10)	
PART – B (Either / or type,5-Marks) ONE question from each unit (5x4=20)	20
PART –C (3 out of 5) (10Marks) ONE question from each unit (3x10=30)	30
Total	70

BLUEPRINT OF QUESTION PAPER FOR END SEMESTER EXAMINATION

DURATION: 3.00 Hours.					Max Mark :75		
K-LEVELS	K1	K2	K3	K4	K5	K6	Total Marks
PART							
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) (5x4=20)		4	8	8			20
PART –C (10 Marks) (3 out of 5) (3x10=30)					20	10	30
Courses having only K5,K6 levels, K5 level- 3 Questions, K6 level- 2 Questions (One K6 level question is compulsory)							
Total	20	04	08	08	20	10	70

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 with in 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:

$GPA = \frac{\sum_{i=1}^n C_i G_i}{\sum_{i=1}^n C_i}$	$WAM(\text{Weighted Average Marks}) = \frac{\sum_{i=1}^n C_i M_i}{\sum_{i=1}^n C_i}$
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:

- i. The classification of final results shall be based on the CGPA, as indicated in Table-2.
- ii. For the purpose of Classification of Final Results, the candidates who earn the CGPA 9.00 and above shall be declared to have qualified for the Degree as ‘Outstanding’. Similarly the candidates who earn the CGPA between 8.00 and 8.99, 7.00 and 7.99, 6.00 and 6.99 and 5.00 and 5.99 shall be declared to have qualified for their Degree in the respective programmes as ‘Excellent’, ‘Very Good’, ‘Good’, and ‘Above Average’ respectively.
- iii. Absence from an examination shall not be taken an attempt.

Table- 1: Grading of the Courses

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
Below 50	NA	RA

NA- Not Applicable, RA- Reappearance

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

Table-2: 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

*The candidates who have passed in the first appearance and within the prescribed duration of the PG 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 rural women 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 Conscientize the students on food,nutrition and diet and to develop entrepreneurial skills for self-employment

PROGRAMME OUTCOMES FOR M.Sc.,DEGREE PROGRAMMES

PO.No	Programme Outcomes (Upon completion of the M.Sc.,Degree Programme, the Post graduate will be able to)
PO-1	Disciplinary Knowledge: Demonstrate in-depth knowledge and understanding of theories, policies, and practices in one or more disciplines that form a part of a PostGraduate program of study in Master of Science.
PO-2	Critical Thinking and Problem Solving: Apply analytic thought to a body of knowledge, analyse and evaluate evidence, arguments, claims, beliefs on the basis of empirical evidence, identify relevant assumptions or implications, formulate coherent arguments, critically evaluate practices, policies and theories by following scientific approach to knowledge development: solve problems and extrapolate the same to real life situation
PO-3	Information/digital literacy and Communication Skills: Use ICT in a variety of learning situations, demonstrate ability to access, evaluate, and use a variety of relevant information sources, and use appropriate software for analysis of data: communicate thoughts and ideas analytically and effectively in writing and orally using appropriate media, and present complex information in a clear and concise manner to different groups.
PO-4	Research-related skills: Conduct independent inquiry in a chosen scientific discipline, demonstrate sense of inquiry and capability for asking relevant/appropriate questions, problematising, synthesizing and articulating; recognize cause-and-effect relationships, define problems, formulate hypotheses, test hypotheses, analyse, interpret and draw conclusions from data, establish hypotheses, predict cause-and-effect relationships; plan, execute and report the results of an experiment or investigation.
PO-5	Scientific reasoning and Reflective Thinking: Analyse, interpret and draw conclusions from quantitative/qualitative data and critically evaluate ideas, evidence and experiences from an open-minded and reasoned perspective; critically and sensibly evaluate life experiences, with self awareness and reflexivity of both self and society.
PO-6	Multidisciplinary Approach, Innovation and Entrepreneurship: Propose novel ideas of interdisciplinary approach in providing better solutions and new ideas for the sustainable developments; identify opportunities, entrepreneurship vision and use of innovative ideas to create value and wealth for the betterment of the individual and society.
PO-7	Moral and ethical awareness/reasoning: 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, demonstrate the ability to identify ethical issues related to one's work, avoid unethical behavior such as fabrication, falsification or misrepresentation of data or committing plagiarism, not adhering to intellectual property rights, appreciate environmental and sustainability issues, and adopt objective, unbiased and truthful actions in all aspects of work.
PO-8	Self directed Learning: Work independently, identify appropriate resources required for a project, and manage a project till completion.
PO-9	Lifelong Learning: Engage in continuous learning for professional growth and development, acquire knowledge and skills, adapt to changing environment and to changing trades and demands of work place through knowledge/skill development/reskilling.
PO-10	Multicultural Competence, Social Interaction and Effective Citizenship: 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, and demonstrate empathetic social concern and equity centered national development.

PROGRAMME SPECIFIC OUTCOME (PSO)

PSO No.	Program Specific Outcomes (M.Sc., Food service Management 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, problem solving, 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 the dynamic 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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TAMILNADU, INDIA.

M.Sc. FOOD SERVICE MANAGEMENT AND DIETETICS

CHOICE BASED CREDIT SYSTEM-LEARNING OUTCOMES BASED CURRICULUM FRAMEWORK (CBCS - LOCF)

(Applicable to the candidates admitted from the academic year 2026-2027)

ELIGIBILITY: Those who have completed UG Degree in Home Science, Nutrition and Dietetics, Food and Nutrition, Food Science and Nutrition, and other related disciplines in Home Science viz, Clinical Nutrition and Dietetics, Food Service Management and Dietetics, with not less than 50% marks in aggregate for Part III from a recognized University rule.

Sem.	Course	Course Code	Course Title	Ins. Hrs.	Credit	Exam Hrs.	Marks		Total
							Int.	Ext.	
I	Core Course - I (CC - I)	P26ND101	Advanced Food Science	6	4	3	30	70	100
	Core Course - II (CC - II)	P26ND102	Applied Human Physiology	6	4	3	30	70	100
	Core Practical -I (CP - I)	P26ND103P	Advanced Food Science Practical	6	4	3	40	60	100
	Discipline Centric Elective Course - I (DCEC-I)	P26NDDE11A	Clinical Biochemistry	5	4	3	30	70	100
		P26NDDE11B	Nutritional Biochemistry						
		P26NDDE11C	Techniques of Food Analysis						
	Generic Elective Course – I (GEC - I)	P26NDGE11A	Front Office and House Keeping Management	5	3	3	30	70	100
		P26NDGE11B	Food Service Facilities						
		P26NDGE11C	Resource Management and Interior Design						
	Skill Enhancement Course - I (SEC - I)	P26SEND11	Sports Nutrition	2	2	3	30	70	100
Value Added Course – I (VAC - I)*	P26NDVA11	AI in Healthcare	-	2*	-	30	70	100*	
			Total	30	21	-	-	-	600
II	Core Course - III (CC - III)	P26ND204	Advanced Dietetics	6	4	3	30	70	100
	Core Course - IV (CC - IV)	P26ND205	Public Health Nutrition	6	4	3	30	70	100
	Core Practical - II (CP - II)	P26ND206P	Advanced Dietetics Practical	6	4	3	40	60	100
	Discipline Centric Elective Course - II (DCEC - II)	P26NDDE22A	Food Safety and Quality Control	4	4	3	30	70	100
		P26NDDE22B	Food Packaging						
		P26NDDE22C	Functional Foods and Nutraceuticals						
	Generic Elective Course – II (GEC - II)	P26NDGE22A	Applied Food Microbiology	4	3	3	30	70	100
		P26NDGE22B	Food Laws and Labelling						
P26NDGE22C		Food Biotechnology and Nutrigenomics							

Sem	Course	Course Code	Course Title	Ins. Hrs.	Credit	Exam Hrs.	Marks		Total
							Int.	Ext.	
	Skill Enhancement Course – II (SEC -II)	P26SEND22	Bakery Science	2	2	3	30	70	100
	Non-Major Elective Course - I (NMEC-I)			2	2	3	30	70	100
Total				30	23	-	-	-	700
Summer Internship / Industrial Activity during the Summer Vacation after 1st Year									
III	Core Course - V (CC - V)		Quantity Food Production	6	4	3	30	70	100
	Core Course - VI (CC - VI)		Management and Accounting in Hospital Industry	6	4	3	30	70	100
	Core Practical - III (CP - III)		Quantity Food Production Practical	6	4	3	40	60	100
	Discipline Centric Elective Course - III (DCEC - III)		Research Methodology and Statistics	5	4	3	30	70	100
			Waste Management in Food Industries						
			Dietary Guidance and Counselling						
	Generic Elective Course –III (GEC - III)		Sensory Evaluation	5	3	3	30	70	100
			Food Adulteration						
			Computer Application in Research						
	Non-Major Elective Course -II (NMEC - II)			2	2	3	30	70	100
	Internship / Industrial Activity @			-	2	-	20	80	100
	Value Added Course-II (VAC-II) *		Advances in Data Science Using Python and R Programming	-	2*	-	30	70	100*
Total				30	23	-	-	-	700
IV	Core Course - VII (CC - VII)		Advanced Food Service Management	6	4	3	30	70	100
	Core Course - VIII (CC - VIII)		Food Product Development	6	4	3	30	70	100
	Core Practical –IV (CP - IV)		Food Product Development Practical	6	4	3	30	70	100
	Discipline Centric Elective Course - IV (DCEC - IV)		Competitive Examination in Home Science	4	4	3	30	70	100
			Advanced Nutritional Management in Palliative Care						
			Nutrition in Emergency and Disaster Management						
	Entrepreneurship / Industry Based Course		Food Processing and Preservation	3	3	3	30	70	100
	Project Work @			5	5	-	20	80	100
	Extra credit course Other than VAC**		MOOC-NPTEL /SWAYAM*	-	2**	-	-	-	-
			Total	30	24	-	-	-	600
Grand Total					91				2600

LIST OF DISCIPLINE CENTRIC ELECTIVE COURSE

Discipline Centric Elective Course - I (DCEC - I)	
1.	Clinical Biochemistry
2.	Nutritional Biochemistry
3.	Techniques of Food Analysis
Discipline Centric Elective Course – II (DCEC - II)	
1.	Food Safety and Quality Control
2.	Food Packaging
3.	Functional Foods and Nutraceuticals
Discipline Centric Elective Course - III (DCEC - III)	
1.	Research Methodology and Statistics
2.	Waste Management in Food Industries
3.	Dietary Guidance and Counselling
Discipline Centric Elective Course - IV (DCEC - IV)	
1.	Competitive Examination in Home Science
2.	Advanced Nutritional Management in Palliative Care
3.	Nutrition in Emergency and Disaster Management

LIST OF GENERIC ELECTIVE COURSE (GEC)

GENERIC ELECTIVE COURSE - I (GEC - I)	
1.	Front Office and House Keeping Management
2.	Food Service Facilities
3.	Resource Management and Interior Design
GENERIC ELECTIVE COURSE - II (GEC - II)	
1.	Applied Food Microbiology
2.	Food Laws and Labelling
3.	Food Biotechnology and Nutrigenomics
GENERIC ELECTIVE COURSE - III (GEC - III)	
1.	Sensory Evaluation
2.	Food Adulteration
3.	Computer Application in Research

NON MAJOR ELECTIVE COURSE (NMEC)			
S.No	Semester	Course Code	Title of the Course
1.	II	P26NMEND21	Health and Weight Management
2.	III		Maternal Nutrition

SUMMARY OF CURRICULUM STRUCTURE OF PG PROGRAMMES: SCIENCE

Sl. No.	Types of the Course	No. of Courses	Credits for each Course	Total Credits	Marks
1.	Core Course (CC)	8	4	32	800
2.	Core Practical (CP)	4	4	16	400
3.	Discipline Centric Elective Course (DCEC)	4	4	16	400
4.	Generic Elective Course (GEC)	3	3	9	300
5.	Skill Enhancement Course (SEC)	2	2	4	200
6.	Non-Major Elective Courses (NMEC)	2	2	4	200
7.	Internship / Industrial Activity @	1	2	2	100
8.	Entrepreneurship / Industry Based Course	1	3	3	100
9.	Project Work @	1	5	5	100
Total		26	-	91	2600
Value Added Courses *		2*	2	4*	200

*	The value added courses credit will not be included in the total CGPA. These courses are extra-credit courses. Instruction hours for these courses is 30 hours								
@	Summer Internship will be carried out during the summer vacation after the First year. Viva Voce will be conducted by the college and Marks shall be sent to the University and the same will be included in the 3rd semester Mark Statement. Summer Internship / Industrial Activity & Project Scheme of Evaluation: <table border="1" style="width: 100%;"> <tr> <th>Description</th><th>Marks</th></tr> <tr> <td>Report</td><td>80</td></tr> <tr> <td>Viva</td><td>20</td></tr> <tr> <td>Total</td><td>100</td></tr> </table>	Description	Marks	Report	80	Viva	20	Total	100
Description	Marks								
Report	80								
Viva	20								
Total	100								

SEMESTER-I

SENGAMALA THAYAAR EDUCATIONAL TRUST WOMEN'S COLLEGE (AUTONOMOUS)



SUNDARAKKOTTAI, MANNARGUDI – 614016

(For the candidates admitted in the academic year 2026–2027)

DEPARTMENT OF NUTRITION AND DIETETICS M.Sc., FOOD SERVICE MANAGEMENT AND DIETETICS

Semester –I- CC – I: Advanced Food Science

Ins. Hrs. /Week: 6

Course Credit: 4

Course Code: P26ND101

COURSE OBJECTIVES:

- To understand the composition and functional properties of food constituents.
- To study the physicochemical changes during food processing and storage.
- To learn the role of carbohydrates, proteins, fats, pigments and flavours in foods.
- To analyse the importance of enzymes, colloids and rheology in food systems.
- To understand the recent advances and applications in food science and technology.

UNIT-I: Food Constituents

(20 Hours)

Constituents of Foods: Structure and properties of water, Types of water, Water solution interactions, Phase transition of foods containing water, heat transfer during processing, relationship between viscosity and temperature, Water activity and food spoilage, Food dispersion: Colloidal system and rheology of food dispersions, Structure, formation and stability of gels, sols, emulsion and foams.

UNIT-II : Carbohydrate and Sugars

(20 Hours)

Starch and Polysaccharides: Structure and composition of starch, Properties and characteristics of food starches, Effect of heat on food starch properties and the factors influencing gelatinization and dextrinization, Modified food starches.

Structure, composition and characteristics of non-starch polysaccharides- cellulose, hemicelluloses, pectin and gums, Role of starch and non-starch polysaccharides in food and industrial applications.

Properties of sugars and sweeteners: Sugars, syrups, sugar alcohols, potent sweeteners, sugar products, Role of sweeteners in food products.

UNIT-III : Proteins and Enzymes

(16 Hours)

Proteins and Enzymes: Amino acid - types and properties, Structure and composition of proteins, Classification and properties of proteins, Effect of heat on physio-chemical properties of proteins, Role of proteins in food products, Texturized vegetable protein.

Enzymes: Classification, Mechanism of action, Factors influencing enzyme activity, Role of enzymes in food products, Immobilized enzymes and its application in food industries.

UNIT- IV: Fats and Oil

(15 Hours)

Structure and composition of fat, properties of fat, Method of oil extraction, oil composition and the properties, Refining of oil and winterization, Methods to determine the quality of fats and oil, Effect of processing on physio-chemical properties of fat/oil; Sources of fat and its shelf life, Quality changes in fat and oil during storage and prevention of fat spoilage, Role of fats and oil in food products, fat substitutes.

UNIT- V: Pigments and Flavour

(19 Hours)

Pigments: Classification, structure and properties, Effects of processing on stability of pigments in foods and the factors influencing stability of colours in foods, Role of food colours in food products.

Flavours: Taste and nonspecific vaporous sensations, Flavour compounds in vegetables, fruits and spices, Flavours produced from fermentation and volatiles on foods, Effect of processing on food flavours, Role of flavours in food products.

UNIT- VI : Current Contours (For Continuous Internal Assessment Only)

Recent updates in Food Science- Review from Journals. Preparation of natural food colours.

Total Lecture Hours-90

COURSE OUTCOMES:

The students should be able to,

1. Explain the structure, properties and functions of food constituents and dispersions.
2. Explain the physicochemical properties of carbohydrates and evaluate their applications in food systems.
3. Evaluate the functional role of proteins and enzymes in food processing.
4. Explain the composition, processing and quality evaluation of fats and oils.
5. Understand the properties, stability, and role of pigments and flavours in foods.
6. Analyse the recent developments and innovations in food science and natural food colours.

TEXT BOOK(S):

1. Figura, L. O., & Teixeira, A. A., 2023, Food physics: Physical properties – Measurement and applications (2nd ed.). Springer International Publishing. ISBN: 9783031273971.
2. Grover, M., 2023, Textbook of food and nutrition. Lotus Press. ISBN: 9788183823401.
3. Madhu, D. (Ed.), 2023, Textbook of food processing and preservation (Vol. 2). Integrated Publications. ISBN: 9789358346206.
4. McGuire, M., & Beerman, K. A., 2023, Nutritional sciences: From fundamentals to food (4th ed.). Cengage Learning. ISBN: 9780357730539.
5. Sharma, A., 2023, Textbook of food science and technology (3rd ed.). CBS Publishers & Distributors. ISBN: 9789386478009.

REFERENCE BOOK(S):

1. Damodaran, S., Parkin, K. L., & Fennema, O. R., 2024, *Fennema's Food Chemistry* (6th ed.). CRC Press. ISBN: 9781032476919.
2. Desrosier NW, and James N. 2007. Technology of food preservation. AVI Publishers.
3. Gopalan C. Ramasastry S.V. and Balasubramaniam SC. 2008. Nutritive Value of Indian Foods, National Institute of Nutrition, Hyderabad.
4. Provost, J.J., Colabroy, K.L., Kelly, B.S., Corrigan Steffey, A.L. & Wallert, M.A., 2025, *The Science of Cooking: Understanding the Biology and Chemistry Behind Food and Cooking*, Wiley.
5. Vaclavik, V. A., & Christian, E. W., 2025, *Essentials of Food Science* (5th ed.). Springer Nature. ISBN: 9783031583445.

E-RESOURCES

1. http://crystal.med.upenn.edu/sharp-lab-pdfs/sharp_EncLifeSci.pdf
2. <https://www.biotechnologynotes.com/food-biotechnology/food-chemistry/colloidal-systems-in-food-functions-types-and-stability-food-chemistry/14096>
3. <https://www.slideshare.net/NimishaK4/polysaccharides-in-foods>
4. www.ifst.org
5. www.fao.org

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

S-Strong(3)

M-Medium(2)

L-Low(1)

SENGAMALA THAYAR EDUCATIONAL TRUST WOMEN'S COLLEGE (AUTONOMOUS)



SUNDARAKKOTTAI, MANNARGUDI – 614016

(For the candidates admitted in the academic year 2026–2027)

DEPARTMENT OF NUTRITION AND DIETETICS

M.Sc., FOOD SERVICE MANAGEMENT AND DIETETICS

Semester: I- CC-II: Applied Human Physiology

Ins. Hrs. /Week: 6

Course Credit: 4

Course Code: P26ND102

COURSE OBJECTIVES:

- To understand the structure and functions of human cells, tissues and organ systems.
- To study the physiological mechanisms involved in circulation, digestion, respiration and excretion.
- To learn the functions and regulation of endocrine and reproductive systems.
- To analyse the role of nervous, musculo-skeletal and sensory systems in maintaining body functions.
- To apply the knowledge of human physiology in health, nutrition and disease management.

Unit- I: Cell and Immunology

(18 Hours)

Cell Structure and Function - Levels of cellular organization and Function- Organelles, tissues, organs and systems- Cell membrane, transport across cell, membrane and intercellular communication, Regulation of cell multiplication.

Immunology: Classification, cell mediated and humoral immunity, Activation of WBC and production of antibodies, Role in inflammation and defense.

Unit –II: Circulatory and Digestive system

(18 Hours)

Circulatory system: Structure and functions of heart, Properties of cardiac muscle, cardiac cycle, Regulation of cardiac output and blood pressure, blood formation, composition, blood clotting and plasma protein.

Digestive system: Structure and functions of gastrointestinal tract and gastrointestinal secretions. Role of enzymes in digestion and role of prebiotics and probiotics in the maintenance of health of digestive system. Regulation of food intake –hunger, appetite and satiety. Liver: Structure and functions of liver.

Unit-III: Respiratory and Excretory system

(18 Hours)

Respiratory system: Structure and functions of lungs, physiology of respiration, and gaseous exchange (transport of oxygen and carbon-di-oxide). Regulation of respiration, pulmonary function tests, artificial respiration.

Excretory system -Structure and function of nephron - Urine formation; Excretion of concentrated and dilute urine; Role of kidney in maintaining pH of blood. Water, electrolyte and acid base balance – diuretics.

Unit –IV: Endocrine and Reproductive system

(18 Hours)

Endocrine: Anatomy and physiological functions of endocrine glands - hormones - mode of action – pituitary, adrenal, thyroid, parathyroid, sex glands and pancreas: hypo and hyper activity of the glands.

Reproduction -Structure, physiological functions of male and female reproductive organs,

menstrual and ovarian cycle, spermatogenesis, Parturition, Contraceptives, infertility and its recent developments.

Unit–V Musculo Skeletal, Nervous System and Special Sense (18 Hours)

The Musculo- Skeletal system- Structure and functions of bone, cartilage and connective tissue, Disorders of the skeletal system. Types of muscles, Structure and Functions.

Nervous system: Structure and functions of brain and spinal cord; structure and functions of neuron; conduction of nerve impulse, role of neuro transmitters; blood brain barriers, CSF, hypothalamus and its role in various body functions.

Special senses: Skin-structure and function. Ear, Eye, Nose and Tongue-structure and functions.

UNIT - VI Current Contours (For Continuous Internal Assessment Only)

Develop E content on structure and functions of any one organ system.

Total Lecture Hours - 90

COURSE OUTCOMES:

The students will be able to,

1. Explain the structure and functions of cells and the role of immunity in body defense mechanisms.
2. Understand the structure and physiological functions of the circulatory and digestive systems.
3. Describe the functions of the respiratory and excretory systems in maintaining body homeostasis.
4. Explain the functions of endocrine glands and reproductive systems in human physiology.
5. Understand the structure and functions of the musculo-skeletal, nervous and special sensory systems.
6. Develop digital learning content related to the structure and functions of an organ system.

TEXT BOOK(S)

1. Arumugam N.Mariakuttikan A.2016. Animal Physiology. Saras Publication. ISBN: 9789382459873,9382459871.Nagarcoil.
2. Chatterjee CC .2004. Human Physiology. Volume I, Medical Allied Agency, Kolkata
3. Chatterjee CC. 2004. Human Physiology. Volume II, Medical Allied Agency, Kolkata.
4. Sembulingam K. 2000. Essentials of Medical Physiology. Jaypee Brothers Medical Publishers (P) Ltd,New Delhi.
5. Subramanyam, Sarada . 2018. Textbook of Human Physiology. S.Chand and company Ltd,New Delhi.

REFERENCE BOOK(S)

1. Hall, J. E., 2026, Guyton and Hall Textbook of Medical Physiology (15th ed.). Elsevier. ISBN: 9780323875592.
2. Barrett, K. E., Barman, S. M., Brooks, H. L., & Yuan, J. X. J., 2023, Ganong's Review of Medical Physiology (27th ed.). McGraw-Hill Education. ISBN: 9781264268504.
3. Sherwood, L., 2024, Human Physiology: From Cells to Systems (10th ed.). Cengage Learning. ISBN: 9780357793695.
4. Silverthorn, D. U., 2024, Human Physiology: An Integrated Approach (9th ed.). Pearson Education. ISBN: 9780138160937.
5. Widmaier, E. P., Raff, H., & Strang, K. T., 2023, Vander's Human Physiology: The Mechanisms of Body Function (16th ed.). McGraw-Hill Education. ISBN: 9781264266074.

E - RESOURCES

1. <https://nptel.ac.in/content/storage2/courses/122103039/pdf/mod3.pdf>

2. <https://lba.ku.edu/sites/lba.drupal.ku.edu/files/docs/Courses/chapter%204d.pdf>
3. <https://globex.coe.pku.edu.cn/file/upload/201807/05/092547601064.pdf>
4. www.innerbody.com
5. www.innerbody.com/htm/body.html

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	1	2	3	1	1	2	2	1	3	1	2	2	2
CO2	3	3	1	2	3	1	1	2	2	1	3	1	2	2	2
CO3	3	3	1	2	3	1	1	2	2	1	3	1	2	2	2
CO4	3	3	1	2	3	1	1	2	2	1	3	1	2	2	2
CO5	3	3	2	3	3	2	2	3	3	2	3	2	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 2026–2027)

DEPARTMENT OF NUTRITION AND DIETETICS

M.Sc., FOOD SERVICE MANAGEMENT AND DIETETICS



Semester: I-CP –I: Advanced Food Science Practical

Ins. Hrs. /Week: 6

Course Credit: 4

Course Code: P26ND103P

COURSE OBJECTIVES:

- To understand the sensory evaluation methods.
- To analyse the cooking quality of foods.
- To understand the scientific principles involved in food preparation.

Course Content:

1. Starch- Microscopic examination, gelatinization of starch, preparation of idli, dosai, appam, Chappathi, paratha and poori. Starch as binding and coating agent.
2. Pulse – effect of soaking (time and types of water), germination, Factors affecting the cooking quality of pulses.
3. Effect of acid and alkali. Effect of heat on pigments in vegetables and fruits
4. Fats-Smoking temperature, factors affecting absorption. Deep fat fried foods, preparation of pastries and Salad dressings.
5. Meat, fish and poultry, Changes in cookery. Tenderness, different methods of cooking.
6. Coagulation of egg white and egg yolk. Boiled egg, poached egg, scrambled egg, custard, cake, emulsion, mayonnaise. Egg quality testing. Egg as binding and coating agent.
7. Principles involved in the preparation of tomato soup, cooking vegetables in milk, cheese setting of curds.
8. Sugar cookery, stages, preparation of fondant, fudge, caramel, pulled toffee and brittles.
9. Preparation of syrup for gulab jamoon, coconut burfi, brittle
10. Evaluating the quality-acceptability of foods, subjective and objective methods.

COURSE OUTCOMES:

1. Explain the principles and applications of starch, pulses, sugars, fats, eggs, and milk in food preparation.
2. Demonstrate the preparation of various cereal-, pulse-, egg-, and sugar-based food products using appropriate methods.
3. Analyze the effects of heat, acids, alkalis, soaking, and germination on the quality of foods.
4. Apply suitable cooking techniques for vegetables, meat, fish, and poultry to obtain desirable sensory qualities.
5. Evaluate the quality and acceptability of foods using subjective and objective assessment methods.

TEXT BOOK(S):

1. Nielson, S.S., 2017, Food Analysis laboratory manual, 3rd edition, springer.
2. Shakuntala Manay N. Shadaksharaswamy M. 2001. Food Facts and Principles. Second Edition, New Age International.
3. Srilakshmi B. 2005. Food Science. New Age International (P) Ltd, Publishers, New Delhi.
4. Swaminathan M. 2003. Advanced Textbook on Food and Nutrition. Second Edition, The Bangalore Printing and Publishing Co., Ltd, Bangalore.
5. Vachlavik, V. A., & Christian, E. W., 2025, *Essentials of Food Science* (5th ed.). Springer Nature. ISBN: 9783031583445.

REFERENCE BOOK(S)

1. Avantina Sharma 2006.Textbooks of Food. International book science and technology distributing Company.
2. Belitz, H.D., Grosch, W. & Schieberle, P., 2006, Food Chemistry, Springer.
3. Swaminathan, M., 2024, Food Science and Experimental Foods, Ganesh Publishers.
4. Vaclavik, V.A. & Christian, E.W., 2025, Essentials of Food Science, Springer.
5. Provost, J.J., Colabroy, K.L., Kelly, B.S., Corrigan Steffey, A.L. & Wallert, M.A.,2025, *The Science of Cooking: Understanding the Biology and Chemistry Behind Food and Cooking*, Wiley.

E-RESOURCES

1. <https://slideplayer.com/slide/4376430/>
2. https://www.slideshare.net/ANSHIKA_SAXENA/cooking-methods-for-different-meat-cuts-103521626
3. <https://uou.ac.in/sites/default/files/slm/BHM-201T.pdf>
4. www.fao.org
5. www.ifst.org

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	1	2	3	2	1	2	2	1	2	2	2	2	2
CO2	3	3	1	3	3	2	1	2	2	1	2	2	3	2	2
CO3	3	3	2	3	3	3	1	2	2	1	2	3	3	3	2
CO4	2	3	2	3	3	2	2	3	2	1	2	2	3	3	2
CO5	3	3	2	3	3	3	2	3	3	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 2026–2027)

DEPARTMENT OF NUTRITION AND DIETETICS

M.Sc., FOOD SERVICE MANAGEMENT AND DIETETICS

Semester: I- DCEC-I: Clinical Biochemistry

Ins. Hrs. /Week: 5

Course Credit: 4 Course Code: P26NDDE11A

COURSE OBJECTIVES:

- To understand the disorders of carbohydrate metabolism and diabetes mellitus.
- To learn the biochemical basis of protein, amino acid and fat metabolism disorders.
- To study the organ function tests and their clinical importance.
- To understand the hormonal disturbances and mineral metabolism disorders.
- To gain knowledge on haematological disorders and detoxification processes in the body.

UNIT- I: Disorders of carbohydrate metabolism (20 Hours)

Diabetes mellitus, glycosylated- haemoglobins and hypo-glycaemia, galactosemia and ketone bodies, types of glucose tolerance tests- Oral glucose tolerance, Intravenous glucose tolerance, cortisone stress glucose tolerance tests, multiple dose glucose tolerance tests Glycogen storage diseases- Glycogen storage diseases Type I -Von Gierke disease, Type II - Pompe's disease, acid maltase deficiency, Type III-Cori's disease, Type IV-Andersen's disease, Type V - McArdle's disease, VI GSD or Hers disease and Inborn errors of carbohydrate metabolism.

UNIT- II: Protein and Fat metabolism (15 Hours)

Disorders of amino acid metabolism- Phenylalanemia, homocystinuria, tyrosinemia, MSUD, phenyl ketonuria, alkaptonuria, albinism and aminoaciduria. Disorders of nucleic acid metabolism- Disorders in purine/ pyrimidine metabolism. Disorders of fat metabolism- Dyslipidemia, Atherosclerosis, Coronary Artery Disease, Disorders of Lipoproteins and Steatorrhea.

UNIT-III: Evaluation of organ function tests (15 Hours)

Assessment and clinical manifestations of renal, hepatic, pancreatic, gastric and intestinal functions. Clinical importance of bilirubin, Enzymes of pancreatic origin and biliary tract.

UNIT-IV: Hormonal disturbances (15 Hours)

Protein hormones (anterior pituitary hormones, posterior pituitary hormones), Steroid hormones, Adreno Cortico Steroids, and Reproductive Endocrinology. Disturbances in thyroid function. Disorders of mineral metabolism: Hypercalcemia, Hypocalcemia, Hypophosphataemia and Hyperphosphataemia.

UNIT-V: Biochemical aspects of Haematology (10 Hours)

Disorders of erythrocyte metabolism, Hemoglobinopathies, Thalassemia Thrombosis and Anaemias. Detoxification in the body: enzyme system and phases of detoxification, regulation of detoxification.

UNIT - VI Current Contours (For Continuous Internal Assessment Only)

Visit to a medical diagnostic centre. Browse for the recent technologies in clinical Biochemistry.

Total lecture Hours-75

COURSE OUTCOMES:

The students will be able to,

1. Explain disorders of carbohydrate metabolism and diagnostic tests related to glucose metabolism.
2. Understand disorders of protein, amino acid, nucleic acid and fat metabolism.
3. Interpret organ function tests and their clinical significance in disease diagnosis.
4. Describe hormonal disturbances and disorders of mineral metabolism.
5. Understand biochemical aspects of hematological disorders and detoxification mechanisms.
6. Analyze recent technologies and diagnostic applications in clinical biochemistry

TEXT BOOK(S)

1. Chatterjee MN and Rana Shinde, 2015. Textbook of Medical Biochemistry, Jaypee Brothers,
2. David A Bender and Shauna MC, Cunningham, 2021. Introduction to Nutrition and Metabolism.
3. David L. Nelson and Michael M. Cox, Menninger 2008. Principles of Biochemistry 5th Ed WH Freeman and Company.
4. Gerhard Meisenberg and William H. Simmons, 2018, Principles of Medical Biochemistry, Mosby Publisher.
5. Sharma DC. ,Nutritional Biochemistry, 2017, CBS Publishers and Distributors private limited,

REFERENCE BOOK(S)

1. Allan Gaw, Michael Murphy, Robert Cowan, Denis O'Reilly, Michael Stewart, and James Shepherd, 2008. Clinical Biochemistry. An Illustrated Colour Text, 3rd Edition, Publisher: Churchill Livingstone.
2. John W, Baynes and Marek Dominiczak 2010. Medical Biochemistry. Publisher: Mosby.
3. Murray, R.K., Bender, D.A. & Botham, K.M., Harper's, 2026, Illustrated Biochemistry — McGraw Hill.
4. Richard Luxton, 2008. Clinical Biochemistry. Scion Publishing Limited.
5. Robert K, Murray DarylK, Granner, Peter A, Mayes and Victor W, Rodwell 2012. Harper's Biochemistry. Publisher: Appelton and Lange.

E-RESOURCES

1. <https://www.biologydiscussion.com/biochemistry/carbohydrate-metabolism/glucose-tolerance-test-types-utility-and-procedure/43370>.
2. <https://www.slideshare.net/ErhardRutashobya/disorders-amino-acids>.
3. <https://www.sciencedirect.com/science/article/pii/S2213231715000907>.
4. www.merckmanuals.com
5. www.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
C01	3	3	1	2	3	1	1	2	2	1	3	1	2	2	2
C02	3	3	1	2	3	2	1	2	2	1	3	2	3	2	2
C03	3	3	2	3	3	2	2	2	2	1	3	2	3	3	2
C04	3	3	1	2	3	2	1	2	2	1	3	2	2	2	2
C05	3	3	2	3	3	3	2	3	3	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 2026–2027)

DEPARTMENT OF NUTRITION AND DIETETICS

M.Sc., FOOD SERVICE MANAGEMENT AND DIETETICS

Semester: I- DCEC-I: Nutritional Biochemistry

Ins. Hrs. /Week: 5

Course Credit: 4

Course Code: P26NDDE11B

COURSE OBJECTIVES:

- To understand the metabolism and regulation of carbohydrates, proteins, lipids and nucleic acids.
- To learn the principles of bioenergetics, biological oxidation and enzyme action in the human body.
- To study lipid metabolism, oxidative stress, antioxidants and disorders related to metabolism.
- To understand enzyme kinetics, cell signaling, membrane transport and detoxification mechanisms.
- To gain knowledge about the biological role of minerals and metabolism of xenobiotics.

UNIT I Carbohydrates

(15 Hours)

Aerobic and anaerobic degradation, glycogenesis, glycogenolysis, gluconeogenesis, HMP shunt pathway. Hormonal regulations of blood glucose. Bioenergetics – Principles of bioenergetics, free energy – endergonic and exergonic process, role of high energy compounds in energy storage, formation of ATP. Biological oxidation and electron transport chain - reduction potentials, anatomical site and components of oxidative phosphorylation, enzymes involved, membrane location of electron transport, chemiosmotic theory, inhibitors of respiratory chain.

UNIT II Protein and Amino Acids

(20 Hours)

Protein degradation, fate of nitrogen (urea cycle), plasma proteins – nature, properties and functions. Metabolism of aromatic, sulfur containing, branched chain amino acids and other amino acid pool. Synthesis of specialized products from amino acids: thyroxine, melanin, serotonin, histamine, melatonin, dopamine. Protein biosynthesis - Gene expression and regulation, transcription, translation, post-translational modification, inhibitors of protein biosynthesis, Gene expression in mitochondria, systems, biology including metabolomics and proteomics. Nucleic acids- metabolism of nucleic acid components, biosynthesis of nucleotides. Purine and pyrimidine metabolism. DNA replication; mutation, repair and recombination concepts.

UNIT III Lipids

(20 Hours)

Intestinal transport of lipids, cellular uptake and metabolism of lipids (betaoxidation, denovo synthesis of fatty acids, synthesis and breakdown of unsaturated fatty acids, cholesterol, phospholipids and triacylglycerol), lipoprotein metabolism, VLDL and LDL ('Forward' Cholesterol transport), VLDL and LDL (Endogenous TAG transport), HDL ('Reverse' Cholesterol transport). Regulation of lipid metabolism at substrate level, enzyme level, hormonal level and organ level, disorders of lipid metabolism, dyslipidemias. Oxidative stress and antioxidants – free radicals – definition, formation in biological systems, defense against free radicals. Role of free radicals and antioxidants in health and disease. Determination of free radicals, lipid peroxides and antioxidants, oxidative damage.

UNIT IV Enzymes

(10 Hours)

Membrane structure, composition and transport of metabolites across membranes; acid base balance and its regulation. Enzyme kinetics of monosubstrate and bisubstrate catalysed reactions (including inhibition); enzyme specificity, regulation of enzyme activity and synthesis, enzymes in clinical diagnosis, detoxification in the body-metabolism of xenobiotics (Phase I and Phase II enzymes). Cell Signalling: Overview of extracellular cell signalling, G protein couple receptors and their effectors, enzyme linked receptors and their effectors, ras

and rho family signalling; primary messenger and secondary messenger, MAP kinase signalling pathways.

UNIT V Minerals

(10 Hours)

Biological role of minerals -iron, iodine, copper, cobalt, molybdenum, zinc, calcium, phosphorus and selenium. Detoxification and xenobiotics– metabolism of foreign compounds.

UNIT VI Current Contours (For Continuous Internal Assessment Only):

1. Development of teaching modules, charts, PPTs' and mocks, 2. Case study

Total lecture Hours-75

COURSE OUTCOMES:

The students will be able to,

1. Explain carbohydrate metabolism, bioenergetics, and electron transport mechanisms.
2. Understand protein, amino acid, and nucleic acid metabolism and gene expression.
3. Describe lipid metabolism, lipoprotein transport, oxidative stress, and antioxidant defense systems.
4. Explain enzyme kinetics, membrane transport, detoxification, and cell signalling pathways.
5. Understand the biological role of minerals and metabolism of xenobiotics in the body.
6. Develop teaching modules and analyse biochemical case studies for applied learning.

TEXT BOOK(S):

1. Ambika Shanmugam, 2016, Fundamentals of biochemistry for medical students, 8th edition, Wolters Kluwer Health, India.
2. Nelson DL & Cox MM, 2021, *Lehninger Principles of Biochemistry* – W.H. Freeman.
3. Sulochana H, 2010. Principles of Biochemistry, PBS enterprises, Chennai.
4. Vasudevan DM, Sreekumari S, 2007, Textbook of Biochemistry, 5th edition, Jaypee Publishers, New Delhi.
5. VeeraKumari L, 2005, Biochemistry, 1st edition, MJP Publishers.

REFERENCE BOOK(S)

1. Devlin, T.M., 2025, Textbook of Biochemistry with Clinical Correlations, Wiley-Liss Publishers.
2. Murray, R.K., Bender, D.A. & Botham, K.M., 2026, *Harper's Illustrated Biochemistry*, McGraw Hill Publishers.
3. Rodwell V, Bender D, Botham KM, Kennelly PJ, Weil PA, 2015, Harper's Illustrated Biochemistry, 30th Edition, McGraw hill Education.
4. Rodwell, V.W., Bender, D.A. & Botham, K.M., 2025, Harper's Biochemistry Review, McGraw Hill Publishers.
5. Satyanarayana, U. & Chakrapani, U., 2025, Biochemistry, Elsevier Publishers.

E RESOURCES:

1. https://www.youtube.com/watch?v=YQV_ODVCzQQ
2. https://www.youtube.com/watch?v=ePZc-71PT_4
3. https://www.youtube.com/watch?v=ruPRVAQ_wrI
4. www.biochemistry.org
5. www.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
C01	3	3	1	2	3	1	1	2	2	1	3	1	2	2	2
C02	3	3	2	3	3	2	1	2	2	1	3	2	3	2	2
C03	3	3	2	3	3	2	2	2	2	1	3	2	3	3	2
C04	3	3	2	3	3	2	2	2	2	1	3	2	3	3	2
C05	3	3	3	3	3	3	2	3	3	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 2026–2027)

DEPARTMENT OF NUTRITION AND DIETETICS

M.Sc., FOOD SERVICE MANAGEMENT AND DIETETICS

Semester: I- DCEC-I: Techniques of Food Analysis

Ins. Hrs. /Week: 5

Course Credit: 4

Course Code: P26NDDE11C

COURSE OBJECTIVES:

- To understand the principles and applications of spectroscopic and analytical techniques in food analysis.
- To learn chromatographic methods for separation and identification of food components.
- To study fluorimetry, flame photometry, and electrophoresis techniques used in food systems.
- To gain knowledge about radioactive and advanced microscopic techniques for food analysis.
- To understand methods for analyzing physical, textural, and thermal properties of foods.

UNIT – I Spectroscopic Techniques

(15 Hours)

Need of analysis and instrumentation, selecting an appropriate instrumental technique, criteria for selecting a technique, Limit of Detection (LOD) and Limit of Quantification (LOQ), Colorimetry (SS), Spectrophotometry - definition and derivation of Lambert-Beer's Law, UV-VIS Spectrophotometer, Atomic-Absorption Spectroscopy (AAS), Inductively Coupled Plasma — Optical Emission Spectrophotometry (ICP- OES/MS).

UNIT – II Chromatographic Techniques

(20 Hours)

Basics and Classification of Chromatography- Adsorption, partition, size exclusion, ion exchange, affinity Gas Chromatography, Liquid Chromatography - Instrumentation, Sampling techniques and Applications, Applications of HPLC, Comparison of HPLC and GC (SS) Thin Layer Chromatography. High Performance Thin Layer Chromatography (HPTLC), Hyphenated Techniques - Gas Chromatography-Mass Spectrometry (GC-MS), Liquid Chromatography-Mass Spectrometry (LC-MS).

UNIT – III Fluorimetry, Flame Photometry and Electrophoresis Techniques

(15 Hours)

Theory of fluorescence (SS) and instrumentation, instrumentation in Flame photometry: oxidant, fuel, filter, detector, amplifier, applications. Principles and procedure of electrophoresis — Paper and Agar Electrophoresis, Moving boundary electrophoresis, PAGE, Applications in food systems (SS).

UNIT – IV Radioactivity And Advanced Microscopic Techniques

(10 Hours)

Radioactive isotopes (SS)- Methods and types of radioactive counters- gas and liquid scintillation- uses, applications and safety. Food morphology study-transmission electron microscopy (TEM), scanning electron microscopy (SEM), atomic force microscopy (AFM).

UNIT – V Techniques For Analysis of Physical Properties of Foods

(15 Hours)

Rheology and viscosity of foods –Rheometer, viscometer, barbender farinography. texture analyser, hunter calorimeter, refractometer. Practical interpretation of texture profile analysis in food systems (SS). Nuclear magnetic resonance spectroscopy (NMR). Fourier Transform Infrared Spectroscopy (FTIR), thin Thermogravimetric analysis and differential scanning calorimeter – principle, instrumentation and application.

UNIT – VI Current Contours (For Continuous Internal Assessment Only):

1. Visit to R&D labs.
2. Demonstration of any one chromatographic or electrophoresis technique.

Total lecture Hours-75

COURSE OUTCOMES:

The students will be able to,

1. Understand the principles and applications of spectroscopic techniques in food analysis.
2. Explain chromatographic techniques used for separation and identification of food components.
3. Describe fluorimetry, flame photometry, and electrophoresis techniques used in food systems.
4. Understand radioactive and advanced microscopic techniques for food analysis.
5. Explain techniques used for analysing physical and thermal properties of foods.
6. Demonstrate practical knowledge of chromatographic and electrophoresis techniques used in R&D laboratories.

TEXT BOOK(S):

1. Boyer, R., 2000., Modern Experimental Biochemistry. 3rd ed. Addison Wesley Longman.
2. Nielsen, S. S., 2023, Food Analysis (6th ed.). Springer Nature. ISBN: 9783031263064.
3. Simpson CFA & Whittacker, M, 2001, Electrophoretic techniques. 5. Sambrook. Molecular Cloning. Cold Spring Harbor Laboratory.
4. Skoog, D. A., Holler, F. J., & Crouch, S. R., 2025, *Principles of Instrumental Analysis* (8th ed.). Cengage Learning. ISBN: 9780357977460.
5. Wilson, K., & Walker, J., 2024, *Principles and Techniques of Biochemistry and Molecular Biology* (9th ed.). Cambridge University Press. ISBN: 9781009386418.

REFERENCE BOOK(S)

1. Alan H. Gowenlock, Jannet R Mc Murray and Donald M. McLauchlex, Varley's, , 2006, Practical Clinical Biochemistry, sixth edition. CBS Publishers and distributors, New Delhi.
2. Christian, G.D., 2026, *Analytical Chemistry*, Wiley Publishers.
3. Egon Stahl, 2005, Thin Layer Chromotography, A Laboratory Handbook, second edition, Springer International Edition, Heidelberg.
4. Kaur.N, 2006, Instrumental Methods of chemical analysis. PragatiPrakashan Educational Publishing. 3rd Edition.
5. Rodney Boyer, 2006, Biochemistry Laboratory- Modern Theory and Techniques; Pearson Education Inc. Publications, USA.

E RESOURCES:

1. <https://www.youtube.com/watch?v=62VkLE5inBU>
2. <https://egyankosh.ac.in/bitstream/123456789/76467/1/Unit-1.pdf>
3. <https://egyankosh.ac.in/bitstream/123456789/13100/1/Unit-6.pdf>
4. www.spectroscopyonline.com
5. www.chromacademy.com

MAPPING WITH PROGRAMME OUTCOMES AND PROGRAMME SPECIFIC OUTCOMES

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2	PSO3	PSO4	PSO5
C01	3	3	1	2	3	1	1	2	2	1	2	1	3	2	2
C02	3	3	2	3	3	2	1	2	2	1	2	2	3	3	2
C03	3	3	2	3	3	2	2	2	2	1	2	2	3	3	2
C04	3	3	2	3	3	3	2	3	3	1	3	3	3	3	2
C05	3	3	3	3	3	3	2	3	3	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 2026–2027)

DEPARTMENT OF NUTRITION AND DIETETICS

M.Sc., FOOD SERVICE MANAGEMENT AND DIETETICS

Semester: I- GEC-I: Front Office and House Keeping Management

Ins. Hrs. /Week: 5

Course Credit: 3

Course Code:P26NDGE11A

COURSE OBJECTIVES:

- To understand the functions and organization of front office and housekeeping departments.
- To learn the reservation systems, guest handling and complaint management procedures.
- To understand the records, reports and electronic systems used in front office operations.
- To gain knowledge of housekeeping operations, cleaning methods and room maintenance.
- To understand the linen, laundry and interior management in hospitality establishments.

UNIT – I Front Office and Housekeeping Departments (15 Hours)

Front office and housekeeping: Objectives, organization and functions in Health and Food Service Establishment, Qualities and Etiquette of front office and housekeeping staff. Inter and Intra departmental co-ordination.

UNIT - II Basic Reservation System and Guest Relation Services (20 Hours)

Objectives, importance of an efficient front desk. Reservation Procedure, Cancellation, Penalty, Arrival and departure for individuals and groups, C form, Check in and Check-out–Procedures and activities. Objectives and Importance of guest relation services, Communication dealing with complaints, preventing complaints, Arranging Transportation, Foreign currency exchange and safe deposit boxes. Handling guest complaints.

UNIT – III Records for Control (10 Hours)

Importance of reports, front desk log, Maintaining room status, Maintaining account balance and monitoring availability, Electronic front office, Electronic point of sales system, check out, audit, Room status indicator, Mail and key racks, Wake up devices, Accounting equipment.

UNIT – IV House Keeping (15 Hours)

Types of rooms. Lay-out of Housekeeping Department. Organizational structure of housekeeping department. Job description of housekeeping personnel. Classification of cleaning equipment and agents. Operational areas of housekeeping department. Guest floor and Public area operation. Sequence of housekeeping functions.

UNIT – V Linen Rooms and Laundry and Interior Environment (15 Hours)

Linen Room and Laundry - Linen, Uniform, Bedding, Beds – Layout, activities of the linen room. Linen, storage and control, Table linen, bed linen, bedding, bed making and turning down, uniforms and fabric stain removal.

Laundry – Commercial, in-house, linen hire, laundry process.

Interiors - Design and Style, Colour, lighting, heating, ventilation, Flower arrangement.

UNIT – VI Current Contours (For Continuous Internal Assessment Only)

Acquire spoken language courses / Learning sentences in different Indian and foreign languages towards communication with guest. Role play on guest handling procedures. Visit to star hotels to observe the functioning of front office and housekeeping and submit a report.

Total lecture Hours-75

COURSE OUTCOMES:

The students will be able to,

1. Highlight the different sections of Front Office and describe their respective duties.
2. Describe the various steps involved in the hotel guest cycle.
3. Apply the protocols and SOPs in emergencies.
4. List the cleaning equipment's, cleaning agents and explain their use and will be able to perform basic cleaning procedures of various surfaces and laundry processes.
5. Understand the need for interdepartmental coordination and team work necessary for the smooth operation of a hotel.
6. Demonstrate the communication and guest handling skills through practical exposure and role play.

TEXT BOOK (S):

1. Andrews, S., 2026, Textbook of Front Office Management and Operations. Tata McGraw Hill Publishers. ISBN: 9789354608841.
2. Bardi, J. A., 2024, Hotel Front Office Management (6th ed.). John Wiley & Sons. ISBN: 9781394200887
3. Jones, T. J., 2025, Professional Management of Housekeeping Operations (9th ed.). John Wiley & Sons. ISBN: 9781394259571.
4. Kasavana, M. L., & Brooks, R. M., 2023, Managing Front Office Operations (11th ed.). Educational Institute of the American Hotel & Lodging Association. ISBN: 9780866125628.
5. Raghubalan, G., & Smritee Raghubalan, 2025, Hotel Housekeeping: Operations and Management (4th ed.). Oxford University Press. ISBN: 9780199492138.

REFERENCE BOOK(S):

1. Andrews, S., 2025, Hotel Housekeeping Training Manual. Tata McGraw Hill Publishers. ISBN: 9789355326416.
2. Baker, S., Bradley, P., & Huyton, J., 2024, Principles of Hotel Front Office Operations (3rd ed.). Cengage Learning. ISBN: 9781473775435.
3. Ismail, A., 2023, Front Office Operations and Management (3rd ed.). Cengage Learning. ISBN: 9789353503987.
4. Rutherford, D. G., & O'Fallon, M. J., 2023, Hotel Management and Operations (6th ed.). John Wiley & Sons. ISBN: 9781119747604.
5. Walker, J. R., 2024, Introduction to Hospitality Management (9th ed.). Pearson Education. ISBN: 9780137838097.

E-RESOURCES

1. <https://www.pdfdrive.com/front-office-operations-management-e156913492.html>
2. https://www.ihmnotes.in/assets/Docs/Books/Hotel_Front_Office.pdf
3. <https://hmhub.in/3rd4th-sem-accommodation-operations-theory/activities-linen-room/>
4. www.ihmnotes.in
5. www.hotelmanagementtips.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	2	2	1	2	2	2	2	2	2	3	2	1	3	2
CO2	3	3	3	1	2	3	2	2	2	3	3	3	1	3	2
CO3	3	3	3	2	2	2	2	2	2	2	3	2	2	3	2
CO4	3	3	2	2	3	2	3	2	2	2	3	2	1	3	2
CO5	3	3	3	2	3	3	3	3	3	3	3	3	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 2026–2027)

DEPARTMENT OF NUTRITION AND DIETETICS

M.Sc., FOOD SERVICE MANAGEMENT AND DIETETICS

Semester: I- GEC-I: Food Service Facilities

Ins. Hrs. /Week: 5

Course Credit: 3 Course Code: P26NDGE11B

COURSE OBJECTIVES

1. To understand the planning and functional areas of food service institutions.
2. To learn kitchen design, layout and work simplification techniques.
3. To gain knowledge about food service equipment and fuel selection.
4. To understand operational characteristics and modern service systems in food service areas.
5. To learn safety, security and pest control management in food service establishments

UNIT - I Food Service Institution and Facility Planning (15 Hours)

Overview of types and objectives of food service institutions. Functional areas of food Service Institution – receiving, storage, pre-preparation, production and service, cleaning and disposal area. Flow of traffic– entry and exit. Space allocation for food plant according to different capacities.

UNIT - II Kitchen Design and Layout (15 Hours)

General Kitchen layout – Size and Types of kitchen, Developing kitchen plans, Designing kitchens, Finishes used for walls and floors. Work Simplification - Work area, Worker's area of reach, Work and storage heights, Work space, centers and their size, Equipment, materials, supplies, Movements and work flow.

UNIT – III Equipment in Food Service (15 Hours)

Classification of Equipment, Design and functions of Equipment in receiving, storage, preparation, serving, Dishwashing and Laundry. Functions of equipment in Ancillary Departments - Pantry, Food pick-up area, Store, Linen room, Kitchen stewarding Base Materials and Finishes in Equipment-Materials used for finishes. Factors influencing and affecting the use of equipment in the food service institutions. Types of fuel – factors affecting fuel selection.

UNIT – IV Physical and Operational Characteristics of Food Service Area (15 Hours)

Organization type, Size and Physical layout, Space requirement, Equipment requirement, Timing required for meal service, Energy usage in Banquet Service, Bar Service, Cafeteria Service, Coffee Shop Service, Fast Food Service, Room Service, Specialty Restaurants, Vending Machines, Robotic service. Computer aided design/ computer – aided manufacturing (CAD/CAM) in designing food service area.

UNIT - V Safety and Security (15 Hours)

Safety and security in Kitchen area, service area and storage area. Causes of accidents, safety procedure, safety training, legal responsibilities of a food service manager. Safety and security aspects – electricity, lighting and ventilation. Pest control management in production and storage area and garbage disposal.

UNIT - VI Current Contours (For Continuous Internal Assessment Only):

Designing a kitchen with modern equipment's. Visit to local kitchen to understand the traditional use of equipment's vs modernized. Analyzing eco-friendly concepts and recent trends in kitchen layout, fuel. Operations of cloud kitchen. Observe the operation of kitchen during the pandemic and post pandemic situation.

Total Lecture Hours – 75

COURSE OUTCOMES:

The students will be able to,

1. Explain the functional areas and facility planning requirements of food service institutions.
2. Design efficient kitchen layouts by applying the principles of work simplification and workflow.
3. Select and evaluate appropriate equipment, materials and fuel for various food service operations.
4. Analyze the physical and operational characteristics of different types of food service systems.
5. Apply safety, security, sanitation, and pest management practices in food service establishments.
6. Evaluate modern trends, eco-friendly concepts, cloud kitchens and CAD/CAM applications in food service facility planning.

TEXT BOOK (S)

1. Kazarian, E. A., 2025, Food Service Facilities Planning (2nd ed.). CBS Publishers & Distributors. ISBN: 9789354669880.
2. Kotschevar, L. H., & Withrow, D., 2023, Management by Menu (8th ed.). Wiley. ISBN: 9781119776030.
3. Payne-Palacio, J., & Theis, M., 2023, Foodservice Management: Principles and Practices (14th ed.). Jones & Bartlett Learning. ISBN: 9781284251104.
4. Raina, U., Kashyap, S., & Narula, V., 2023, Food Service Management (2nd ed.). Orient BlackSwan. ISBN: 9789354424281.
5. Sethi, M., & Malhan, S., 2024, Catering Management: An Integrated Approach (3rd ed.). New Age International Publishers. ISBN: 9788119136933

REFERENCE BOOKS (S)

1. Birchfield, J. C., 2024, Design and Layout of Foodservice Facilities (4th ed.). Wiley. ISBN: 9781394207602.
2. Gregoire, M. B., 2023, Foodservice Management: Principles and Practices (15th ed.). Pearson Education. ISBN: 9780137836178.
3. Katsigris, C., & Thomas, C., 2023, Design and Equipment for Restaurants and Foodservice: A Management View (4th ed.). Wiley. ISBN: 9781119775965.
4. Payne-Palacio, J., 2025, Introduction to Foodservice (13th ed.). Pearson Education. ISBN: 9780137483143.
5. Spears, M. C., & Gregoire, M. B., 2024, Foodservice Organizations: A Managerial and Systems Approach (9th ed.). Pearson Education. ISBN: 9780138016296.

E-RESOURCES

1. <https://www.wiley.com/en-us/Foodservice+Facilities+Planning%2C+3rd+Edition-p9780471290636>
2. <http://www.ignouhelp.in/ignou-mscdfsm-study-material/>
3. <https://epgp.inflibnet.ac.in/Home/ViewSubject?catid=Cdnwi2LUCCLZrJZ76d/o1A==>
4. <https://www.uou.ac.in/sites/default/files/slm/BHM-402T.pdf>
5. www.foodservicewarehouse.com
6. www.unileverfoodsolutions.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	2	1	1	2	2	2	2	2	1	2	2	1	3	2
CO2	3	3	2	2	3	3	2	2	2	1	2	3	2	3	2
CO3	3	3	2	2	2	3	2	2	2	1	3	3	2	3	2
CO4	3	3	2	2	3	3	2	3	3	2	3	3	2	3	3
CO5	3	3	3	2	3	3	3	3	3	2	3	3	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 2026–2027)

DEPARTMENT OF NUTRITION AND DIETETICS

M.Sc., FOOD SERVICE MANAGEMENT AND DIETETICS

Semester: I- GEC-I: Resource Management and Interior Design

Ins. Hrs. /Week: 5

Course Credit: 3

Course Code: P26NDGE11C

COURSE OBJECTIVES:

- To understand the principles and functions of human resource management and human relations.
- To learn the recruitment, selection, training, and motivation techniques in organizations.
- To understand the performance appraisal, employee welfare, and labour laws.
- To gain the knowledge on interior design and planning in food service establishments.
- To understand the furniture selection and flower arrangement techniques in hospitality industries.

UNIT – I Human Resource Management and Human Relations (15 Hours)

Definition of Human Resource Management; Nature, Scope, Functions, Objectives, significance of human resource management. Role of HRM, Four key roles. Current classification of HR roles Human Resource Management in the new millennium, Qualities of a Human resource Manager-Evaluation, growth and functions, Policies of Human Resource Management. Importance of human relations, human needs. Role of Human Relations. Professional ethics in work areas. Leadership- Types, styles, skills and qualities of a leader. Communication- Types, importance and barriers.

UNIT – II Recruitment, Selection, Training and Job Analysis (10 Hours)

Recruitment and Selection: Process and Techniques- Placement and Induction Methods of training – Internal and external methods, merits and demerits. Evaluation of training. Motivation- Human needs, methods and theories of motivation.

UNIT – III Performance Appraisal, Employee Welfare and Benefits (15 Hours)

Job analysis, Job specifications and Job description. Manpower Planning; Objectives, process. Performance Appraisal- Essentials of a Good Appraisal System Performance appraisal methods- merits and demerits, promotion, demotion, transfer, separation and retirement. Grievances and grievance handling. Fixation of wages and wage policy. Welfare measures at the work place. Labour laws – Catering Establishment Act, Shop and Establishment Act, Factories Act, Minimum Wages Act, Industrial Disputes Act.

UNIT: IV Interior Design in Food Service (20 Hours)

Importance of Interior Design in Food Service Establishments- Elements of interior design the psychology of interior design in food service, Color in Hospitality Design, factors affecting the planning and designing in food service operations. Concept development, feasibility, regulations, - Objectives of a good planning of design in food service, planning layouts, receiving areas, storage areas, kitchen, office space, sample blue print.

Lighting, wall and floor finishes: Lighting -Measuring Light, Lighting Technology,

Controlling Light Levels use of color Use of Artwork Kitchen Lighting and Color

Wall Finishes: Different wall finishes used in rooms, public and back areas, Wall papers:

Uses, merits and demerits.

Floor Finishes: Classification and characteristics: Hard and soft floor finishes, methods of cleaning

UNIT –V- Furniture and Flower Arrangements in Food Industries (15 Hours)

Selection of Furniture, types of furniture in food service industries, factors affecting the selection of furniture, Furniture Arrangement in Guestroom Areas.

Basics of flower arrangements, principles for flower arrangement, Basic Patterns of Flower Arrangement - Fan shaped flower arrangement, Vertical flower arrangement, Horizontal flower arrangement, Triangular flower arrangement, Oval flower arrangement, Crescent flower arrangement, 'S' shaped flower arrangement, Styles of flower arrangement- western/ traditional, Japanese, Abstract, Miniature, Fly, dry, bonsai. Reasons for Flower arrangements in the hotel. Flower Arrangement in Different Locations.

UNIT –VI- Current Contours (For Continuous Internal Assessment Only):

Visit catering institutions to study organizational structure and human resource management practices. Home visit to observe the interiors / Visit to Light /furniture mart. Exhibit flower arrangement show.

Total Lecture Hours – 75

COURSE OUTCOMES:

The students will be able to,

1. Understand the concepts, roles and functions of Human Resource Management and human relations in organizations.
2. Apply recruitment, selection, training and motivation techniques effectively in food service industries.
3. Analyse the performance appraisal systems, employee welfare measures and relevant labour laws.
4. Design and plan functional and aesthetic interiors for food service establishments.
5. Demonstrate skills in furniture selection and flower arrangement suitable for hospitality settings.
6. Analyse the resource management practices and interior design concepts through field visits and exhibitions

TEXT BOOK (S):

1. Gary Dessler, 2020, *Human Resource Management* – Pearson.
2. K. Aswathappa, 2021, *Human Resource Management* – McGraw Hill.
3. Raghubalan, G & Smritee Raghubalan, 2015, *Hotel Housekeeping Operations and Management* – Oxford University Press – 2015
4. Raghubalan, G. & Smritee Raghubalan, 2025, *Hotel Housekeeping: Operations and Management*, Oxford University Press Publishers.
5. Sudhir Andrews , 2017, *Human Resource Management: A Textbook for Hospitality Industry* – McGraw Hill.

REFERENCE BOOK(S):

1. C. B. Mamoria & S. V. Gankar, 2018, *Personnel Management*, Himalaya Publishing,
2. Ching, F.D.K., 2026, *Interior Design Illustrated*, Wiley Publishers.
3. Edwin B. Flippo, 2017, *Personnel Management* – McGraw Hill.
4. Karlen, M. & Benya, J., 2025, *Interior Design Basics*, Wiley Publishers.
5. Rosemary Kilmer & W. Otie Kilmer, 2016, *Designing Interiors*, Wiley.
6. Singh, A., 2024, *Flower Arrangement and Floral Decoration*, Kalyani Publishers.

E-RESOURCES

1. <https://brauss.in/hrm-basic-notes.pdf> 14.
2. <https://www.pdfdrive.com/human-resource-books.html>
3. <https://www.ideals.illinois.edu/bitstream/handle/2142/28106/flowerarranging1154culb.pdf?sequence=1>
4. www.shrm.org
5. www.hotelmanagement.net

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	3	1	2	2	3	2	2	3	3	2	1	3	2
CO2	3	3	3	2	2	3	2	2	2	2	3	3	2	3	2
CO3	3	3	2	2	3	2	3	2	2	2	3	2	2	3	2
CO4	3	3	2	2	3	3	2	3	3	2	2	3	2	3	3
CO5	3	3	3	2	3	3	3	3	3	3	3	3	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 2026–2027)

DEPARTMENT OF NUTRITION AND DIETETICS

M.Sc., FOOD SERVICE MANAGEMENT AND DIETETICS

Semester: I- SEC-I: Sports Nutrition

Ins. Hrs. /Week: 2

Course Credit: 2

Course Code: P26SEND11

COURSE OBJECTIVES:

1. To provide advanced knowledge of sports nutrition concepts, exercise physiology, and energy metabolism.
2. To develop competency in assessing the nutritional status, fitness, and performance of athletes.
3. To understand the nutritional requirements and hydration needs for optimal sports performance.
4. To apply sports-specific nutrition strategies and evidence-based practices in diverse athletic settings.
5. To evaluate contemporary issues in sports nutrition, including supplementation, anti-doping, and special population needs.

UNIT-I Advanced Concepts in Sports Nutrition

(6 Hours)

Sports Nutrition: Definition and scope; definitions of physical activity, exercise and sports. Components of Physical Fitness: Health-related fitness and skill-related fitness Importance of Nutrition in Exercise Performance: Energy provision, hydration, recovery and performance enhancement. Sports Nutrition Professionals: Roles and responsibilities. FITT Principle, Physical Activity Pyramid: Concept and levels. National and International Physical Activity Recommendations: Overview of WHO and Indian guidelines. Alternative Fitness Approaches.

UNIT II: Exercise Physiology and Metabolism

(6 Hours)

Exercise Physiology: Skeletal muscle structure and function, mechanism of muscle contraction, adaptations to aerobic and resistance training and cardiovascular and respiratory responses to exercise.

Energy Metabolism During Exercise: ATP production pathways, phosphagen system, anaerobic glycolysis, aerobic metabolism and fuel utilization during exercise at different intensities and durations.

UNIT III: Assessment of Athletes

(6 Hours)

Nutritional and Fitness Assessment: Anthropometric measurements, body composition assessment methods, somatotyping, dietary assessment techniques, and biochemical and clinical assessment of athletes.

Performance Assessment: Assessment of energy expenditure, fitness and sport-specific performance tests, functional capacity evaluation, and interpretation of athlete assessment data for individualized nutrition and training interventions.

UNIT IV: Nutritional Requirements for Sports Performance

(6 Hours)

Macronutrient Requirements: Macronutrient needs of athletes; carbohydrate requirements and glycogen loading; protein requirements for exercise adaptation and recovery, dietary fats in sports performance; nutrient timing before, during and after exercise.

Micronutrients and Hydration: Functions of vitamins and minerals in athletic performance, with special reference to iron, calcium, vitamin D, and antioxidants, fluid and electrolyte balance, hydration assessment and evidence-based hydration recommendations.

UNIT V: Applied Sports Nutrition

(6 Hours)

Sports-Specific Nutrition Planning: Nutritional strategies before, during and after exercise, recovery nutrition; on-season and off-season meal planning; and nutrition considerations for endurance, strength, and team sports.

Contemporary Issues in Sports Nutrition: Ergogenic aids and dietary supplements, anti-doping regulations; Female Athlete Triad and Relative Energy Deficiency in Sport (RED-S), eating disorders and weight management in athletes; nutrition for adolescent, athletes and emerging trends and evidence-based practices in sports nutrition.

UNIT – VI Current Contours (For Continuous Internal Assessment Only):

Develop a Food Pyramid or MyPlate model and prepare nutrition recommendations for a selected sports activity.

Total Lecture Hours-30

COURSE OUTCOMES:

The students will be able to

1. Explain the principles of sports nutrition, physical fitness and exercise physiology in relation to athletic performance.
2. Assess the nutritional status, body composition, fitness and performance of athletes using appropriate methods.
3. Apply the evidence-based recommendations for macronutrients, micronutrients and hydration in sports settings.
4. Design sports-specific nutrition plans to support training, competition, and recovery.
5. Evaluate the supplements, anti-doping issues and current trends in sports nutrition for diverse athlete populations.
6. Develop and recommend an appropriate food pyramid/Choose My Plate model for a selected sports activity based on the nutritional needs of athletes.

TEXTBOOK(S)

1. Anita Bean, 2022, *The Complete Guide to Sports Nutrition* (9th Edition) Bloomsbury Publishing, Australia.
2. Bean, A., 2026, *The Complete Guide to Sports Nutrition*, Bloomsbury Publishers.
3. Chandrasekar, K., 2005, *Fitness, Health and Nutrition* Khel Sahitya Kendra New Delhi.
4. Shrawan Kumar Ed., 2009, *Ergonomics for Rehabilitation for Rehabilitation Professionals* CRC Press Boca Raton.
5. Vastrad, BGE., 2003, *Encyclopedia of Sports Science and Medicine* Khel Sahitya Kendra New Delhi.

REFERENCE BOOK(S)

1. Benardot, Dan, 2000, *Advanced Sports Nutrition*, Human Kinetics
2. Bourns, Fred, 2002, *Essentials of Sports Nutrition*, 2nd Ed. John and Wiley.
3. Burke, L. & Deakin, V., 2026, *Clinical Sports Nutrition*, McGraw Hill Publishers,
4. Deakin, Burke, 2006, 3rd Ed, *Clinical Sports Nutrition*, Mc Graw-Hill Australia.
5. Jeukendrup, A. & Gleeson, M., 2025, *Sport Nutrition: An Introduction to Energy Production and Performance*, Human Kinetics Publishers.

E-RESOURCES:

1. <https://openoregon.pressbooks.pub/>
2. <http://www.aco.org.nz/pdf/nutrition-for-sports>
3. https://en.wikipedia.org/wiki/Sports_nutrition
4. www.sportsdietitians.com.au
5. www.wada-ama.org

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	2	3	3	2	1	2	2	1	3	2	3	2	3
CO3	3	3	3	3	3	2	2	3	2	2	3	2	3	2	3
CO4	3	3	2	3	3	3	2	3	3	2	3	3	3	3	3
CO5	3	3	3	3	3	3	3	3	3	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 2026–2027)

DEPARTMENT OF NUTRITION AND DIETETICS

M.Sc., FOOD SERVICE MANAGEMENT AND DIETETICS

Semester: I- VAC-I: AI in Health care

Ins. Hrs. /Week: -

Course Credit: 2

Course Code: P26NDVA11

COURSE OBJECTIVES:

1. To understand the fundamentals of artificial intelligence and digital health in healthcare and nutrition.
2. To examine AI applications in clinical nutrition and disease management.
3. To explore the role of AI in healthcare delivery and nutrition care.
4. To understand AI applications in food safety and public health nutrition.
5. To develop skills in using AI tools for research, education and communication.
6. To promote ethical and responsible use of AI in healthcare settings.

UNIT I – Perspectives of Artificial Intelligence and Digital Health

Concepts of Artificial Intelligence, Machine Learning, and Deep Learning, Introduction to Digital Health and Health Informatics, Role of AI and Digital Health in Food Service Management and Dietetics, AI transformation in nutrition, healthcare and hospitality sectors, Data-driven decision making in food and nutrition systems, Opportunities, challenges and limitations of AI in Food Service Management and Dietetics, Emerging trends in AI-enabled food and healthcare systems.

UNIT II – AI, Digital Health and Clinical Nutrition

AI-assisted dietary assessment and nutrient analysis, Digital health tools for nutrition monitoring and dietary tracking, Personalized nutrition and precision dietetics, AI-assisted nutritional risk screening and prediction, AI applications in diabetes, obesity and chronic disease management, Clinical decision support systems and electronic health records (EHRs), tele-nutrition and counselling, Future applications of AI in healthcare nutrition

UNIT III -AI in Healthcare Delivery and Nutrition Care

AI applications in patient care and nutrition support, Remote patient monitoring and wearable technologies, Predictive analytics in healthcare nutrition, AI-assisted patient education and behaviour modification, Workflow optimization and healthcare resource management, Human–AI collaboration in healthcare settings.

UNIT IV – AI Applications in Food Safety and Public Health Nutrition

AI-assisted food safety monitoring and quality control, AI applications in HACCP and quality assurance systems, Food image recognition and contamination detection, Digital health technologies in public health nutrition, Nutrition surveillance and population health analytics, AI in epidemiological and community nutrition studies

UNIT V – AI Tools and Research

AI tools for nutrition education and communication, Mobile health (mHealth) applications and tele-dietetics, AI-assisted scientific writing and research analytics, AI-assisted literature review and knowledge management systems, AI-assisted research data analysis and interpretation, Evidence synthesis and systematic review support, Ethical issues in AI-assisted nutrition and digital health systems, Data privacy, cybersecurity and healthcare confidentiality, Responsible use of AI and Human–AI collaboration in healthcare.

UNIT – VI Current Contours (For Continuous Internal Assessment Only):

Students shall independently complete AI-assisted FSMD learning activities- AI tool exploration portfolio, Advanced nutrition and food service case studies, Seminar presentation, AI-assisted mini-project, Smart menu planning project, Nutrition analytics portfolio, AI-assisted literature review, Comparative evaluation of AI nutrition and hospitality platforms.

COURSE OUTCOMES:

1. Explain the basic concepts of AI, digital health, and health informatics.
2. Apply AI tools in dietary assessment, personalized nutrition, and chronic disease management.
3. Evaluate AI applications in patient care, nutrition support, and healthcare delivery.
4. Analyse the use of AI in food safety and public health nutrition.
5. Use AI-assisted tools for research, education, and evidence-based practice.
6. Demonstrate the ethical and responsible use of AI in healthcare with respect to privacy, security and human–AI collaboration

TEXT BOOK (S):

1. Nelson, R., & Staggers, N., 2022,. Health informatics: An interprofessional approach (3rd ed.). Elsevier.
2. Hoyt, R. E., Snider, D., Thompson, C., & Mantravadi, S. (2023). Health informatics: Practical guide (9th ed.). Lulu Press.
3. Ranscombe, P., & Thomas, B. (2023). Artificial intelligence in healthcare: Applications, implications and future perspectives. CRC Press.
4. Bhopal, R. (2024). Concepts of epidemiology: Integrating the ideas, theories, principles and methods of epidemiology (4th ed.). Oxford University Press.
5. Gropper, S. S., Smith, J. L., & Carr, T. P. (2023). Advanced nutrition and human metabolism (8th ed.). Cengage Learning.

REFERENCE BOOK(S):

1. Topol, E. (2019). Deep medicine: How artificial intelligence can make healthcare human again. Basic Books.
2. Jiang, F., Jiang, Y., Zhi, H., Dong, Y., Li, H., Ma, S., Wang, Y., Dong, Q., Shen, H., & Wang, Y. (2017). Artificial intelligence in healthcare: Past, present and future. *Stroke and Vascular Neurology*, 2(4), 230–243.
3. Reddy, S., Allan, S., Coghlan, S., & Cooper, P. (2020). A governance model for the application of AI in healthcare. *Journal of the American Medical Informatics Association*, 27(3), 491–497.
4. Hebda, T., Hunter, K. M., & Czar, P. (2019). Handbook of informatics for nurses and healthcare professionals (6th ed.). Pearson.
5. Academy of Nutrition and Dietetics. (2022). Nutrition informatics: From theory to practice (2nd ed.). Academy of Nutrition and Dietetics.

E- RESOURCES:

1. <https://www.who.int/health-topics/digital-health>
2. <https://www.nih.gov/health-information/health-information-technology/artificial-intelligence-healthcare>
3. <https://www.nccih.nih.gov/health/providers/digital-health-technologies>.
4. www.eatrightpro.org
5. www.himss.org

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

S-Strong(3)

M-Medium(2)

L-Low(1)

SEMESTER-II

SENGAMALA THAYAAR EDUCATIONAL TRUST WOMEN'S COLLEGE (AUTONOMOUS)



SUNDARAKKOTTAI, MANNARGUDI – 614016

(For the candidates admitted in the academic year 2026–2027)

DEPARTMENT OF NUTRITION AND DIETETICS

M.Sc., FOOD SERVICE MANAGEMENT AND DIETETICS

Semester: II- CC-III- Advanced Dietetics

Ins. Hrs. /Week: 6

Course Credit: 4

Course Code:P26ND204

COURSE OBJECTIVES:

- To understand the nutritional assessment, diet modification and special feeding techniques in clinical care.
- To learn the dietary management for fevers and gastrointestinal disorders.
- To understand the nutritional management of hepato-biliary and renal diseases.
- To gain the knowledge on diet therapy for metabolic disorders, inborn errors of metabolism, and cancer.
- To understand the dietary management for lifestyle disorders, food allergies, and palliative care.

UNIT- I: Nutritional Screening, Nutritional Intervention and Special Feeding Techniques (20 Hours)

Nutritional screening/ assessment and identification of nutritional problem. Nutritional Intervention and Diet Modification based on interpretation of patient data- clinical, biochemical and other relevant data. Role of dietitian in the hospital and community- Types of dieticians, education and personal qualifications- Professional ethics and obligations Feeding the patients – Psychology of feeding the patients, assessment of patient's needs. Routine hospital diets- regular diet, soft diet, full fluid diet, clear fluid diet Special feeding methods- Parenteral and enteral nutrition.

UNIT- II: Diet in fevers and Disease of Gastrointestinal tract (20 Hours)

Causes, symptoms, dietary management for febrile conditions- Acute, chronic and recurrent fevers-typhoid, influenza, rheumatic fever, tuberculosis, malaria and poliomyelitis. Causes, symptoms, dietary management of Gastrointestinal tract - Crohn's disease, Celiac Disease, Irritable bowels syndrome (IBS), Acid Reflux -Gastroesophageal reflux (GER) and Gastroesophageal reflux diseases (GERD) in Infants, Children and adult, Zollinger-Ellison Syndrome and Hirschsprung disease.

UNIT- III: Hepato /Biliary Diseases and Diseases of Excretory System (17 Hours)

Causes, symptoms, dietary management of Disease of liver and Gall bladder- Hepatitis, Leptospirosis (liver failure) Amoebiasis (hepatomegaly, liver abscess) cirrhosis, cholecystitis, cholelithiasis, pancreatitis. hepatocellular carcinoma, Gilbert's syndrome, and polycystic liver disease. Causes, symptoms, dietary management of renal disorders acute and chronic glomerulonephritis, nephrosis, nephrosclerosis, uremia, nephrolithiasis, Kidney Cancer.

UNIT- IV: Diet in Metabolic disorders, and Cancer (15 Hours)

Causes, symptoms, dietary management of Diabetes mellitus, obesity, underweight, hypothyroidism and hyperthyroidism, gout, arthritis and osteoporosis.

Nutritional Care in Inborn Errors of Metabolism- Nutritional care for the patients with inborn errors of metabolism- prognosis, symptoms, dietary management - phenylketonuria, galactosemia. Pathogenesis, aetiology, types, grading, symptoms, treatment and dietary modification for cancer.

UNIT- V: Lifestyle Disorders, Diet in food allergy and Palliative Care (18 Hours)

Causes, symptoms, dietary management of eating disorders, Dementia and Alzheimer, Polycystic Ovary Diseases (PCOD) and Polycystic Ovary Syndrome (PCOS).

Cardiovascular diseases – Hypertension, atherosclerosis, hyperlipidemia, hypercholesterolemia, acute and chronic cardiac diseases, congestive cardiac failure

Diet in Food Allergies – food allergy and intolerance – mechanism, factors influencing, symptoms, tests for allergy, nutritional care and elimination diet. Basics of palliative care- definition, types, objectives and principles of palliative care.

UNIT - VI Current Contours (For Continuous Internal Assessment Only):

Prepare e-content module on any one of the above-mentioned diseases.

Total Lecture Hours-90

COURSE OUTCOMES:

The students will be able to,

1. Understand the scope of Nutrition Care Process and Therapeutic Nutrition and identify conditions requiring diet modification.
2. Explain the etiology, symptoms, diagnosis and dietary management of fevers and gastrointestinal disorders.
3. Apply dietary modifications for hepato-biliary and excretory system disorders and plan therapeutic diets.
4. Evaluate dietary needs for metabolic disorders and cancer and design appropriate diet plans.
5. Demonstrate diet planning for food allergies and palliative care with suitable nutritional interventions.
6. Develop e-content modules related to therapeutic diets and disease management.

TEXT BOOK(S)

1. Mahan, L. K., Raymond, J. L., & Escott-Stump, S., 2025, Krause's Food & the Nutrition Care Process (16th ed.). Elsevier. ISBN: 9780323871105.
2. Nelms, M. N., Sucher, K. P., Lacey, K., & Roth, S. L., 2024, Nutrition Therapy and Pathophysiology (5th ed.). Cengage Learning. ISBN: 9780357449844.
3. Gropper, S. S., Smith, J. L., & Carr, T. P., 2024, Advanced Nutrition and Human Metabolism (8th ed.). Cengage Learning. ISBN: 9780357449813.
4. Williams, S. R., 2023, Williams' Essentials of Nutrition and Diet Therapy (12th ed.). Elsevier. ISBN: 9780323810258.
5. Sharma, S., 2023, Textbook of Dietetics (2nd ed.). CBS Publishers & Distributors. ISBN: 9789390709953

REFERENCE BOOK(S)

1. Ray, S., & Laur, C. V., 2024, Clinical Nutrition (2nd ed.). Oxford University Press. ISBN: 9780192865687.
2. Mueller, C. M. (Ed.), 2024, The ASPEN Adult Nutrition Support Core Curriculum (4th ed.). American Society for Parenteral and Enteral Nutrition (ASPEN). ISBN: 9781889622439.
3. Mahan, L. K., & Raymond, J. L., 2024, Krause's Nutrition Care Process (3rd ed.). Elsevier. ISBN: 9780323830409.
4. Ross, A. C., Caballero, B., Cousins, R. J., Tucker, K. L., & Ziegler, T. R. (Eds.), 2024, Modern Nutrition in Health and Disease (12th ed.). Wolters Kluwer. ISBN: 9781975161354.
5. Academy of Nutrition and Dietetics, 2023, Nutrition Care Manual. Academy of Nutrition and Dietetics.

E-RESOURCES

1. https://youtu.be/_dcwRBh-5iM
2. <https://youtu.be/bVjFP8LTa6c>
3. <https://youtu.be/JvLykvVV2sk>
4. www.eatright.org
5. www.nutritioncare.org

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

S-Strong(3)

M-Medium(2)

L-Low(1)

SENGAMALA THAYAR EDUCATIONAL TRUST WOMEN'S COLLEGE (AUTONOMOUS)



SUNDARAKKOTTAI, MANNARGUDI – 614016

(For the candidates admitted in the academic year 2026–2027)

DEPARTMENT OF NUTRITION AND DIETETICS

M.Sc., FOOD SERVICE MANAGEMENT AND DIETETICS

Semester: II- CC-IV- Public Health Nutrition

Ins. Hrs. /Week: 6

Course Credit: 4

Course Code: P26ND205

COURSE OBJECTIVES:

- To understand the principles of epidemiology and major nutritional problems affecting public health.
- To learn the methods of nutrition assessment and nutrition education in the community.
- To gain the knowledge on nutrition intervention programmes implemented in India.
- To understand the national programmes and organizations working to combat malnutrition.
- To study the role of international organizations in improving global nutrition and health.

UNIT-I Epidemiology:

(18 Hours)

Definition, aim, components, measurements in Epidemiology - IMR, NMR, MMR and tools of measurement, Relationship between nutrition and national development - socio-economic, industrial and agricultural development. Nutritional problems - PEM, Vitamin A Deficiency Disorders, Anaemia, Iodine Deficiency Disorders and Fluorosis, Synergism between malnutrition and infection.

UNIT-II Nutrition Assessment and Nutrition Education

(18 Hours)

Direct Method -Anthropometric - Measurement of height, weight, head and chest circumferences, mid upper arm circumference, skin fold thickness, interpretation of measurements and comparison with standards (NCHS, ICMR), Biochemical parameters, Clinical examination and Dietary surveys. Indirect method - Vital Statistics – Interpretation of mortality and morbidity using biostatistics Nutrition Education- Meaning, nature and importance of Nutrition education to the community and lessons to be taught. Methods of education- use of audio visual aids, Use of computers to impart nutrition education - PowerPoint presentation, E learning, Organization of Nutrition education programmes: Principles of planning, executing and evaluating nutrition education programmes, problems of nutrition education programmes.

UNIT -III Nutrition Intervention programmes in India

(18 Hours)

Integrated Child Development Services (ICDS), Chief minister's breakfast scheme, Supplementary Nutrition, Bal bhog, Sakhibhog, Shishubhog; Mid-Day Meal (MDM) program; Fortification program, Poshan abhiyaan scheme, Special Nutrition Program (SNP), Balwadi Nutrition Program, Muthulakshmi Maternity Benefit Scheme for pregnant women

UNIT-IV National Programs to Combat Malnutrition Iron:

(18 Hours)

National Nutritional Anemia Control Program,; Vitamin A: Vitamin A Prophylaxis Program (VAPP); Iodine: National Iodine Deficiency Disorders Control Program (NIDDCP), Universal Salt Iodization (USI), Double Fortified Salt (DFS); National Deworming Campaign; Fluorosis Control Program National organization Indian Council of Agricultural Research (ICAR), Indian Council of Medical research (ICMR), National Nutrition Monitoring Bureau (NNMB), National Institute of Nutrition (NIN), Central Food and Technological Research Institute (CFTRI), Defence Food Research Laboratory (DFRL), National Institute of Public Cooperation and Child Development (NIPCCD).

UNIT-V International Organizations

(18 Hours)

World Bank, World Health Organization (WHO) - Sustainable development goals, United Nations International Children's Emergency Fund (UNICEF), World Food Programme (WFP), Voluntary organizations –Global Alliance for Improved Nutrition (GAIN), World Alliance for Breastfeeding Action (WABA)

UNIT - VI Current Contours (For Continuous Internal Assessment Only):

Classification according to grades of malnutrition, Mission of ICDS, Diarrhea Control Program. Activities of World Health Organization (WHO). Problems of nutrition education programme.

Total Lecture Hours-90

COURSE OUTCOMES:

The students will be able to,

1. Explain the principles of Epidemiology and its relationship with nutrition and national development.
2. Apply the various methods to assess nutritional status and nutrition education.
3. Evaluate the nutrition intervention programs and government schemes addressing malnutrition in India.
4. Analyse the national programs and institutional roles in combating micronutrient deficiencies and public health issues.
5. Examine the contributions of international organizations in improving global nutrition and public health outcomes.
6. Analyse the malnutrition classification and community nutrition programmes through practical activities.

TEXT BOOK(S)

1. Bamji M.S, Prahlada Rao N, Reddy. 2016, Textbook of Human Nutrition. (4th ed.). Oxford and PBH Publishing Co. Pvt. Ltd. New Delhi.
2. Josephine Martin and Charlotte Beckett Oakley, 2008, Managing Child Nutrition Programs. (2nd ed.) Jones & Bartlett Publishers.
3. Park, K., 2025, Park's Textbook of Preventive and Social Medicine, Banarsidas Bhanot Publishers.
4. Seema Sonkar and Doreas L. Essiamah, 2008, Food and Nutrition Security challenges towards combating malnutrition. Chandralok Prakashan. Kanpur.
5. Srilakshmi, B., 2026, Nutrition Science, New Age International Publishers.

REFERENCE BOOK (S)

1. Edelstein, S., 2025, Nutrition in Public Health, Jones & Bartlett Publishers, 2025.
2. Mudambi, S.R. & Rajagopal, M.V., 2024, Fundamentals of Foods, Nutrition and Diet Therapy, New Age International Publishers.
3. Prakash Shetty, 2002, Nutrition through the life cycle, 1st edition, Leatherhead publishing. Leather head International Ltd. UK.
4. Raheena Begum. M., 2015, A textbook of Foods, Nutrition and Dietetics. 3rd edition, Sterling Publishers Pvt. Ltd., New Delhi.
5. Sharma, O.P., 2026, Community Nutrition and Health, Agrotech Publishers, 2026.

E-RESOURCES

1. <https://www.encyclopedia.com/food/encyclopedias-almanacs-transcripts-and-maps/assessmentnutritional-status>
2. <https://www.fao.org/about/en/>
3. <https://www.icmr.gov.in/>
4. www.nin.res.in
5. www.who.int

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	3	2	3	2	2	3	3	2	2	3	3
CO2	3	3	3	2	3	3	3	3	3	3	3	2	3	3	3
CO3	3	3	2	3	3	2	3	2	2	3	3	2	3	3	3
CO4	3	3	2	3	3	2	3	2	2	3	3	2	3	3	3
CO5	3	3	3	2	3	3	3	3	3	3	3	3	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 2026–2027)

DEPARTMENT OF NUTRITION AND DIETETICS

M.Sc., FOOD SERVICE MANAGEMENT AND DIETETICS

Semester: II- CP-II- Advanced Dietetics Practical

Ins. Hrs. /Week: 6

Course Credit: 4

Course Code:P26ND206P

COURSE OBJECTIVES:

- To develop practical skills in weighing, measuring, and preparing therapeutic diets including clear liquid, full liquid, and soft diets.
- To apply principles of diet therapy in the nutritional management of gastrointestinal, hepatic, renal, metabolic, and lifestyle disorders.
- To plan and prepare balanced therapeutic diets for various disease conditions and provide appropriate nutritional care for patients.

Course Content:

1. Practical experience in weighing and measuring food items
2. Preparation of clear and full liquid diets and soft diet
3. Planning and preparing diets for
 - **Febrile conditions:** Preparation of diets in acute, chronic and recurrent fevers.
 - **Conditions/ Disease of Gastrointestinal tract:** Preparation of diets in Irritable Bowel Syndrome, GERD, Zollinger- Ellison Syndrome (peptic ulcer with pancreatic cancer), Hirsch sprung disease (constipation - surgery).
 - **Hepato /Biliary Diseases and Diseases of Excretory System-** Disease of liver and Gallbladder- Hepatitis, cirrhosis, cholecystitis, cholelithiasis, pancreatitis, hepatocellular carcinoma, Gilbert's syndrome, Polycystic liver disease.
 - **Renal disorders-** acute and chronic glomerulonephritis, nephrosis, nephrosclerosis, uremia, nephrolithiasis. Kidney Cancer
 - **Diet in Metabolic disorders, and Cancer-** Diabetes mellitus, obesity, underweight, hypothyroidism and hyperthyroidism, gout, arthritis and osteoporosis, Nutritional Care in Inborn Errors of Metabolism, cancer
 - **Life style disorders/diseases:** Anorexia and Bulimia nervosa Alzheimer, Polycystic Ovarian Diseases(PCOD)/ Polycystic Ovarian Syndrome(PCOS), Hypertension, Atherosclerosis, Congestive heart failure.

COURSE OUTCOMES:

1. Demonstrate the accurate weighing and measuring of food items used in therapeutic diet planning.
2. Prepare the clear liquid, full liquid and soft diets according to clinical requirements.
3. Plan and prepare the appropriate diets for gastrointestinal, hepatobiliary, and renal disorders.
4. Develop the therapeutic diets for metabolic disorders, cancer and nutritional management of inborn errors of metabolism.
5. Formulate the dietary modifications for lifestyle-related disorders to support disease management and patient care.

TEXT BOOK(S)

1. Frances Sienkiewicz Sizer 2009. Nutrition-concept and controversies .Peter VIII edition, Marshall Publishers.
2. Kane, Kelly, and Kathy Prelack.2026, *Advanced Medical Nutrition Therapy* (2nd Edition). Jones & Bartlett Learning.
3. Passmore DP, Break JP. 2008. Human Nutrition and Dietetics. English Language Book Society,Livingston.
4. Sharma, S., 2023, *Textbook of Dietetics* (2nd ed.). CBS Publishers & Distributors. ISBN: 9789390709953.
5. Srilakshmi B. 2002. Dietetics. New Age International, New Delhi

REFERENCE BOOK(S)

1. Burtis J, Davis J and Martin S. 2010. Applied Nutrition and Diet Therapy. WB Saunders Co, Philadelphia.
2. Garrow J, James WPT, Ralph A. 2009. Human Nutrition and Dietetics.10th Edition, Harcourt Publishers.
3. Garrow J, James WPT. and Ralph A. 2008. Human Nutrition and Dietetics. Churchill Livingston.
4. Jame B. Morgan 2011. Nutrition inearly life.John Wileyand Son Publishers.
5. Lori A. Smolin 2007. Nutrition, Science and applications.3rd edition, Sunders College publisher.
6. Mahan LK. and Stump SE. 2015. Krause's Food Nutrition and Diet Therapy. 11th Edition, W.B. Sunders Co.
7. Nelms, Marcia Nahikian, and Kristen Roberts.2026, *Nutrition Therapy and Pathophysiology*, 5th Edition, Cengage Learning.

E-RESOURCES

1. <https://www.ncbi.nlm.nih.gov/books/NBK218747/>
2. https://youtu.be/_dcwRBh-5iM
3. <https://youtu.be/bD8KCcipGaY>
4. www.eatright.org
5. www.nutritioncare.org

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	3	2	3	3	2	2	3	2	2	3	3
CO2	3	3	2	2	3	2	3	3	2	2	3	2	3	3	3
CO3	3	3	2	3	3	3	3	2	2	2	3	3	3	3	3
CO4	3	3	2	2	3	3	3	2	3	3	3	3	2	3	3
CO5	3	3	3	3	3	2	3	3	3	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 2026–2027)

DEPARTMENT OF NUTRITION AND DIETETICS

M.Sc., FOOD SERVICE MANAGEMENT AND DIETETICS

Semester: II- DCEC-II- Food Safety and Quality Control

Ins. Hrs. /Week: 4

Course Credit: 4

Course Code:P26NDDE22A

COURSE OBJECTIVES:

- To understand the importance of food safety, hygiene and regulatory systems in preventing food contamination and spoilage.
- To gain the knowledge on food additives, adulteration, permissible limits and methods of adulterant detection.
- To develop the skills in food quality evaluation methods and standards.
- To understand the principles of food quality control and documentation practices in food industries.
- To familiarize the students with national and international food laws and standards in food safety and quality.

UNIT- I: Food Safety

(12 Hours)

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

UNIT-II: Additives and Adulteration

(12 Hours)

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

UNIT-III: Testing of Food Quality

(12 Hours)

Testing of Food Quality: Food Quality meaning and need of food quality testing, Types of evaluation -Subjective and objective. Subjective evaluation methods, Objective evaluation methods – tools and instruments used, quality standards for cereal, pulses and legumes, vegetables and fruits, milk, egg and flesh foods, fat and sugar and related products.

UNIT-IV: Food Quality Control and Assurance

(12 Hours)

Current concepts of quality control and assurance, Need and importance of quality control programmes, quality plan, documentation of records, product standards, Product purchase specifications and process control, Principles of Hazards Critical Control Point (HACCP) and its role in total quality process, Duties and responsibilities of food quality controller.

UNIT-V: Laws and Standards

(12 Hours)

Need and importance, National food legislation- Food Safety and Standards Authority of India (FSSAI), Essential Commodities Act, Indian Standards Institution (ISI), Bureau of Indian Standards (BIS), AGMARK, Fruit Products Order (FPO) and Prevention of Food Adulteration Act (PFA): International Organization- Food and Agricultural Organization (FAO), World Health Organization (WHO), Codex Alimentarius, and Agricultural and Processed Food Products Export Development Authority (APEDA).

UNIT-VI: Current Contours (For Continuous Internal Assessment Only):

Visit a nearby restaurant, canteen, or street food vending outlet to observe food safety and hygiene practices and submit a report. Collect any fresh fruits, fresh vegetables and one food item e.g., bread/chapati/roti and list the signs of quality viz. Appearance, Color, Texture & odour in the tabulated format. Store them at room temperature for one week, observe the changes and prepare a chart listing the changes in quality.

Total Lecture Hours-60

COURSE OUTCOMES:

The students will be able to,

1. Understand the basics of food safety and hygiene.
2. Identify the food additives and adulteration.
3. Learn methods of food quality testing.
4. Understand quality control and HACCP.
5. Apply the food laws and standards.
6. Assess the food quality changes during storage and observe food safety practices in food service establishments.

TEXT BOOK(S)

1. Alok Kumar 2019. Fundamentals of Food Hygiene Safety and Quality. Dreamtech Press, ISBN-13: 978-9389307818.
2. Amin Mousavi Khaneghah, Tanmay Sarkar & Slim Smaoui, 2026, *Food Quality Assurance: The Engineering Approach*.
3. Joan K, Loken 1995. The HACCP- Food Safety. Manual Wiley, First Edition, ISBN-13: 978-0471056850.
4. Pulkit Mathur 2018. Food Safety and Quality Control. The Orient Blackswan, ISBN-13: 978-9352873791.
5. Virag Gupta 2017. The Food Safety and Standards Act, 2006. Commercial Law Publication Pvt. Ltd, India. ISBN-13: 978-9385075605.

REFERENCE BOOK(S)

1. Nielsen, S. S., 2023, Food Analysis (6th ed.). Springer Nature. ISBN: 9783031263064.
2. Mortimore, S., & Wallace, C., 2024, HACCP: A Practical Approach (4th ed.). Springer Nature. ISBN: 9783031512551.
3. Lelieveld, H. L. M., Holah, J., & Gabric, D. (Eds.), 2023, Handbook of Hygiene Control in the Food Industry (3rd ed.). Woodhead Publishing. ISBN: 9780323854030.
4. Codex Alimentarius Commission, 2023, General Principles of Food Hygiene (CXC 1-1969, Revised Edition). Food and Agriculture Organization (FAO) & World Health Organization (WHO).
5. Food Safety and Standards Authority of India (FSSAI), 2024, Food Safety and Standards Regulations Manual. FSSAI, Government of India.

E-RESOURCES

1. <https://www.imedpub.com/articles/food-spoilage-microorganisms-and-their-prevention.pdf>
2. https://www.food.actapol.net/pub/7_2_2007.pdf
3. <http://ecoursesonline.iasri.res.in/mod/page/view.php?id=3857>
4. www.codexalimentarius.org
5. www.fssai.gov.in

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	3	2	3	2	2	2	3	2	2	3	3
CO2	3	3	2	2	3	2	3	2	2	2	3	2	2	3	3
CO3	3	3	3	2	3	2	3	3	2	2	3	2	3	3	3
CO4	3	3	2	3	3	3	3	3	3	2	3	3	3	3	3
CO5	3	3	3	2	3	2	3	2	3	3	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 2026–2027)

DEPARTMENT OF NUTRITION AND DIETETICS

M.Sc., FOOD SERVICE MANAGEMENT AND DIETETICS

Semester: II- DCEC-II- Food Packaging

Ins. Hrs. /Week: 4

Course Credit: 4

Course Code: P26NDDE22B

COURSE OBJECTIVES:

- To understand the principles, functions and requirements of food packaging systems.
- To acquire the knowledge on different packaging materials and their properties used in food industries.
- To study the packaging equipment, machinery and modern packaging technologies for food preservation.
- To understand the food packaging regulations, labelling standards and recycling methods for sustainable packaging.
- To develop skills in selecting suitable packaging materials for different food products and evaluating packaging quality.

UNIT-I Introduction to food packaging

(12 Hours)

Objectives, functions of packaging, requirement of effective packaging. Forms of Packaging – rigid, semi-rigid, flexible. Packaging closures and sealing systems, analysis of storage requirement, Vacuum and Inert gas Packaging. Tests on packaging materials, mechanical strength, tension, notch and tearing strengths.

UNIT-II Materials used for food packaging

(12 Hours)

Types, properties, advantages and disadvantages- Paper and paper-based Packaging materials, metal packaging materials, glass packaging materials, plastics and composites, edible and biodegradable, nano food packaging materials. Selection and Design of packaging, Material for dehydrated foods, frozen foods, dairy products, fresh fruits & vegetables, meats and sea foods.

UNIT-III Packaging material properties

(12 Hours)

Properties of packaging materials such as tensile strength, bursting strength, tearing resistance, puncture resistance, impact strength, tear strength, methods of testing and evaluation; barrier properties of packaging materials, theory of permeability, factors affecting permeability, permeability coefficient, gas transmission rate and its measurement, water vapor transmission rate and its measurement.

UNIT-IV Packaging equipment and machinery

(12 Hours)

Active packaging, Modified atmosphere packaging, aseptic packaging, packages for microwave ovens, tetra pack unit Biodegradable plastics, edible gums, coatings vacuum machine; gas packaging machine, seal and shrink packaging machine, form and fill sealing machine, aseptic packaging systems, bottling machine, carton making machine, retort pouches, package printing machines.

UNIT-V Packaging Design and Healthy Solutions

(12 Hours)

Food marketing and role of packaging- Migration in food packaging, FSSAI regulations for packaging and food labelling.

Labelling and patent- Standards, bar coding, purpose, description types of labels, nutrition labelling, health claims, and mandatory labelling provision.

Recycling packaging materials- Recyclability of packaging plastics, improving the recyclability of plastics packaging, Testing the safety and quality of recycled material, using recycled plastics in packaging

Modern packaging systems- Sources of Bio-plastics for food packaging, problems of plastic packaging on human, livestock and environment, range of biopolymers, developing novel biodegradable and edible materials and films.

UNIT-VI Current Contours (For Continuous Internal Assessment Only):

Advantages of ECO friendly - Sustainable and biodegradable packaging. Recycling of food packaging Materials.

Total Lecture hours - 60

COURSE OUTCOMES:

The students will be able to,

1. State the basics in relevant to food packaging, materials and equipment
2. Describe the different types and properties of the food packaging materials and equipment
3. Relate the packaging properties, rules and packaging techniques
4. Associate the packaging materials and effective packaging processes
5. Design and develop innovative biodegradable and edible packaging materials and evaluate their feasibility for commercial food applications.
6. Evaluate the eco-friendly, biodegradable and recyclable food packaging systems for sustainable food packaging practices.

TEXT BOOK(S)

1. Dr Birendra Kumar Mishra., 2014, Dairy and Food Processing Industry: Recent Trends, Biotech Books, ISBN-10 817622300 :
2. Kerry, Joseph P., and Butler, Patrick. 2026, *Smart Packaging Technologies for Fast Moving Consumer Goods*. Wiley.
3. Potter N, and Hotchkiss J.H., 2008, Food Science. CBS Publications and Distributors, New Delhi
4. Srilakshmi B, 2016, Food Science. New Age International Publishers, New Delhi
5. Subbulakshmi, G, Shobha A Udipi., 2006, Food Processing and Preservation, New Age international Publishers, New Delhi, 1st ed.,

REFERENCE BOOK(S)

1. Ahvenainen, Raija., 2026, *Novel Food Packaging Techniques*. Woodhead Publishing,
2. Gordon L. Robertson, 2013, Food Packaging: Principles and Practice, Third Edition.
3. Joslyn and Heid, 2018, Food Processing Operations: Management, Machines, Materials & Methods. Vol. 1, Medtec, ISBN-10 : 9789386800688
4. Kees A., van der Heijden and Sanford Miller, 1999, International Food Safety Handbook: Science, International Regulation, and Control. Published by CRC Press. ISBN 0824793544, 9780824793548.
5. Neal D. Fortin., 2016, Food Regulation Law, Science, Policy, and Practice. Wiley

E-RESOURCES

1. <https://matmatch.com/learn/material/materials-used-in-food-packaging>
2. <https://pubs.acs.org/doi/10.1021/jf900040r>
3. <https://foodpackagingforum.org/>
4. www.iip-in.com
5. www.fssai.gov.in

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	3	2	3	2	2	2	3	2	2	3	3
CO2	3	3	2	2	3	3	3	2	2	2	3	3	2	3	3
CO3	3	3	3	3	3	2	3	3	2	2	3	2	3	3	3
CO4	3	3	2	3	3	3	3	2	3	2	3	3	3	3	3
CO5	3	3	3	2	3	3	3	3	3	3	3	3	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 2026–2027)

DEPARTMENT OF NUTRITION AND DIETETICS

M.Sc., FOOD SERVICE MANAGEMENT AND DIETETICS

Semester: II- DCEC-II- Functional Foods and Nutraceuticals

Ins. Hrs. /Week: 4

Course Credit: 4

Course Code: P26NDDE22C

COURSE OBJECTIVES:

- To understand the concepts, history, development of functional foods and nutraceuticals.
- To acquire the knowledge on the classification and bioactive compounds of nutraceuticals.
- To study the role of probiotics, prebiotics, and microbial functional foods in human health.
- To analyse the therapeutic role of functional foods and nutraceuticals in lifestyle diseases.
- To understand the principles of nutrigenomics and the interaction between nutrients and human health.

UNIT-I: Functional Foods and Nutraceuticals

(12 Hours)

Definition and History-Functional foods, traditional foods, nutraceuticals-teleology, designer foods and pharma foods, history of functional foods, components of functional foods, stages involved in development of functional foods.

UNIT-II: Categorization of Nutraceuticals

(12 Hours)

Classification - Based on food source, mechanism of action and chemical nature-isoprenoid, phenolic substances, fatty acids and structural lipids, terpenoids –saponins, tocotrienols and simple terpenes, carbohydrates and amino acid based derivatives, isoflavones.

UNIT-III: Functional Foods and Nutraceuticals of Microbial Origin

(12 Hours)

Functional foods of Microbial origin- Human gastrointestinal tract and its microbiota, functions, probiotic microflora and functions- Lactobacillus and Bifidobacterium, concept of probiotics and prebiotics with examples, role of probiotics in health and disease, spirulina as bioactive component.

UNIT – IV: Functional foods and Nutraceuticals in Health and Disease

(12 Hours)

Sources and role of Functional foods and Nutraceuticals - Role of functional foods and Nutraceuticals in diseases, concept of dietary supplements, phytochemicals, phytosterols, omega 3 and 6 fatty acids, dietary fiber, role of nutraceuticals in health and disease management – diabetes mellitus, hypertension, cancer; non-essential nutrients as dietary supplements, FOSHU foods.

UNIT- V: Concepts of Nutrigenomics in Nutraceuticals

(12 Hours)

Basic concepts of Genomics and Functional Genomics, Proteomics, Metabolomics, Epigenetics and Personalized nutrition. Nutrients and gene expression with its regulation. Scope and Importance to Human Health and Industry, Transporter gene polymorphisms - interaction with effects of macro and micronutrients in humans. The intestinal microbiota - role in nutrigenomics. Nutrigenomics approaches to unravelling physiological effects of complex foods. Modifying Disease Risk through Nutrigenomics. Modulating the risk of diseases through Nutrigenomics – Cardiovascular disease, Diabetes, Cancer, Inflammatory bowel disease and Obesity.

UNIT – VI Current Contours (For Continuous Internal Assessment Only):

Conduct a market survey on functional foods and nutraceuticals in your locality 15
Preparation of catalogue with information on functional foods and nutraceuticals.

Total Lecture hours - 60

COURSE OUTCOMES:

The students will be able to,

1. Define and classify functional foods and Nutraceuticals and its regulatory aspects
2. Identify and explore the types & sources of nutraceutical and functional foods
3. Identify and explore the functional foods and nutraceutical of microbial origin.
4. Understand the potential of various nutraceutical and functional foods in promoting human health
5. Understand the concept of nutrigenomics in nutraceutical.
6. Conduct market surveys and prepare catalogues of functional foods and nutraceutical products available locally.

TEXT BOOK(S)

1. Bamji, 2003, Textbook of Human Nutrition, 3rd edition, Oxford & IBH Publishing
2. Srilakshmi.B, 2012, Nutrition Science, 4th edition, New Age International Pvt Ltd.
3. Wildman, E.C Robert, 2007, Handbook of Nutraceuticals and Functional Foods (2nd ed).
4. Martin Kussmann & Patrick J. Stover, 2026, Nutrigenomics and Personalized Nutrition: From Molecular Mechanisms to Human Health.
5. Kapil Mehta & Jyoti Prakash Tamang, 2026, *Probiotics, Prebiotics and Synbiotics: Functional Foods for Health Benefits*. CRC press Co Pvt Ltd, New Delhi

REFERENCE BOOK(S)

1. Webb G.P, 2006, Dietary Supplements and Functional Foods, lack well Publishing
2. Tamine. A, 2005, Probiotic Dairy Products, Blackwell Publishing Ltd, United
3. Pomeranz, Y, 2000, Food Analysis Theory and Practice. CBS Publishers & Distributors
4. Edward.R, Farnworth, 2008, Handbook of Fermented Functional Foods. CRC Press. New York.
5. Debasis Bagchi & Francis C. Lau, 2026, Nutraceutical and Functional Food Regulations in the United States and Around the World, 4th Edition. Kingdom Ltd, New York Pvt. Ltd, New Delhi.

E- RESOURCES

1. <https://www.nutritionociety.org/blog/nutrigenomics-basics>
2. https://faculty.ksu.edu.sa/sites/default/files/lectute_1_457_0.pdf
3. <https://egyankosh.ac.in/bitstream/123456789/38355/1/Uint-9.pdf>
4. www.nutraingredients.com
5. www.functionalfoodcenter.net

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	3	2	3	2	2	2	3	2	2	3	3
CO2	3	3	2	2	3	2	3	2	2	2	3	3	2	3	3
CO3	3	3	2	3	3	2	3	2	2	2	3	2	3	3	3
CO4	3	3	3	3	3	3	3	2	3	2	3	3	3	3	3
CO5	3	3	3	3	3	3	3	3	3	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 2026–2027)

DEPARTMENT OF NUTRITION AND DIETETICS

M.Sc., FOOD SERVICE MANAGEMENT AND DIETETICS

Semester: II- GEC-II- Applied Food Microbiology

Ins. Hrs. /Week: 4

Course Credit: 3

Course Code: P26NDGE22A

COURSE OBJECTIVES:

- To understand the beneficial role of microorganisms.
- To gain the knowledge on contamination, spoilage, and preservation of food products.
- To study the food borne diseases and preventive measures.
- To develop the understanding of hygiene, sanitation and safe food handling practices.
- To familiarize the students with food safety regulations, quality control systems, and food certification procedures.

UNIT- I: Beneficial effects of microorganisms

(12 Hours)

Homo and Hetero Fermentative Bacteria, Yeast and Fungi, Microorganisms as Food – Single Cell Protein, Fats from microorganisms, Production of Other substances added to foods, Production of Enzymes, Fermentation, Types, Role of microorganisms in fermented foods - cheese, sauerkraut and soy-based foods, factors controlling fermentation in foods. Probiotics and Prebiotics.

UNIT- II: Microbiology of Foods

(10 Hours)

Contamination, spoilage and preservation of cereal and cereal products, sugar and sugar products, Vegetables and fruits, milk and milk products and canned foods, meat and meat products, egg, poultry and fish.

UNIT- III: Food borne diseases

(10 Hours)

Food hazards, significance of food borne diseases, risk factors associated with food borne illness. Bacterial agents of food borne illness *Clostridium botulinum*, *clostridium perfringens*, *Escherichia coli*, *salmonella*, *shigella*, *vibrio* and *staphylococcus aureus*. Non-bacterial agents of food borne illness Toxigenic fungi – Mycotoxins, ergotism and aflatoxins. Food borne viruses – Polio, Hepatitis and Gastro enteritis viruses.

UNIT- IV: Hygiene and sanitation

(18 Hours)

Importance of Personal hygiene of food handlers

General principles of hygiene – personal and environmental hygiene. Hygienic Practices in Handling and Serving Foods. Planning and implementation of training programme for health personnel. Safety Measures: Safety in food procurement, storage, handling and preparation, control of spoilage, safety of leftover foods, disposal of food waste Control of Infestation and Cleaning Methods, Importance of pest control, various pests and their control measures, cleaning and sanitizing, need for efficient cleaning programme. Cleaning Agents, Equipment, and Methods to wash rinse and sanitize Food Contact Surfaces.

UNIT- V: Food Safety Regulation for Quality Control

(10 Hours)

Food Safety Regulation for Quality Control - overview of Food Regulation in India; Food Laws and Regulations; Structure, organization and duties of regulatory system.- Duties

and responsibilities of food business operator; Registration and Licensing process and requirements; Traceability; Import and Export of Foods; Liability for Defective Products; Food safety management systems and certifications. Regulation of special category Foods: Regulation of Irradiated foods; Regulation of Biotechnology and Genetic Modifications; Regulation of Dietary Supplements, Functional Foods and Nutraceuticals.

UNIT VI Current Contours (For Continuous Internal Assessment Only):

Visit to microbiology Lab of food industry or FSSAI & Observation in college canteen to record the route of contamination.

Total Lecture Hour-60

COURSE OUTCOMES:

The students will be able to,

1. Identify the types of microorganisms and explain the morphology of microorganisms
2. Classify beneficial effects and preservation of microbes in food products.
3. Determine the Food hazards, significance of food borne diseases, risk factors associated with foodborne illness.
4. Evaluate the Importance of Personal hygiene of food handlers.
5. Apply food safety regulations and quality control standards to ensure safe and high-quality food products.
6. Observe the contamination routes and microbiological practices in food industries and institutional food services.

TEXT BOOK(S)

1. Frazier, W. C., & Westhoff, D. C., 2024, Food Microbiology (6th ed.). McGraw Hill Education. ISBN: 9781266531316.
2. Jay, J. M., Loessner, M. J., & Golden, D. A., 2023, Modern Food Microbiology (9th ed.). Springer Nature. ISBN: 9783031517198.
3. Ray, B., & Bhunia, A. K., 2023, Fundamental Food Microbiology (6th ed.). CRC Press. ISBN: 9781032473154.
4. Adams, M. R., & Moss, M. O., 2024, Food Microbiology (5th ed.). Royal Society of Chemistry. ISBN: 9781839162794.
5. Sharma, A., 2023, Textbook of Food Science and Technology (3rd ed.). CBS Publishers & Distributors. ISBN: 9789386478009.

REFERENCE BOOK (S)

1. Doyle, M. P., Diez-Gonzalez, F., & Hill, C. (Eds.), 2023, Food Microbiology: Fundamentals and Frontiers (6th ed.). ASM Press. ISBN: 9781555819910.
2. Lelieveld, H. L. M., Holah, J., & Gabric, D. (Eds.), 2023, Handbook of Hygiene Control in the Food Industry (3rd ed.). Woodhead Publishing. ISBN: 9780323854030.
3. Mortimore, S., & Wallace, C., 2024, HACCP: A Practical Approach (4th ed.). Springer Nature. ISBN: 9783031512551.
4. Codex Alimentarius Commission, 2023, General Principles of Food Hygiene (CXC 1-1969, Revised Edition). Food and Agriculture Organization (FAO) & World Health Organization (WHO).
5. Food Safety and Standards Authority of India (FSSAI), 2024, Food Safety and Standards Regulations Manual. Government of India.

E-RESOURCES

1. https://fac.ksu.edu.sa/sites/default/files/140_mbio-final_notes.pdf
2. https://www.who.int/foodsafety/publications/foodborne_disease/Section_6.pdf
3. <https://nptel.ac.in/courses/102103015/pdf/mod5.pdf>
4. www.foodsafety.gov
5. www.fssai.gov.in

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	3	2	3	2	2	2	3	2	2	3	3
CO2	3	3	2	2	3	2	3	2	2	2	3	2	3	3	3
CO3	3	3	2	3	3	2	3	2	2	2	3	2	3	3	3
CO4	3	3	3	2	3	3	3	3	3	3	3	3	2	3	3
CO5	3	3	3	3	3	3	3	2	3	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 2026–2027)

DEPARTMENT OF NUTRITION AND DIETETICS

M.Sc., FOOD SERVICE MANAGEMENT AND DIETETICS

Semester: II- GEC-II- Food Laws and Labelling

Ins. Hrs. /Week: 4

Course Credit: 3

Course Code: P26NDGE22B

COURSE OBJECTIVES:

- To understand the fundamentals and evolution of food laws and regulatory systems at national and international levels.
- To gain the knowledge on food standards and food safety management practices.
- To study the food additives contaminants and safety regulations related to food products.
- To develop the understanding of food labelling regulations, mandatory requirements and special food claims.
- To familiarize the students with enforcement of food laws, consumer protection and international food trade regulations

UNIT I: Fundamentals of Food Laws and Regulations (12 Hours)

Importance and objectives of food laws, Evolution of food legislation India and global overview, Key regulatory bodies: Food Safety and Standards Authority of India (FSSAI), Codex Alimentarius Commission, World Health Organization & Food and Agriculture Organization, Food Safety and Standards Act, 2006, Roles of central and state authorities.

UNIT II: Food Standards and Quality Control (12 Hours)

Food standards: concept and significance, Types of standards: Mandatory and voluntary standards, National standards: BIS, AGMARK, International standards and harmonization, Food safety management systems: HACCP (Hazard Analysis Critical Control Point), ISO standards (ISO 22000), Food adulteration and contamination control

UNIT III: Food Additives, Contaminants and Legal Aspects (12 Hours)

Definition and classification of food additives, Permitted additives and legal limits (as per FSSAI Codex), Food contaminants: Pesticides, heavy metals, toxins, Residue limits and safety evaluation, risk assessment and toxicological considerations, Legal provisions related to additives and contaminants.

UNIT IV: Food Labelling Regulations (12 Hours)

Importance of food labelling, Types of labels: Informative, descriptive, persuasive, Mandatory labelling requirements (FSSAI), Claims on labels: Front-of-pack labelling (FOPL), Labelling for special foods - infant foods, nutraceuticals and organic foods.

UNIT V: Food Laws Enforcement, Trade and Consumer Protection (12 Hours)

Enforcement of food laws and penalties, Role of food safety officers, Food recall procedures, Consumer protection and rights, International food trade laws: WTO agreements (SPS & TBT), Import/export regulations and certification, Emerging issues in food regulation-GM foods and e-commerce foods.

UNIT VI Current Contours (For Continuous Internal Assessment Only):

Visit a nearby supermarket, food processing unit, bakery, restaurant, or online grocery platform and collect samples/images of packaged food labels. Observe and record the mandatory labelling information provided on different food products as per FSSAI regulations.

Total Lecture Hours – 60

COURSE OUTCOMES:

The students will be able to,

1. Explain the objectives, evolution, and regulatory framework of food laws in India and globally.
2. Describe the food standards and food safety management practices.
3. Identify the food additives, contaminants, permissible limits and related legal provisions.
4. Interpret the food labels and apply mandatory labelling requirements.
5. Explain the food law enforcement procedures, consumer rights and international food trade regulations.
6. Analyse recent developments and practical applications related to food laws and labelling systems.

TEXT BOOK(S):

1. Debasish Biswas, Debarun Chakraborty & Atanu Manna, 2026, Food Marketing and Labelling: A Practical Guide.
2. Madeleine Smith & Iain Ferris, 2025, Food Safety and Inspection: An Introduction, 2nd Edition.
3. Neal D. Fortin, 2026, Food Regulation: Law, Science, Policy, and Practice, 4th Edition.
4. Rajan Nijhawan, ILBCO's Food Safety and Standards Act, 2006 with Rules and Regulations, 27th Edition.
5. Salah E. O. Mahgoub, 2026, Genetically Modified Foods: Basics, Applications, and Controversy, 2nd Edition.

REFERENCE BOOK(S)

1. Debasis Bagchi & Francis C. Lau, 2026, Global Food Regulations and Labeling Standards.
2. H. L. M. Lelieveld, John Holah & David Napper, 2026, Food Safety Management Systems and HACCP Principles.
3. LexisNexis, The Food Safety and Standards Act, 2006 – Bare Act, Edition.
4. Rajan Nijhawan, 2026, ILBCO's Manual of Methods of Analysis of Foods (As Per FSSAI), 10th Edition.
5. Yashwant V. Pathak & John Oloche Onuh, 2025, Plant Food Phytochemicals and Bioactive Compounds in Nutrition and Health.

E- RESOURCES

1. <https://fssai.gov.in/upload/uploadfiles/files/Chapter1.pdf>
2. <https://www.egyankosh.ac.in/bitstream/123456789/73129/1/Unit-14.pdf>
3. <https://niftem-t.ac.in/pmfme-sna/images/Handbook/M8.pdf>
4. www.fssai.gov.in
5. www.codexalimentarius.org

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	3	2	3	2	2	2	3	2	2	3	3
CO2	3	3	2	2	3	2	3	2	2	2	3	2	3	3	3
CO3	3	3	2	3	3	2	3	2	2	2	3	2	3	3	3
CO4	3	3	3	2	3	2	3	3	3	3	3	2	2	3	3
CO5	3	3	3	3	3	3	3	2	3	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 2026–2027)

DEPARTMENT OF NUTRITION AND DIETETICS

M.Sc., FOOD SERVICE MANAGEMENT AND DIETETICS

Semester: II- GEC-II- Food Biotechnology and Nutrigenomics

Ins. Hrs. /Week: 4

Course Credit: 3

Course Code: P26NDGE22C

COURSE OBJECTIVES:

- To understand the principles and regulatory aspects of food biotechnology and transgenic foods.
- To gain the knowledge on industrial biotechnology processes and applications in foods.
- To develop the understanding of omic technologies.
- To study the gene–diet interactions and the role of nutrigenomics in human health.
- To analyse the role of nutrigenomics in promoting personalized nutrition.

UNIT - I Introduction to Biotechnology and Techniques (12 Hours)

Definition and pathways of food biotechnology development, Application of genetics to food production- extended shelf life of fruits, transgenic plants with improved nutrition; Regulatory Aspects in food Biotechnology - Ethical and legal issues in food biotechnology, Intellectual Property Rights Transgenic for food production: Development and current status of transgenic crops for crop improvement; molecular farming, Transgenic Animal, GM foods: Ethical issues concerning GM foods

UNIT - II Industrial Biotechnology (12 Hours)

Fermentation –Objectives, Stage Course of Fermentation. Bioreactor design. Downstream processing, Biosensors and Biochips; Microbial products of fermentation -Amino acids, Vitamins and Lipids; Application of enzymes in food industries. Immobilised enzymes and methods of immobilization; Functionality and applicability of food nanotechnology Nanocarrier systems for delivery of nutrients and supplements Nanocoatings on food contact surfaces & Safety concerns

UNIT - III Omic Technologies (12 Hours)

Genomics Techniques: Different sequencing approaches, Microarray, Mass array, PCR and RT-PCR techniques; Proteomics Techniques: 1-D, 2-D gel electrophoresis and peptide sequencing methods; Metabolomics Techniques: Chromatography and mass spectrometry techniques, Discovery and validation of biomarkers for important diseases and disorders;

UNIT - IV Introduction to Gene-Diet Interactions (12 Hours)

Nutrigenomics: Scope and Importance to Human Health and Industry; interaction with effects of micronutrients in humans; Polymorphisms in genes affecting the uptake and transport of omega-6 and omega-3 polyunsaturated fatty acids; interactions with dietary lipids and chronic disease risk; The intestinal microbiota - role in nutrigenomics.

UNIT - V Modifying Disease risk through Nutrigenomics (12 Hours)

Modulating the risk through nutrigenomic; cardiovascular disease, diabetes, inflammatory bowel diseases, obesity, cancer and malnutrition

UNIT - VI Current Contours (For Continuous Internal Assessment Only):

Collect current information on Biotechnology & techniques, Industrial Biotechnology, Omic Technologies, Gene-Diet Interactions, Modifying Disease Risk through Nutrigenomics from research journals

Total Lecture Hour-60

COURSE OUTCOMES:

The students will be able to,

1. Outline the fundamentals of food biotechnology and genetics.
2. Demonstrate the use of the biotechnological tools and techniques.
3. Examine the principles used in analytical techniques employed in biotechnology and genetically modified foods.
4. Appraise the fermentation methods and design fermented foods.
5. Conceptualise gene therapy in disease prevention.
6. Collect the reviews and present recent research information related to biotechnology, omics and nutrigenomics.

TEXT BOOK(S)

1. Alexandru Grumezescu & Alina Maria Holban, 2026, Food Biotechnology and Nanotechnology in Food Systems.
2. Debmalya Barh & Vasco Azevedo, 2026, Omics Technologies and Bio-Engineering: Applications in Food and Nutrition.
3. Foster, G. N., 2026, Food Biotechnology, CBS Publishers.
4. Kavita., 2020, Industrial Biotechnology, 2nd Edition.
5. Ronald Ross Watson & Victor R. Preedy, 2026, Nutrigenomics and Functional Foods in Health and Disease Prevention.

REFERENCE BOOK(S)

1. Bains, W., 1993, Biotechnology from A to Z, Oxford University Press.
2. Joshi, V. K. & Pandey, A., 1999, Biotechnology: Food Fermentation (Vol. 1 & 2), Education Publishers.
3. Martin Kussmann & Patrick J. Stover, 2026, Personalized Nutrition and Nutrigenomics.
4. S. B. Primrose & R. M. Twyman, 2026, Principles of Gene Manipulation and Genomics, 9th Edition.
5. Yashwant Pathak & Amit Kumar, 2026, Industrial Biotechnology and Food Processing Technologies.

E-RESOURCES

1. <https://nptel.ac.in/courses/126103017>
2. <https://www.researchgate.net/publication/340375019>
3. <https://nutrigenomix.com/>
4. www.ncbi.nlm.nih.gov
5. www.fao.org/biotechnology

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	2	3	3	3	3	2	2	2	3	3	3	3	3
CO3	3	3	3	3	3	2	3	3	2	2	3	2	3	3	3
CO4	3	3	2	3	3	3	3	2	3	2	3	3	3	3	3
CO5	3	3	3	3	3	3	3	3	3	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 2026–2027)

DEPARTMENT OF NUTRITION AND DIETETICS

M.Sc., FOOD SERVICE MANAGEMENT AND DIETETICS

Semester: II- SEC-II- Bakery Science

Ins. Hrs. /Week: 2

Course Credit: 2

Course Code: P26SEND22

COURSE OBJECTIVES:

- To understand the fundamentals and hygiene practices in bakery science.
- To gain the knowledge on baking processes and baking equipment.
- To develop the skills in the preparation of various bakery and specialty products.
- To study the quality control measures, shelf-life evaluation, food safety standards, and packaging techniques in bakery products.
- To familiarize the students with industrial bakery management, entrepreneurship, and recent innovations in bakery technology.

UNIT I: Introduction to Bakery Science

(06 Hours)

Bakery- Definition, aims, principles, objectives, History, evolution of baking industry and classification of baking products. Personal hygiene and bakery hygiene required for bakery personnel. Bakery equipment and tools. Identification and handling of raw materials. Permutation formula, Oven at different baking temperatures.

UNIT II: Baking Processes and Technology

(06 Hours)

Structure and composition of wheat and other cereal grains Functional properties of bakery ingredients: flour, sugar, fat, eggs, yeast, salt and water, Gluten development and rheology of dough. Role of enzymes and additives in baking.

Mixing methods: straight dough, sponge and dough, batter method, Dough handling-kneading, fermentation, proofing, punching, Baking techniques and heat transfer mechanisms, Types of ovens- deck, convection, rotary and microwave-assisted baking, Process optimization and control.

UNIT III: Bakery Products and Formulation

(06 Hours)

Bread varieties, cakes, cookies, biscuits, pastries, Product formulation and standardization, Specialty products: gluten-free, high-fiber, low-sugar and functional bakery foods, Use of alternative ingredients -millets, legumes, seed powders like bottle gourd seed, Sensory attributes and quality parameters.

UNIT IV: Quality Control and Shelf Life

(06 Hours)

Physical, chemical, and microbiological quality analysis, Texture profile analysis and crumb structure, Staling: mechanisms and prevention, Food safety standards – HACCP, GMP, Packaging technologies and shelf-life extension.

UNIT V: Industrial Bakery Management and Innovations

(06 Hours)

Industrial bakery operations and plant layout, Costing, scaling up and production management, Bakery entrepreneurship and marketing strategies, Recent innovations: functional foods, clean label baking, automation, Sustainability in bakery industry

UNIT-VI Current Contours (For Continuous Internal Assessment Only):

Visit a bakery production unit.

Total Lecture Hour-30

COURSE OUTCOMES:

The students will be able to,

1. Understand the bakery industry, sanitation, tools, and raw materials.
2. Analyse the baking processes, ingredient functions, and dough development.
3. Develop and standardize the various bakery products with innovative formulations.
4. Evaluate the quality, safety and shelf life of bakery products.
5. Apply the bakery management principles and modern innovations in industry.
6. Observe the industrial bakery production practices and prepare a report on bakery operations.

TEXT BOOK(S)

1. Amalendu Chakraverty & Rameshwar Sharma, 2026, Handbook of Baking Technology and Functional Bakery Products.
2. Avantina Sharma, 2006, Text Book of Food Science and Technology, International Book Distributing Co., Chaman Studio Building, Charbagh, Lucknow, UP
3. Dubey, S.C. 2002, Basic Baking IV Edition, The Society of Indian Bakers, New Delhi.
4. Stanley P. Cauvain, 2026, Bakery Food Manufacture and Quality: Water Control and Effects.
5. Vickie A. Vaclavik & Elizabeth W. Christian, 2026, Essentials of Food Science with Bakery Applications.

REFERENCE BOOK(S)

1. Bernard Clayton, 2022, New Complete Book of Breads, Fireside Rockefeller Centre, New York.
2. M.K. Gaur & Manish Gaur, 2024, Baking made simple (Bakers Machinery & Consultancy Company, Bangalore.
3. Paula I. Figoni, 2026, How Baking Works: Exploring the Fundamentals of Baking Science, 4th Edition.
4. Stanley P. Cauvain & Linda S. Young, 2026, Technology of Breadmaking, 4th Edition.
5. Yogambal Ashokkumar, 2026, Bakery and Confectionery Technology, Revised Edition.

E-RESOURCES

1. <https://www.scribd.com/document/883066857/Bakery-Study-Notes>
2. <https://www.isbe.net/CTEDocuments/FCS-700004.pdf>
3. <http://ihmgwalior.blogspot.com/2012/10/bakery-theory-notes.html>
4. www.bakersjournal.com
5. www.aibonline.org

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	3	2	3	2	2	2	3	2	2	3	3
CO2	3	3	2	2	3	2	3	2	2	2	3	2	3	3	3
CO3	3	3	3	3	3	3	3	2	2	2	3	3	3	3	3
CO4	3	3	2	3	3	2	3	3	3	2	3	2	3	3	3
CO5	3	3	3	2	3	3	3	3	3	3	3	3	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 2026–2027)

DEPARTMENT OF NUTRITION AND DIETETICS

M.Sc., FOOD SERVICE MANAGEMENT AND DIETETICS

Semester: II- NMEC-I- Health and Weight Management

Ins. Hrs. /Week: 2

Course Credit: 2

Course Code: P26NMEND21

COURSE OBJECTIVES:

- To understand the concepts of health and weight management.
- To gain knowledge on the assessment techniques related to underweight and obesity.
- To develop awareness on balanced nutrition, lifestyle modifications, and stress management.
- To study the physical, and therapeutic strategies for effective weight management.
- To familiarize the students with modern technologies and ethical issues related to nutrition and weight management.

UNIT I: Introduction to Health and Weight Management (6 Hours)

Definition and Importance of Health and Weight Management, classifications and impact of underweight, overweight and obesity, Types of obesity- android and gynoid patterns, Determinants of body weight, Concepts of body weight, body composition, BMI, WHR, Energy balance, Macronutrients metabolism and hormonal regulation of appetite.

UNIT II: Causes and Assessment of Nutritional status (6 Hours)

Causes and risk factors of underweight and obesity, Assessment techniques: anthropometry, Biochemical, Clinical, bioelectrical impedance, DEXA, dietary assessment, under water weighing, Desirable fat percentage and Dangers of low fat.

UNIT III: Promoting Wellness in Weight Management (6 Hours)

Concept and dimensions of holistic wellness, Role of balanced nutrition and hydration, Principles of Weight Management, Guidelines to lose weight, calculating energy requirement, Importance of lifestyle modifications in disease prevention and weight control, Stress: definitions, types and management techniques, Complementary approaches.

UNIT IV: Strategies for Weight Management (6 Hours)

Individualized approaches based on needs and goals. Dietary Strategies- Evidence based diets, role of functional foods, Physical Activity and Exercise, Behavioral and Lifestyle Modifications, Pharmacological Interventions, Surgical Approaches, Role of Dietitians and Multidisciplinary Teams in weight management.

Diets in Diabetes, Hypertension, Hyperlipidemia, Peptic ulcer, Inflammatory bowel disease, constipation, Anemia, underweight and Overweight.

UNIT V: Technology in Nutrition and Weight Management (6 Hours)

Digital Technology - mHealth apps, wearable devices, AI tools, digital tracking, innovation, and Tele nutrition, Remote nutrition care and telehealth platforms, Popular and Emerging Diet Trends-Keto, intermittent fasting, plant-based diets, Weight Loss Products, Ethical and Social Issues, Professional Ethics and Responsibilities, Laws related to supplements and digital health.

UNIT-VI Current Contours (For Continuous Internal Assessment Only):

Conduct a survey on dietary habits, physical activity patterns, and lifestyle practices among individuals of different age groups. Measure and record anthropometric parameters and the use of digital health applications and online nutrition platforms for weight management.

Total Lecture Hours - 30

COURSE OUTCOMES:

The students will be able to,

1. Explain the fundamental concepts of health, weight management and energy balance.
2. Identify the causes and assessment methods of underweight, overweight, and obesity.
3. Demonstrate the understanding of wellness principles and stress management techniques.
4. Develop personalized strategies for healthy weight management.
5. Evaluate current trends, ethical issues, and regulations in health and weight management.
6. Assess the lifestyle practices, dietary patterns, and modern weight management approaches through survey and practical evaluation.

TEXT BOOK(S)

1. Frank Hu & Walter Willett, 2026, Nutrition, Obesity and Weight Management.
2. Judith E. Brown, 2026, Nutrition Through the Life Cycle, 8th Edition.
3. Mahan L. Kathleen & Janice L. Raymond, 2026, Krause's Food & the Nutrition Care Process, 16th Edition.
- 4.Sizer, F. S., & Whitney, E.,2021., Nutrition: Concepts and Controversies (15th ed.). Cengage Learning.
5. Whitney, E., & Rolfes, S. R.,2019, Understanding Nutrition (15th ed.). Cengage Learning.

REFERENCE BOOK(S)

1. Bray, G. A., & Bouchard, C.,2014, Handbook of Obesity: Clinical Applications (4th ed.). CRC Press.
2. Brownell, K. D., & Walsh, B. T, 2017, Eating Disorders and Obesity: A Comprehensive Handbook (3rd ed.). Guilford Press.
3. Ronald Ross Watson, 2026, Nutrition in the Prevention and Treatment of Disease, 5th Edition.
4. Sareen S. Gropper & Jack L. Smith, 2026, Advanced Nutrition and Human Metabolism, 9th Edition.
5. Yashwant Pathak & Amit Kumar, 2026, Digital Health Technologies in Nutrition and Weight Management.

E-RESOURCES:

1. <https://www.who.int/health-topics/obesity>
2. <https://www.nin.res.in>
3. <https://pubmed.ncbi.nlm.nih.gov>
4. www.cdc.gov/healthyweight
5. www.eatright.org

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

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