B.Sc. Nutrition and Dietetics

Motto

Nourish to Flourish: Promoting Health Trough Science and Service

Vision

To be a centre of excellence in nutrition education, research and community service, empowering graduates to improve public health and well-being through evidence-based dietary practices and innovations.

Mission

- To impact scientific knowledge and practical skills in the field of nutrition and dietetics
- To promote health, prevent diseases, and improve quality of life through nutrition education and awareness
- To foster research, innovation, and entrepreneurial skills in food, health and nutrition.
- To develop competent professional equipped with ethical values and social responsibility to serve in clinical, community and industrial sectors.

Preamble:

The B.Sc. Nutrition and Dietetics programme at St. Joseph's College of Arts and Science for Women (Autonomous), Hosur, curriculum has been structured to prepare the undergraduates to achieve skills to move forward with the development of the society/community/nation and entrepreneurship. Nutrition has been recognized and given a special role in national development. This programme is following on the same lines laid out in National Policy of Nutrition. This curriculum aims at training students to take up leadership roles in extension and community outreach programs.

The students are encouraged to develop a scientific temper. Familiarizing them with the use of newer technologies, methods in family and community linkages, and sustainable use of resources for human development are the hall mark of this course. This course aims at enriching the minds of the students who have interest in learning finer points of nutrition. Nutrition is the key to facilitate the study and enhance the quality of human life. Its approach is therefore inherently interdisciplinary.

The Bachelor of Science in Nutrition and Dietetics is designed to meet the growing demand for health professionals who can address nutrition-related health challenges. This programme bridges the gap between food science, human physiology, public health, and diet therapy, fostering a multidisciplinary approach to promote nutrition security and healthcare sustainability. The curriculum aligns with national health goals and global sustainable development targets, nurturing graduates to become agents of social transformation and wellness advocates.

Nature and Extent of the Programme

The **B.Sc. Nutrition and Dietetics** programme is a three-year undergraduate degree under the Faculty of Science/Health Sciences. It encompasses the biological, chemical, and social sciences related to human nutrition, food, health, and disease management. The programme offers a blend of theoretical foundations and practical training, including laboratory work, internships, field visits, and community outreach. It prepares students for **roles in hospitals, public health departments, food industries, research institutions, and as independent dieticians or entrepreneurs.**

The curriculum provides an excellent foundation of principles of science and art as applied to Food Nutrition and Dietetics. According to the **World Health Organization** nutrition is the intake of food, considered with the body 's dietary needs. Adequate food is vital in keeping people alive. Good nutrition is essential to good health. Poor nutrition can lead to reduced immunity, increased susceptibility to disease, impaired physical and mental development, and reduced productivity. Nutrition impacts the development process at every stage of the life cycle from conception to death. Freedom from hunger and malnutrition is a basic human right and their alleviation is a fundamental prerequisite for human and national development. Nutrition encompasses the science of the significance of essential nutrients, their functions, effect of deficiencies and excess. The Nutrition Science translates the science of nutrition into practical applications in clinical, food service, or community settings.

Dietetics is the science of how nutrition affects our health. Scientific studies have shown how a change to our diet can help prevent or control a variety of health problems, including obesity, diabetes, and heart disease. There is a professional focus on **applying knowledge of nutritional sciences to benefit human health and to abate disease**. The program aims towards a standardized template of capacity building of Nutritionists and Dieticians with academic excellence and professional skills to be leveraged in a variety of settings ranging from clinical settings to community and people at large. The program focuses on **excellence in intellectual development, the development of a professional inquiring attitude**, and equality of opportunity.

This programme emphasizes:

- Understanding food composition and nutrient functions
- Role of nutrition in human development and disease prevention
- Assessment of nutritional status and diet planning
- Food safety, quality control, and policy
- Community and clinical nutrition interventions

Aim of the Programme

The recommended curriculum aims to produce Dietitian/Nutritionists who are:

- ✓ Technically and clinically competent for independent decision-making

- ✓ Enable to assess a patient
- ✓ Aware of patient conditions and treatment along with the importance of quality benchmarks
- ✓ Understand the theoretical basis for evidence-based practice
- ✓ Effective members of the multidisciplinary team
- ✓ Prepared to participate in or initiate research into practice

All aspects of Nutrition and Dietetics have been considered in the development of this curriculum keeping in mind the possible roles expected at different levels by nutritionists and dietitians based on their qualifications and experience. The need for connecting the dots between education and employment practices has been the road map for devising this curriculum. The career pathway indicates direct.

Duration of the Programme

The **B.Sc. Nutrition and Dietetics** programme shall extend over a period of **three academic years** comprising **six semesters**. Each academic year shall consist of **two semesters:**

- **Odd Semester:** June to November
- **Even Semester:** December to May

Each semester shall have **a minimum of 90 working days**, exclusive of examination days.

Eligibility for Admission

Candidates for admission to the first year of the Degree of Nutrition and Dietetics programme shall be required to have passed the Higher Secondary Examinations conducted by the Government of Tamil Nadu or any other equivalent examination. As per Government Order (2020-2021) G.O. (1D) N0.110, Higher Education (G1) Department, dated 18.07.2020.

Eligibility:

- **General Stream:** Chemistry with Biology or Home Science
- **Vocational Stream:** Biology or Home Science.

Eligibility will be updated as per the Tamil Nadu G.O. thereafter.

Credit Requirements and Eligibility for Award of Degree

A candidate shall be eligible for the award of the B.Sc. Nutrition and Dietetics degree only if she has:

- Successfully completed the prescribed courses of study in a college affiliated to the university for a minimum duration of three academic years (six semesters).
- Passed all prescribed semester examinations.
- Earned a minimum of 140 credits as distributed under the following Parts:
    - Part I- Language
    - Part II- General English/ Advanced English
    - Part III- Discipline Specific Core, Generic Specific Elective, Discipline Specific Elective, Professional Enhancement Course and Project.
    - Part IV- Skill Enhancement Courses, Non-Major Electives, Internship,

Environmental Studies, Digital Literacy, Women Studies and Indian Knowledge System.

- Part V- Extension Activity

The candidate must also have fulfilled any other requirements as prescribed by the College/ University regulations for the award of the degree.

PROGRAMME OUTCOMES (POs)

PO1: Gain theoretical and practical knowledge and understanding in subjects related in the field of nutrition and dietetics

PO2: Apply basic knowledge to understand the role and concept of physiology, nutritional biochemistry, nutrition and other terminologies related it human health

PO3: Plan appropriate normal and therapeutic diet. Prevent diseases and promote health through nutrition education and awareness through extension activities.

PO4: Execute professional ethics, attitude and values to be an effective food scientist, quality controller, dietitian, diet or nutrition counselors and entrepreneur.

PO5: Equip skill related to food preservation, food processing and bakery and confectionery.

PO6: Apply scientific methods and techniques as well as quality management processes related to food, nutrition and dietetics service sector.

PO7: Aware of professional ethics, respecting patient confidentiality, cultural diversity and professional in community and clinical services.

PO8: Displays moral responsibility and values; Has a professional approach, is objective, unbiased and truthful in all aspects of work and refrains from unethical practices such as plagiarism, fabrication, falsification, misinterpretation of the data and breaching intellectual property rights.

PO9: Recognizes and assesses societal, environmental and cultural issues related to area of study within the local, global and international context.

PO10: Acquire the skill of understanding the basic values and culture of the society.

PROGRAMME SPECIFIC OUTCOME (PSOs)

PSO1: Acquires fundamental knowledge in the core areas of nutrition and dietetics and Familiar with nutrients, their function in an organism, bioavailability, requirements and recommended quantities.

PSO2: Develops competency in the application of knowledge in different settings such as food preservation, preparation and interpret nutritional diagnosis, evaluate nutritional aspects of a clinical record.

PSO3: Conduct nutrition education, counselling and community outreach programme effectively through extension activities and engage in research and innovation in the fields of clinical nutrition, public health nutrition and food product development and marketing.

PROGRAMME EDUCATIONAL OUTCOME (PEOs)

PEO1: Core Competency Development: Equip students with foundational and advanced knowledge in human nutrition, dietetics, food science, and health promotion to pursue careers in healthcare, food industries, community health, and research sectors.

PEO2: Clinical and Community Engagement: Train graduates to assess nutritional needs, plan therapeutic and community-based diets, and deliver evidence-based nutrition interventions for individuals and populations.

PEO3: Research and Lifelong Learning: Encourage scientific inquiry, critical thinking, and continuous professional development through research, innovation, and engagement in higher education and develop entrepreneurial and leadership skills in areas such as nutrition consultancy, wellness coaching, food product development, and public health advocacy.

MAPPING OF PEO WITH PO WITH PSO

PEO \ Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2	PS03
PEO1	3	3	2	2	2	3	3	3	3	2	3	2	3
PEO2	2	3	3	2	2	2	3	3	3	3	2	3	2
PEO3	2	2	2	3	2	3	2	2	2	2	2	3	2

3 = Strongly Related, 2 = Moderately Related, 1 = Slightly Related

Course Components and Credit Distribution

The curriculum framework for the B.Sc. Nutrition and Dietetics Programme under the autonomous structure is designed to ensure holistic academic development, skill enhancement and societal contribution. The credit distribution across the various components is as follows:

S. No.	Study Components	Part	Sem I		Sem II		Sem III		Sem IV		Sem V		Sem VI		Total No. of Hours	Total Credit
			No. of Hours	Credit	No. of Hours	Credit	No. of Hours	Credit	No. of Hours	Credit	No. of Hours	Credit	No. of Hours	Credit		
1	Language	I	6	3	6	3	6	3	6	3					24	12
2	English	II	6	3	6	3	6	3	6	3					24	12
3	Core Course / DSC	III	9	7	9	7	9	7	9	7	20	17	16	12	72	57
4	Allied / GSE	III	5	4	5	4	5	4	5	4					20	16
5	Elective / DSE	III									8	8	8	8	16	16
6	PEC	III											2	2	2	2
7	Project	III											2	2	2	2
8	SEC	IV	2	2	2	2	2	2	2	2					8	8
9	NME	IV	2	2	2	2									4	4
10	Environmental Studies / IDC	IV					2	2							2	2
11	Digital Literacy / IDC	IV							2	2					2	2
12	Women Studies	IV									2	2			2	2
13	Indian Knowledge System / IDC	IV											2	2	2	2
14	Internship	IV										2				2
15	Extension Activity	V												1		1
	Total		**30**	**21**	**30**	**21**	**30**	**21**	**30**	**21**	**30**	**29**	**30**	**27**	**180**	**140**

Details of Course of Study for Parts I – V

PART I – Tamil and Other Languages

Students shall study Tamil or one of the other approved languages (e.g., Hindi or French), as per their choice and subject to availability. The syllabus and prescribed textbooks for these languages shall be periodically updated by the respective Boards of Studies and approved by the Academic Council of the College.

PART II – General English / Advanced English

Courses in English aim to improve students' proficiency in language, literature, communication, and critical thinking. The curriculum and instructional materials are prepared by the Board of Studies of English and approved through the academic governance structure.

PART III – Core, Allied and Project

This part comprises the Discipline Specific Core, Generic Specific Elective, Discipline Specific Elective, Professional Enhancement Course and a Project in the final semester. The content and structure of these courses are prescribed by the respective Board of Studies in Nutrition and Dietetics and approved by the Academic Council to align with current academic and industry standards.

PART IV – Value and Skill-Oriented Courses

i. Non-Major Elective (NME)

- Students must choose Non-Major Elective (NME) comprising from the options offered by other departments.

ii. Additional Courses under Part IV

- Skill Enhancement Courses (SEC)
- Environmental Studies
- Digital Literacy
- Women studies
- Indian Knowledge System
- Internship

PART V – Extension Activity

Students shall earn a maximum of 1 credit through participation in Compulsory Extension Services. Every student must enrol in NSS, Red Ribbon Club, Youth Red Cross, Field Work, Outreach Activities or any other Clubs recognized by the College.

Inclusion of Massive Open Online Courses (MOOCs) via SWAYAM and NPTEL

MOOC Courses for Credit Mobility

As part of the credit-based curriculum design and in alignment with the guidelines of higher education regulatory bodies, students are encouraged to enrol in Massive Open Online Courses (MOOCs) offered on SWAYAM or NPTEL platforms. These courses can be opted under Core, Elective, or Soft Skill categories. The student shall be eligible for award of the degree only upon submission of a valid certificate as proof of successful completion of the chosen MOOC course. **Two credits** will be given to candidates who successfully complete the course.

B.Sc. Nutrition and Dietetics Curriculum Design

First Year

Semester - I

S. No	Part	Nature of the Course	Course Code	Name of the Course	Hours per Week	Credits	Marks		
							CIA	ESE	Total
1	I	Language I	25UTAM101 25UFRE101 25UHIN101 25UKAN101 25UTEL101 25UURD101	Tamil- I French- I Hindi- I Kannada- I Telugu- I Urdu-I	6	3	25	75	100
2	II	English I	25UGEN101 25UAEN101	General English - I Advanced English – I	6	3	25	75	100
3	III	DSC I	25UND1C01	Food Science **(Skill Development, Employability)**	6	5	25	75	100
4		DSC Practical I	25UND1CP1	Food Science - Practical **(Skill Development, Employability)**	3	2	40	60	100
5		GSE	25UCH1A01	Allied Chemistry-I	5	4	25	75	100
6	IV	SEC I		SEC-I	2	2	25	75	100
7		SEC II-NME-I		NME- I	2	2	25	75	100
					30	**21**	**190**	**510**	**700**

Semester - II

S. No	Part	Nature of the Course	Course Code	Name of the Course	Hours per Week	Credits	Marks		
							CIA	ESE	Total
1	I	Language II	25UTAM202 25UFRE202 25UHIN202 25UKAN202 25UTEL202 25UURD202	Tamil- II French- II Hindi- II Kannada-II Telugu- II Urdu- II	6	3	25	75	100
2	II	English II	25UGEN202 25UAEN202	General English - II Advanced English - II	6	3	25	75	100
3	III	DSC II	25UND2C02	Human Physiology **(Skill Development, Employability)**	6	5	25	75	100
4		DSC Practical II	25UND2CP2	Human Physiology - Practical **(Skill Development, Employability)**	3	2	40	60	100

5		GSE	25UCH2A03	Allied Chemistry-II	3	2	25	75	100
6		GSE Practical	25UCH2AP1	Chemistry – Practical	2	2	40	60	100
7	IV	SEC III		SEC III	2	2	25	75	100
8		SEC IV / NME II		NME II	2	2	25	75	100
TOTAL					30	21	230	570	800

Second Year
Semester - III

S. No	Part	Nature of the Course	Course Code	Name of the Course	Hours per Week	Credits	Marks		
							CIA	ESE	Total
1	I	Language III	25UTAM303 25UFRE303 25UHIN303 25UKAN303 25UTEL303 25UURD303	Tamil- III French- III Hindi- III Kannada-III Telugu- III Urdu-III	6	3	25	75	100
2	II	English III	25UGEN303 25UAEN303	General English - III Advanced English – III	6	3	25	75	100
3	III	DSC III	25UND3C03	Principles of Nutrition **(Skill Development, Employability)**	6	5	25	75	100
4		DSC Practical III	25UND3CP3	Principles of Nutrition Practical **(Skill Development, Employability)**	3	2	40	60	100
5		GSE	25UND3A01	Food Product Development and Marketing **(Skill Development, Employability)**	5	4	25	75	100
6	IV	SEC V		SEC V	2	2	25	75	100
7		IDC	25UEVS301	Environmental Studies	2	2	25	75	100
8				Health and Wellness*	-	-	-	-	-
TOTAL					**30**	**21**	**190**	**510**	**700**

Semester – IV

S. No	Part	Nature of the Course	Course Code	Name of the Course	Hours per Week	Credits	Marks		
							CIA	ESE	Total
1	I	Language IV	25UTAM404 25UFRE404 25UHIN404 25UKAN404 25UTEL404 25UURD404	Tamil- IV French- IV Hindi- IV Kannada-IV Telugu- IV Urdu-IV	6	3	25	75	100
2	II	English IV	25UGEN404 25UAEN404	General English - IV Advanced English - IV	6	3	25	75	100
3	III	DSC IV	25UND4C04	Nutritional Biochemistry **(Skill Development, Employability)**	6	5	25	75	100
4		DSC Practical IV	25UND4CP4	Nutritional Biochemistry – Practical **(Skill Development, Employability)**	3	2	40	60	100
5		GSE	25UND4A02	Community Nutrition **(Employability, Entrepreneurship)**	5	4	25	75	100
6	IV	SEC VI		SEC VI	2	2	25	75	100
7		IDC	25UDIL401	Digital Literacy	2	2	25	75	100
TOTAL					**30**	**21**	**190**	**510**	**700**

Third Year

Semester – V

S. No	Part	Nature of the Course	Course Code	Name of the Course	Hours per Week	Credits	Marks		
							CIA	ESE	Total
1	III	DSC V	25UND5C05	Dietetics **(Skill Development, Employability)**	6	5	25	75	100
2		DSC Practical V	25UND5CP5	Dietetics - Practical **(Skill Development, Employability, Entrepreneurship)**	3	2	40	60	100
3		DSC VI	25UND5C06	Food Microbiology **(Skill Development, Employability, Entrepreneurship)**	6	5	25	75	100
4		DSC VII	25UND5C07	Food Service Management **(Skill Development, Employability, Entrepreneurship)**	5	5	25	75	100

5		DSE I		Elective I	4	4	25	75	100
6		DSE II		Elective II	4	4	25	75	100
7	IV	IDC	25UWOS501	Women Studies	2	2	25	75	100
8		Internship	25UND5INT	Internship	0	2	0	0	0
TOTAL					**30**	**29**	**190**	**510**	**700**

Semester – VI

S. No	Part	Nature of the Course	Course Code	Name of the Course	Hours per Week	Credits	Marks		
							CIA	ESE	Total
1	III	DSC VIII	25UND6C08	Nutrition through Life Cycle (**Skill Development, Employability)**	6	5	25	75	100
2		DSC Practical VI	25UND6CP6	Nutrition through Life Cycle - Practical **(Skill Development, Employability)**	3	2	40	60	100
3		DSC IX	25UND6C09	Therapeutic Nutrition **(Skill Development, Employability, Entrepreneurship)**	4	3	25	75	100
4		DSC X	25UND6C10	Research Methodology and Statistics **(Skill Development)**	3	2	25	75	100
5		PEC	25UPEC601	Essentials Aptitude and Logical Thinking	2	2	25	75	100
6		PROJECT	25UND6PRV	Project	2	2	50	50	100
7		DSE III		Elective III	4	4	25	75	100
8		DSE IV		Elective IV **(Industry Oriented Courses)**	4	4	25	75	100
9	IV	IDC	25UIKS601	Indian Knowledge System	2	2	25	75	100
10	V			Extension Activity	0	1	0	0	0
TOTAL					**30**	**27**	**265**	**635**	**900**
GRAND TOTAL					**180**	**140**	**1255**	**3245**	**4500**
		Extra Credit	**Mandatory**	**Extra Credit-SWAYAM/ MOOC/ NPTEL (Online Course)**	**-**	**2**	**-**	**-**	**-**
		Extra Credit	**Not Mandatory**	**Self-study**	**-**	**2**	**-**	**-**	**-**
	*	**Extra Credit**	**Mandatory**	**Health and Wellness**	**-**	**1**	**-**	**-**	**-**

DSC	Discipline Specific Core
GSE	Generic Specific Elective – Allied
DSE	Discipline Specific Elective
NME	Non-Major Elective
IDC	Inter Disciplinary Course
SEC	Skill Enhancement Course
PEC	Professional Efficiency Course

Discipline Specific Elective Courses

Semester	Part	Nature of the Course	Course Code	Name of the Course
V	III	DSE – I	25UND5E01	Nutritional Medicine **(Skill Development, Employability)**
			25UND5E02	Functional Foods and Nutraceuticals **(Skill Development, Employability)**
			25UND5E03	Family Resource Management**(Skill Development, Employability)**
		DSE – II	25UND5E04	Nutritional Assessment and Counselling **(Skill Development, Employability)**
			25UND5E05	Public Health Nutrition **(Skill Development, Employability)**
			25UND5E06	Human Development **(Skill Development, Employability)**
VI		DSE – III	25UND6E01	Entrepreneurship Development in Nutrition and Dietetics **(Skill Development, Employability)**
			25UND6E02	Food Biotechnology **(Skill Development, Employability)**
			25UND6E03	Nutritional Epidemiology **(Skill Development, Employability)**
		DSE – IV	25UND6E04	Food Analysis, Safety and Quality Control **(Industry Oriented Course)**
			25UND6E05	Tools and Techniques for Nutrition Counselling in Clinical Setting **(Industry Oriented Course)**
			25UND6E06	Front Office Management **(Industry Oriented Course)**

Skill Enhancement Courses

Semester	Nature of the Course	Course Code	Name of the Course
I	SEC I	25UND1SE1	Dimension of Health **(Skill Development)**
		25UND1SE2	Nutrition in Emergencies **(Skill Development)**
II	SEC III	25UND2SE1	Bakery and Confectionery **(Employability, Entrepreneurship)**
		25UND2SE2	House Keeping **(Employability, Entrepreneurship)**
III	SEC V	25UND3SE1	Holistic Nutrition (**Employability, Entrepreneurship)**
		25UND3SE2	Consumer Education **(Entrepreneurship)**
IV	SEC VI	25UND4SE1	Food Processing and Preservation **(Skill Development, Employability)**
		25UND4SE2	Information Technology in Nutrition and Dietetics **(Skill Development, Employability)**

Non-Major Elective Courses

Subjects offered by the Department of Nutrition and Dietetics

Course Code	Name of the Course
25UND1NM1	Nutrition for Fitness
25UND1NM2	Food Processing
25UND1NM3	Basics of Food and Nutrition
25UND2NM1	Basics of functional foods
25UND2NM2	Nutrition for Health
25UND2NM3	Food Preservation

Allied Courses offered to the Department of Nutrition and Dietetics

Semester	Part	Nature of the Course	Course Code	Name of the Course
I	III	GSE – I	25UCH1A01	Allied Chemistry for Biological Science - I
II		GSE – II	25UCH2A03	Allied Chemistry for Biological Science – II
			25UCH2AP1	Practical - Allied Chemistry for Physical and Biological sciences
III		GSE – III	25UND3A01	Food Product Development and Marketing
IV		GSE – IV	25UND4A02	Community Nutrition

B.Sc. Nutrition and Dietetics LOCF–CBCS with effect from 2025- 2026 Onwards								
Course Code	**Course Title**	**Course Type**	**Sem**	**Hours**	**L**	**T**	**P**	**C**
25UND1C01	**FOOD SCIENCE**	**DSC THEORY**	**I**	**90**	**6**	**Y**	**-**	**5**

Learning Objective: Enable the students to

- ✓ Understand the basic concept, classification of food and its function
- ✓ Gain knowledge on the composition and nutritive value of foods
- ✓ Know the basic methods of cooking and its influence on food
- ✓ Under the effect of cooking and their losses

Unit	Course Content	Knowledge Levels	Sessions
I	**Introduction to Food and Cooking Methods** Definition- Food, Food Science, Nutrients, Nutrition, Balanced Diet. Food Groups - Need for grouping foods, Basic IV and V food groups, food pyramid and my plate. Functional classification of foods- Energy yielding, body building, protective and regulatory foods. **Cooking–** Objectives, cooking methods- Moist and Dry heat methods of cooking, merits and demerits. Microwave cooking, ohmic cooking, induction cooking and **solar cooking**.** ****SDG7: Affordable and Clean Energy**	K2	16
II	**Cereals, Millets, Pulses, Legumes and Nuts** **Cereal and Millets** – Structure, composition and nutritive value of rice, wheat and millets. Selection, parboiling of rice and millets. Effect of cooking on the nutritive value of cereals. Dextrinization, gelatinization, retrogradation and gluten formation. **Pulses and legumes**-Types, nutritive value, selection, methods of cooking, factors affecting cooking quality of pulses, effect of germination on the nutritive value of pulses, **cereal and pulse combination and its significance****. Toxic constituents of pulses and methods of inactivation. Protein fractionation – Textured vegetable protein. **Nuts**-Types, composition, selection, role of nuts in cookery. **Oilseeds**-Types, selection, uses and shelf life. ****SDG2: Zero Hunger**	K2	19
III	**Vegetables, Fruits and Milk** **Vegetables:** Classification, nutritive value, types of pigments, selection of vegetables, effect of cooking on colour, texture, flavour, appearance and nutritive value. **Fruits:** Classification, nutritive value, changes that occur during	K2	18

	ripening, **enzymatic browning and its prevention****. **Milk–** Composition and nutritive value, types of milk, selection, pasteurization homogenization and coagulation of milk, Effect of cooking and processing on milk. ****SDG 12: Responsible Consumption and Production**		
IV	**Flesh Foods and Egg** **Meats** – structure, nutritive value, cuts of meat, selection of meat, postmortem changes in meat, ageing, **factors affecting tenderness of meat, changes during cooking****. **Poultry**-types, nutritive value, selection, changes during cooking. **Fish-**classification, nutritive value, selection, changes during cooking. **Eggs-** Structure, nutritive value, selection, uses in cookery; foam formation and factors affecting foam formation, changes during cooking. ****SDG 3: Good Health and Well-Being**	K3	18
V	**Fats, Sugars, Spices and Beverages** **Fats and Oils**– Types of fats, composition - saturated, MUFA, PUFA, hydrogenation, uses of fat in cookery, factors affecting absorption of fats, smoking point, rancidity. **Sugar -** Types of sugars, stages of sugar cookery, crystallization, factors affecting crystallization. **Spices and Condiments**–Classification, uses in Indian cookery, **medicinal value**.** **Beverages –** Classification - fruit based beverages, milk-based beverages, alcoholic beverages, coffee, tea and cocoa, malted beverages, nutritive value and uses. **Evaluation of Food Quality** Sensory/ Subjective Evaluation: Meaning, sensory characteristics of food, types of tests- Difference tests, rating tests, sensitivity tests and descriptive tests. Objective Evaluation: meaning, basic guidelines, methods used for objective evaluation, instruments used for texture evaluation. **** SDG 15: Life on Land**	K4	19

Course Outcome	**CO1:** Explain the structure, composition and nutritive value of food groups	K2
	CO2: Describe the effect of changes that occurs during cooking on their quality	K2
	CO3: Identify and classify foods based on the food grouping system and illustrate their use	K2
	CO4: Demonstrate their ability in selecting quality food and appraise the varieties	K3

	in a food	
	CO5: Compare the nutrients present in different types of food and choose foods rich in specific nutrients	K4

Learning Resources	
Text Books	1. Srilakshmi, B. (2019). Food Science. New Delhi: Chennai: New Age International Private Limited. Publishers. 2.Sunetra,R.,(2007). Food Science and Nutrition, Oxford University Press, India. 3. Chandrasekhar,U.,(2002). Food Science and Application in Indian Cookery, Phoenix Publishing House P. Ltd., New Delhi. 4. Shakuntala, M. and Shadaksharaswamy. M., (2000), 2nd Edition, Foods, Facts and Principles, New Age International Pvt. Ltd., Publishers, New Delhi.
Reference Books	1. Mudambi, R.S. and Rajagopal, M.Y. (1991). Fundamentals of Food and Nutrition. New Delhi: Wiley Eastern Limited. 2. Swaminathan, M. (1988). Food Science and Experimental Foods. Madras: Ganesh and Company. 3. Mudambi, R.S. and Rao. S (1987). Food Science. New Delhi: Wiley Eastern Limited. 4. Potter, N.M. and Birch, G.G. (1986). Food Science, AVI, West Port, Conn. 5. Bennion, et.al. (1985). Introductory Foods. New York: Macmillan
E-resource	✓ https://www.slideshare.net/slideshow/fats-and-oils-86777768/86777768 ✓ https://egyankosh.ac.in/bitstream/123456789/62133/3/Unit-16.pdf ✓ https://epgp.inflibnet.ac.in/Home/ViewSubject?catid=NuAs6SreCGrydd Efs4kkBA ✓ https://epgp.inflibnet.ac.in/Home/ViewSubject?catid=NuAs6SreCGrydd Efs4kkBA ✓ https://www.slideshare.net/slideshow/fruits-vegetables-33840373/33840373
L– Lecture T–Tutorial P–Practical C- Credit	

Mapping of CO's with PO's and PSO's

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

(Correlation: 3–High, 2–Medium, 1–Low

Course Designed By: Dr. M. Aswini	**Verified By HOD: Mrs. R. Prailin**
Checked By CDC: Mrs. C. Magila	**Approved By: Dr. J. Caroline Rose** **Principal**

Dr. J. Prakash Maran Professor, Department of Food Science and Nutrition, Periyar University, Salem 11.	**Mr. S. M. Prasad, M.Sc. M.Phil., SET.,** Assistant Professor and Head, Department of Nutrition and Dietetics, (UG and PG), Sadakathullah Appa College (Autonomous), Rahmath Nagar, Tirunelveli	**Dr. M. Pushpa Devi,** Assistant Professor and Head, Department of Clinical Nutrition, Kongunadu Arts and Science College, Coimbatore.
Mrs. S. Geetha Chief Executive Officer, Asai Amudhan Food Industry, Titan Township, Mathigiri, Hosur	**Ms. Vanguri Irin,** Food Safety Executive and Operation Manager, Hunger Box, Bengaluru.	

B.Sc. Nutrition and Dietetics LOCF–CBCS with effect from 2025- 2026 Onwards								
Course Code	**Course Title**	**Course Type**	**Sem**	**Hours**	**L**	**T**	**P**	**C**
25UND1CP1	**FOOD SCIENCE**	**DSC PRACTICAL**	**I**	**45**	**-**	**-**	**3**	**2**

Learning Objective: Enable the students to

- ✓ Understand the basic measurements and its equivalent units
- ✓ Study the various physiochemical properties of foods
- ✓ Know the basic methods of cooking and its influence on food

Unit	List of Experiments	Knowledge Levels	Sessions
1.	Display of basic five food groups**. **** SDG 2: Zero Hunger**	K1	3
2.	Measuring and weighing liquids and dry ingredients. Use of simple kitchen equipment**. **** SDG 4: Quality Education**	K2	3
3.	Calculate the edible portions of a few foods**. ****SDG 12: Responsible Consumption and Production**	K2	3
4.	Cooking of foods by using water or steam as medium – Boiling, steaming, pressure cooking**. **** SDG 7: Afforadable and Clean Energy**	K2	3
5.	Cooking of foods by using air as medium – Roasting, baking and frying**. **** SDG 9: Industry, Innovation adn Infrastructure**	K2	3
6.	Studying temperature of gelatinization in different -cereal and millet starches and gel strength**. ****SDG 8: Decent Work and Economic Growth**	K2	3
7.	Cooking of soaked and unsoaked pulses**. **** SDG 6: Clean Water and Saniation**	K2	3
8.	Effect of cooking, acid and alkali on pigments**. ****SDG 15: Life on Land**	K2	3
9.	Processing of vegetables- fermentation and pickling**. **** SDG 11: Sustainable Cities and Communities**	K2	3
10.	Prevention of darkening in fruits and vegetables**. ****SDG 13: Cliamte Action**	K2	3
11.	Effect of cooking, acid, alkali and enzymes on milk**. ****SDG3: Good Health and Well-Being**	K2	3
12.	Processing of Milk and milk products- common preparation indigenous milk sweets**. ****SDG 5: Gender Equality**	K2	3
13.	Evaluation of egg quality**. ****SDG 1: No Poverty**	K2	3
14	Egg experimental cookery- boiled egg, poached egg Common preparations with eggs**. **** SDG 10: Reduce Inequaliies**	K2	3

15.	Stages of Sugar Cookery**. ** **SDG 16: Peace, Justice and Strong Institutions**	K2	3

Course Outcome	**CO1:** Demonstrate correct techniques of measuring, weighing and handling kitchen equipment and Examine the effects of different cooking methods on physical and chemical properties of food	K3
	CO2: Interpret changes in food characteristics due to acid, alkali, enzymes and heat and Prepare basic preserved foods and analyze their quality (e.g.) Pickles , Jams, syrups)	K2
	CO3: Assess the quality of food items such as eggs, milk, sugar and cereals based on standard procedures	K2
	CO4: Explain the principles related to the analysis of nutrient and analyze the different components present in the food sample.	K3
	CO5: Compile the obtained results and apply the outcome in a food industrial sector.	K2

Mapping of CO's with PO's and PSO's

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

(Correlation: 3–High, 2–Medium, 1–Low)

Course Designed By: Dr. M. Aswini	**Verified By HOD: Mrs. R. Prailin**
Checked By CDC: Mrs. C. Magila	**Approved By: Dr. J. Caroline Rose Principal**

Dr. J. Prakash Maran Professor, Department of Food Science and Nutrition, Periyar University, Salem 11.	**Mr. S. M. Prasad, M.Sc. M.Phil., SET.,** Assistant Professor and Head, Department of Nutrition and Dietetics, (UG and PG), Sadakathullah Appa College (Autonomous), Rahmath Nagar, Tirunelveli	**Dr. M. Pushpa Devi,** Assistant Professor and Head, Department of Clinical Nutrition, Kongunadu Arts and Science College, Coimbatore.
Mrs. S. Geetha Chief Executive Officer, Asai Amudhan Food Industry, Titan Township, Mathigiri, Hosur	**Ms. Vanguri Irin,** Food Safety Executive and Operation Manager, Hunger Box, Bengaluru.	

B.Sc. Nutrition and Dietetics LOCF–CBCS with effect from 2025- 2026 Onwards								
Course Code	**Course Title**	**Course Type**	**Sem**	**Hours**	**L**	**T**	**P**	**C**
25UND1SE1	**DIMENSION OF HEALTH**	**SEC THEORY**	**I**	**30**	**2**	**-**	**-**	**2**

Learning Objective: Enable the students to

- ✓ Understand the importance of health and its determinants
- ✓ Know the dimensions of health and concepts of well-being
- ✓ Study the role of institutions in health promotion

Unit	Course Content	Knowledge Levels	Sessions
I	**Health and Wellness** Health-Definition, health dimensions (physical, social, mental, emotional). Wellness-definition, concepts of well-being, level of living- quality of living and **principles of health in day-to-day life**.** ****SDG 3: Good Health and Well-being**	K2	07
II	**Physical dimension of Health** Introduction, Componentsof physical health, Types-internal and external. **Physical Quality of Life Index (PQLI) and Human Development Index (HDI) **.** Factors affecting physical health. ****SDG 1: No Poverty**	K2	05
III	**Social dimension of Health** Introduction, need for developing social health, importance of social health. Factors affecting social dimension of health, **role of various institutions in promoting social health-schools and colleges **.** ****SDG 4: Quality Education**	K2	06
IV	**Mental and Emotional dimension of Health** Mental and Emotional health - Introduction, need, importance. **Risk factors of mental health conditions-biological, psychological and environmental**.** **** SDG 16: Peace, Justice and Strong Institutions**	K3	06
V	**Other Dimensions of health and Health Promotion** Spiritual, cultural, socioeconomic, educational, **environmental, nutritional, and preventive aspects**.** Interaction between the dimension of health. Health Promotion **-** Meaning, importance, and goals. ****SDG13: Climate Action**	K2	06

Course Outcome	**CO1:** Describe various dimensions and concepts of health and wellness	K2
	CO2: Identify physical health indicators and factors influencing physical health	K2
	CO3: Explain the significance of social dimension and institutional roles in social health	K2
	CO4: Analyze mental and emotional health factors and risk contributors	K3
	CO5: Recognize the role of other health dimension and methods of health promotion	K2

Learning Resources	
Text Books	1. Gunn, A. William, Mansourian P.B, (2010), Understanding the Global Dimensions of Health, Springer ltd., New York. 2. Nettleton Sarah, (2021), Sociology of Health and Illness, Polity Press, UK. 3. Barry,M. Anne, Yuill Chris, (2016). Understanding the Sociology of Health: An Introduction, SAGE Publications, California.
Reference Books	1. Park's (2021), Text book of Preventive and Social Medicine, 26th Edition, Bhanot Banarsidas Publisher Private Limited, India. 2. Dew Kevin, Scott Anne, Kirkman Allison, (2016). Social, Political and Cultural Dimensions of Health, Springer ltd., New York.
E-resource	✓ https://www.jaypeedigital.com/eReader/chapter/9789352500215/ch1 ✓ https://www.slideshare.net/slideshow/dimensions-of-health-60465755/60465755 ✓ https://www.kvcn.edu.in/wp-content/uploads/2021/08/E-NOTES-DIMENSION-OF-HEALTH-2.pdf
L– Lecture T–Tutorial P–Practical C- Credit	

Mapping of CO's with PO's and PSO's

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

(Correlation: 3–High, 2–Medium, 1–Low)

Course Designed By: Mrs. M. Deepika	**Verified By HOD: Mrs. R. Prailin**
Checked By CDC: Mrs. C. Magila	**Approved By: Dr. J. Caroline Rose** **Principal**

Dr. J. Prakash Maran Professor, Department of Food Science and Nutrition, Periyar University, Salem 11.	**Mr. S. M. Prasad, M.Sc. M.Phil., SET.,** Assistant Professor and Head, Department of Nutrition and Dietetics, (UG and PG), Sadakathullah Appa College (Autonomous), Rahmath Nagar, Tirunelveli	**Dr. M. Pushpa Devi,** Assistant Professor and Head, Department of Clinical Nutrition, Kongunadu Arts and Science College, Coimbatore.
Mrs. S. Geetha Chief Executive Officer, Asai Amudhan Food Industry, Titan Township, Mathigiri, Hosur	**Ms. Vanguri Irin,** Food Safety Executive and Operation Manager, Hunger Box, Bengaluru.	

B.Sc. Nutrition and Dietetics LOCF–CBCS with effect from 2025- 2026 Onwards								
Course Code	**Course Title**	**Course Type**	**Sem**	**Hours**	**L**	**T**	**P**	**C**
25UND1SE2	**NUTRITION IN EMERGENCIES**	**SEC THEORY**	**I**	**30**	**2**	**-**	**-**	**2**

Learning Objective: Enable the students to

- ✓ Understand the impact of emergencies on nutritional status
- ✓ Learn methods for assessing and monitoring nutritional needs in crisis situations
- ✓ Gain knowledge of emergency nutrition programs and interventions.
- ✓ Develop skills for managing malnutrition and food insecurity in emergencies
- ✓ Familiarize with international standards and guidelines for nutrition in emergencies

Unit	Course Content	Knowledge Levels	Sessions
I	**Introduction to Nutrition in Emergencies** Definition and types of emergencies (natural disasters, conflicts, pandemics). **Impact of emergencies on food security and nutrition**.** **Assessment of Nutritional Needs in Emergencies -** Rapid nutrition assessments and surveys. Indicators of nutritional status (anthropometry, biochemical, clinical, dietary)**.** **** SDG 2: Zero Hunger**	K2	06
II	**Emergency Nutrition Programs and Interventions Nutritional requirements in emergency-affected populations.** Types of nutrition interventions: **general food distribution, supplementary feeding, therapeutic feeding**.** Micronutrient interventions and prevention of micronutrient deficiencies. Mobilization and distribution of resources - local resources, general fund and social funds. ****SDG3: Good Health and Well-Being**	K2	06
III	**Managing Malnutrition in Emergencies** Classification and management of acute malnutrition (SAM- Sever Acute Malnutrition and MAM- Moderate Acute Malnutrition). **Community-based Management of Acute Malnutrition (CMAM). Role of ready-to use therapeutic foods (RUTF) and supplementary foods**.** ****SDG1: No Poverty**	K2	06
IV	**Food Security and Livelihoods in Emergencies** Strategies for food security and livelihood support - **Importance of water, sanitation, and hygiene (WASH) in nutrition**.** Coordination and collaboration with humanitarian organizations. ****SDG6: Clean Water and Sanitation**	K2	06
V	**National / International Organizations** Overview of national and international guidelines, **International Organization**: **World Health Organization (WHO), UNICEF, World Food Programme (WFP), and Food and Agricultural Organization (FAO)**.** **National Organization:** National Institute of Nutrition (NIN) and National Health Authority (NHA) **Non Governmental Organizations**: Emergency Nutrition	K3	06

	Network (ENN) and Save the Children. **Ethical considerations and cultural sensitivity in emergency nutrition**.** ****SDG17: Partnerships for the Goals**		

Course Outcome	**CO1:** Explain types of emergencies and their impaction on food security and nutritional status	K2
	CO2: Identify methods for nutritional assessment and appropriate interventions in emergencies.	K2
	CO3: Interpret protocols for managing acute malnutrition, including CMAM and therapeutic feeding.	K2
	CO4: Examine strategies to improve of food security and livelihoods in emergency settings.	K2
	CO5: Discuss the role of national and international organizations in emergency nutrition interventions.	K3

Learning Resources	
Text Books	1. Watson, F., & Sandoz, Y. (Eds.). (2020). Emergency Nutrition: Principles and Practice in Humanitarian Response. Oxford University Press. 2. Wilkinson, C, & Whitehead, C. (2019). Nutrition in Emergencies. CABI Publishing 3. The Sphere Project. (2018).The Sphere Handbook: Humanitarian Charter and Minimum Standards in Humanitarian Response. 4th Edition. Practical Action Publishing.
Reference Books	1. World Health Organization. (2013).Management of Severe Acute Malnutrition in Children: Working Towards Results at Scale. WHO. 2. World Food Programme & United Nations Children's Fund. (2017). Food and Nutrition in Emergencies: An Approach to Effective Interventions. WFP and UNICEF.
E-resource	✓ https://www.emro.who.int/nutrition/nutrition-in-emergencies/index.html ✓ https://www.scribd.com/document/661632895/NUTRITION-IN-EMERGENCIES-full-notes-1 ✓ https://iris.who.int/bitstream/handle/10665/68660/a83743.pdf ✓ https://emergency.unhcr.org/emergency-assistance/water-sanitation-and-hygiene/wash-emergencies
L– Lecture T–Tutorial P–Practical C- Credit	

Mapping of CO's with PO's and PSO's

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

(Correlation: 3–High, 2–Medium, 1–Low)

Course Designed By: Mrs. R. Prailin	**Verified By HOD: Mrs. R. Prailin**
Checked By CDC: Mrs. C. Magila	**Approved By: Dr. J. Caroline Rose** **Principal**

Dr. J. Prakash Maran Professor, Department of Food Science and Nutrition, Periyar University, Salem 11.	**Mr. S. M. Prasad, M.Sc. M.Phil., SET.,** Assistant Professor and Head, Department of Nutrition and Dietetics, (UG and PG), Sadakathullah Appa College (Autonomous), Rahmath Nagar, Tirunelveli	**Dr. M. Pushpa Devi,** Assistant Professor and Head, Department of Clinical Nutrition, Kongunadu Arts and Science College, Coimbatore.
Mrs. S. Geetha Chief Executive Officer, Asai Amudhan Food Industry, Titan Township, Mathigiri, Hosur	**Ms. Vanguri Irin,** Food Safety Executive and Operation Manager, Hunger Box, Bengaluru.	

B.Sc Nutrition and Dietetics LOCF–CBCS with effect from2025- 2026 Onwards

Course Code	Course Title	Course Type	Sem	Hours	L	T	P	C
25UND2C02	**HUMAN PHYSIOLOGY**	**DSC THEORY**	**II**	**90**	**6**	**Y**	**-**	**5**

Learning Objectives: Enable the students to

1. Understand the structure and functions of various human physiological systems
2. Learn the coordination and regulation by endocrine and nervous system
3. Relate the functioning of sense organs to overall body control
4. Advance their understanding of some of the relevant issues and topics of human physiology

Unit	Course Content	Knowledge Levels	Sessions
I	**Introduction to Physiology and Digestive System** **Cell:** Cell structure and functions- Cell organelles, Movement of particles across cell membrane -active transport and passive transport, body fluids and their compartments and functions, mitosis and meiosis. **Tissues:** Classification, structure and function **Digestive System:** Structure of digestive tract and Process of digestion and absorption. Role of hormones in digestion, movements of GI tract. Liver and its functions. **Immune System:** Antigen, Antibody, cellular and humoral immunity, **role of nutrition in immunity****. ****SDG 3: Good Health and Well-Being**	K2	18
II	**Nervous System and Sense Organs** **Nervous systems:** Structure and functions of brain and spinal cord. **Sense Organs: Structure, function and role of eye, skin, ear and organs of taste and smell**.** ****SDG 10: Reduce inequalities**	K4	18
III	**Circulatory System** Blood – composition, and functions, types of cells-RBC, WBC, Platelets, Blood groups and coagulation. Structure and **function of heart****, blood vessels, ECG, cardiac cycle, cardiac impulse**. Blood pressure- factors influencing blood pressure**.** ****SDG 9: Industry Innovation and Infrastructure**	K2	18

IV	**Respiratory and Excretory System** **Respiratory System:** Structure of lungs, mechanism of respiration. Exchange of gases **Excretory System:** Structure and **functions – Kidney and nephron, Measurement of GFR, Physiology of Urine formation- i) Glomerular Filtration, ii) Tubular Reabsorption, iii) Tubular Secretion.** ****SDG 6: Clean Water and Sanitation**	K2	18
V	**Endocrine System and Reproductive System** **Endocrine glands-**functions, hypo and hyper secretion of hormones- Pancreas, Pituitary, Thyroid, Adrenal and sex glands. **Reproductive system-**Anatomy of male and female reproductive organs, Menstrual cycle, **conception, parturition and lactation**.** **** SDG 5: Gender Equality**	K3	18

Course Outcome	**CO1:**Describe the structure and function of digestive system including hormones and liver function	K2
	CO2: Explain the components of the circulatory system including blood, heart and blood pressure regulation	K4
	CO3: Illustrate the structure and mechanism of respiratory and excretory system	K2
	CO4: Discuss the role of endocrine and reproductive system	K2
	CO5: Analyze the functions of nervous system and sense organs in body regulation	K3

Learning Resources	
TextBooks	1. SaradaSubrahmanyam et al, (2007), Textbook of Human Physiology, S.Chand and Company Ltd. New Delhi. 2. Murugesh. N, (2012), Basic Anatomy and Physiology, Sathya Publishers, Madurai. 3. Sembulingam,K.and Sembulingam,P. (2012),Essentials of Medical Physiology, 6thedition,Jaypee Brothers Medical Publishers, New Delhi. 4. Guyton & Hall (2002). Text book of Medical Physiology, W. B. Saunders Company. 5. Arumugam. N and Mariakuttikan. A. (2001). Animal Physiology, Saras Publication. 6. Chatterjee,C.C. (1998). Human Physiology. Calcutta: Medical Allied Agency.
Reference Books	1. Ross and Wilson (2011). Anatomy and Physiology in Health and Illness, 11th Edition, Church Hill Livingstone. 2. Evelync. Pearce, (1997). Anatomy and Physiology for Nurses, 16th Edition, New Delhi: Jaypee Brothers.

	3. Joshi,D.V. (1995). Prep Manual for Under Graduate Physiology, New Delhi: B.I Churchill Livingstone. 4. Subramaniyam and Kutty.S.M. (2001). Text Book of Human Physiology. New Delhi: S.Chand& Company Ltd. 5. Winwood,R.S. and Smith,J.L. (1994). Sears's Anatomy and Physiology for Nurses London: EL BS with Edward Arnold. 6. Yadav.J. (1995). Text Book of Physiology for Dental Students. New Delhi: Jaypee Brothers, Medical Publishers Private Limited.
E-resource	1. https://epgp.inflibnet.ac.in/Home/ViewSubject?catid=NuAs6SreCGryddEfs4kkBA 2. https://goldeneggholistic.com/wp-content/uploads/2020/07/Anatomy-and-Physiology-Notes-Online-Notes.pdf 3. https://archive.org/details/appliedphysiolog00hutcuoft/page/n5/mode/2up 4. https://www.youtube.com/watch?v=uFf0zxQ3rBU
L– Lecture T–Tutorial P–Practical C- Credit	

MappingofCO'swithPO'sandPSO's

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

(Correlation:3–High,2–Medium,1–Low)

Course Designed By: Dr. M. Aswini	**Verified By HOD: Mrs. R. Prailin**
Checked By CDC: Mrs. C. Magila	**Approved By: Dr. J. Caroline Rose, Principal**

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B.Sc Nutrition and Dietetics LOCF–CBCS with effect from2025- 2026 Onwards								
Course Code	**Course Title**	**Course Type**	**Sem**	**Hours**	**L**	**T**	**P**	**C**
25UND2CP2	**HUMAN PHYSIOLOGY**	**DSC PRACTICAL**	**II**	**45**	**-**	**-**	**3**	**2**

Learning Objectives:

Enable the students to

1. Understand the histology of tissues
2. Make aware of the structure of various organs
3. Learn the procedure for estimation of vital components of blood

Unit	List of Experiments	Knowledge Levels	Sessions
1.	Histology of Tissues–columnar, cubical, ciliated, squamous, stratified squamous ****SDG 4: Quality Education**	K2	4
2.	Structure of organs–lungs, artery, vein, stomach, ovary, testis, uterus, pancreas. **** SDG 3: Good Health and Well-Being**	K2	4
3.	Histology of muscles–cardiac, striated, non–striated. ****SDG: 8: Decent Work and Economic Growth**	K2	4
4.	Estimation of Hemoglobin **** SDG 2: Zero Hunger**	K3	4
5.	Measurement of blood pressure– before and after exercise. **** SDG 11: Sustainable Cities and Communities**	K2	3
6.	Determination of respiratory rate and pulse rate–before and after exercise. **** SDG 13: Climate Action**	K3	3
7.	Determination of blood group **** SDG: Peace, Justice and Strong Institutions**	K3	3
8.	Identification of Rh factor **** SDG 5: Gender Equality**	K2	3
9.	Determination of bleeding time and clotting time ****SDG 9: Industry, Innovation and Infrastructure**	K3	3
10.	Enumeration of red blood cells –Demonstration **** SDG 1: No Poverty**	K2	3
11.	Enumeration of white blood cells–Demonstration **** SDG 6: Clean Water and Sanitation**	K2	3
12.	Differential leucocyte count–Demonstration **** SDG 15: Life on Land**	K2	3
13.	Visit to a clinical laboratory **** SDG 17: Partnerships for the Goals**	K3	5

Course outcome	**CO1:** Identify and differentiate the different types of cells and organs	K3
	CO2: Describe the histology of muscles	K4
	CO3: Distinguish the different blood groups and recognize the Rh factor	K3
	CO4: Determine the bleeding and clotting time	K3, K4
	CO5: Measure blood pressure and record the respiratory and pulse rate.	K3

Mapping CO's with PO's and PSO's

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

Course Designed By: Dr. M. Aswini	**Verified By HOD: Mrs. R. Prailin**
Checked By CDC: Mrs. C. Magila	**Approved By: Dr. J. Caroline Rose, Principal.**

Dr. J. Prakash Maran Professor, Department of Food Science and Nutrition , Periyar University, Salem 11	**Mr. S. M. Prasad, M.Sc. M.Phil., SET.,** Assistant Professor and Head, Department of Nutrition and Dietetics, (UG and PG), Sadakathullah Appa College (Autonomous), Rahmath Nagar, Tirunelveli	**Dr. M. Pushpa Devi,** Assistant Professor and Head, Department of Clinical Nutrition, Kongunadu Arts and Science College, Coimbatore.
Mrs. S. Geetha Chief Exceutive Officer, Asai Amudhan Food Industry, Titan Township, Mathigiri, Hosur	**Ms. Vanguri Irin,** Food Safety Executive and Operation Manager, Hunger Box, Bengaluru.	

B.Sc Nutrition and Dietetics LOCF–CBCS with effect from 2025- 2026 Onwards								
Course Code	**Course Title**	**Course Type**	**Sem**	**Hours/**	**L**	**T**	**P**	**C**
25UND2SE1	**BAKERY AND CONFECTIONERY**	**SEC THEORY**	**II**	**30**	**2**	**Y**	**-**	**2**

Learning Objective:

Enable the students to

1. Understand the technique of baking.
2. Know the equipments and ingredients used in baking.
3. Understand the production of baked products.

Unit	Course Content	Knowledge Levels	Sessions
I	**Introduction to Baking** Definition and principles of **baking, Advantages and disadvantages of baking**, **changes that take place during baking**.** Classification of baked products (bread, cakes, cookies, pastries, etc.). ****SDG 3: Good Health and Well-Being**	K2	6
II	**Setting Up and Operating a Bakery Unit** Factors to be considered for setting up bakery unit (location, layout, licenses, hygiene standards), **Safety and sanitation in a bakery unit, cost estimation****. Basic business aspects: sourcing, packaging, and labelling. ****SDG 8: Decent Work and Economic Growth**	K2	6
III	**Bakery Equipment and Tools** **Major equipment: Oven types (convection, deck, rotary), dough mixers, proofers, and slicers – their functions, types, and materials**.** **Minor equipment:** Measuring tools, spatulas, piping bags, molds, trays – types, materials, and handling **-Equipment maintenance and hygiene practices**.** **** SDG 9: Industry Innovation and Infrastructure**	K2	7
IV	**Ingredients and Bakery Mixtures** **Major ingredients:** Flour, sugar, fats, eggs, leavening agents – their types, roles, and interactions. **Minor ingredients:** Salt, emulsifiers, flavors, spices, dairy – functions and usage. Definition and **types of batter and dough****, Methods of making batter and dough (rubbing-in, creaming, whisking, all-in-one, kneading). ****SDG 12: Responsible Consumer and Prodcution**	K3	6

V	**Cake and Biscuit Preparation** **Cake preparation:** Types of cakes, ingredients, and preparation methods. **Biscuit preparation:** Types of biscuits, ingredients, and methods, **common faults in cakes and biscuits – causes and remedies****. **Icing:** Definition, types, application techniques. ****SDG 2: Zero Hunger**	K2	5
	<u>Related Experience</u> 1. Preparation of bread, cake and brownie 2. Preparation of biscuits and cookies		

Course Outcome	**CO1:** Enumerate the principles of baking and classification of baked products	K2
	CO2: Cite the role of ingredients in baked products	K2
	CO3: Differentiate the major and minor equipment	K2
	CO4: Prepare different types of baked products	K3
	CO5: Appraise the faults in baked products	K2

Learning Resources	
Text Books	1. Yogambal Ashokkumar, (2012). Textbook of Bakery and Confectionery, 2nd edition, PHI, New Delhi. 2. Sivasankar, D., (2007). Food Processing and Preservation, Prentice Hall of India, New Delhi. 3. Dubey, S.C. (2012). Basic Baking, 4th Edition, The Society of Indian Bakers, New Delhi. 4. Bakers, (2008). Handbook on Practical Baking, USW heat Associates, New Delhi.
Reference Books	1. Dubey. S.C., (2002), Basic Baking, 4th Edition, Published by the Society of Indian Bakers, New Delhi. 2. John Kingslee,(2006). A Professional Textbook to Bakery and Confectionary. N ew Age International Pvt Ltd, New Delhi. 3. Nicolello, I. and Foote, R., (2000). Complete Confectionary Techniques, Hodder and Solution, London. 4. Sarah R. Lebensky, Pricilla et al., (2004). Textbook of Baking and Pastry, Fundamentals, 3rd edition, Pearson Education Ltd, USA.
E-resource	1. https://www.ihmnotes.in/assets/Docs/Sem6/FOOD%20PRODUCTION%20OPERATIONS/Ch2%20BAKERY%20AND%20CONFECTIONERY.pdf 2. https://www.sciencedirect.com/topics/food-science/fondant 3. https://www.scribd.com/document/472783389/FSN-302 4. https://uou.ac.in/sites/default/files/slm/BHM-704DT.pdf 5. https://www.youtube.com/watch?app=desktop&v=f4yZbrEJR28
L– Lecture T–Tutorial P–Practical C- Credit	

Mapping of CO's with PO's and PSO's

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

(Correlation: 3–High, 2–Medium, 1–Low)

Course Designed By: Ms. B. Madhumitha	**Verified By HOD: Mrs. R. Prailin**
Checked By CDC: Mrs. C. Magila	**Approved By: Dr. J. Caroline Rose, Principal.**

Dr. J. Prakash Maran Professor, Department of Food Science and Nutrition , Periyar University, Salem 11	**Mr. S. M. Prasad, M.Sc. M.Phil., SET.,** Assistant Professor and Head, Department of Nutrition and Dietetics, (UG and PG), Sadakathullah Appa College (Autonomous), Rahmath Nagar, Tirunelveli	**Dr. M. Pushpa Devi,** Assistant Professor and Head, Department of Clinical Nutrition, Kongunadu Arts and Science College, Coimbatore.
Mrs. S. Geetha Chief Exceutive Officer, Asai Amudhan Food Industry, Titan Township, Mathigiri, Hosur	**Ms. Vanguri Irin,** Food Safety Executive and Operation Manager, Hunger Box, Bengaluru.	

B.Sc Nutrition and Dietetics LOCF–CBCS with effect from2025- 2026 Onwards								
Course Code	**Course Title**	**Course Type**	**Sem**	**Hours**	**L**	**T**	**P**	**C**
25UND2SE2	**HOUSE KEEPING**	**SEC THEORY**	**II**	**30**	**2**	**-**	**-**	**2**

Learning Objective: Enable the students to

1. Gain theoretical knowledge and practical applications of housekeeping
2. Learn the layout and functions of guest room.
3. Get acquainted with the attributes, qualities and skills required for proper functioning of the house keeping department.

Unit	Course Content	Knowledge Levels	Sessions
I	Housekeeping Department: Importance of housekeeping, **Duties and Responsibilities of Housekeeping Department. Organizational Structure, types of lodging establishments**.** Job Description and Job Specification of staff in the department. Layout of the department, Personal Attributes. Qualities of the Housekeeping staff - skills of a good Housekeeper. ****SDG 8: Decent Work and Economic Growth**	K2	6
II	**Housekeeping Coordination and Procedures** Briefing, Debriefing, Gate pass, Inter departmental Co-ordination with more emphasis on Front office and the Maintenance department. Indenting from stores- Inventory of Housekeeping Items, **Housekeeping control desk,** Importance, Role, **Co-ordination,** check list, key control, Handling Lost and Found, Forms, Formats and registers used in the Control Desk, Paging systems and methods, **Handling of Guest queries, problem, request.** General operations of control desk, **Role of control desk during Emergency**.** **** SDG 16: Peace, Justice and Strong Institutions**	K2	7
III	**Hotel Guest room** - Importance of the Guestroom to a Guest, Types of guest rooms, **Guest Supplies/Amenities in a guest room****, Bed making procedures and types. **Different types and importance of keys** – section key, master key, floor key and grand master key. Key of executive offices and public areas and computerized key. **Pest control and eradication**** – with special reference to rats, cockroaches, furniture beetle, clothes moth, etc. Dealing with emergency like fire, death, theft, accidents, **safety security control**.** **** SDG 11: Sustainable Cities and Communities**	K2	6
IV	**Linen/ Uniform / Sewing Room** Importance in hotels, selection and buying of linen, inspecting, **Storage Facilities**, receiving used linen. **Linen stock for any**	K3	5

	establishment,** Layout, Types of Linen, sizes and Linen exchange procedure, and conditions, Linen Inventory system. **Uniform designing: Importance, selection, characteristics, and types**.** **** SDG 12: Responsible Consumption and Production**		
V	**Housekeeping Inventories** Introduction, **Cleaning equipment****– Selection of equipment. Manual Equipment - brooms and brushes, protective equipment, cloths used in cleaning and box sweeper. Mechanical equipment - electric equipment, vacuum cleaner, floor scrubbing and polishing machine, floor shampooing machine, containers trolley, chambermaid's trolley, etc. **Cleaning Agents**** – Water, Detergents, Abrasives, Reagents, Organic Solvents, Disinfectants and Bleaches, Glass Cleaners, Laundry Aids, Toilet Cleaners, Polishes, Floor sealers and Carpet Cleaners, characteristics of a good cleaning agent. Selection, **Storage and Issuing of Cleaning Agents****. ****SDG 6: Clean Water and Sanitation**	K3	6

Course Outcome	**CO1:**Describe the qualities, skills and responsibility of good housekeeper.	K2
	CO2: Explain the procedure and services provided by the house keeping department.	K2
	CO3: Identify different types of guest rooms and list the common pest control methods used in hotels.	K2
	CO4: Choose appropriate storage procedures for linen and uniforms	K3
	CO5: Evaluate suitability of cleaning agents to clean different surfaces.	K3

Learning Resources	
TextBooks	1. AletaNitschke (2008) "Managing Housekeeping Operations" Educational Inst Of The Amer Hotel; Revised Edition, Isbn-13 **:** 978-0866123365 2. G. Raghubalan (2015) "Hotel Housekeeping: Operations and Management"3e Oxford University Press India, Isbn-13 978-0199451746. 3. JatashankarTewari (2016), "Hotel Front Office 2E: Operations and Management" Oxford, University Press; Third Edition
Reference Books	1. Nishant Pal (2022) "Accommodation Operations: Introduction to Housekeeping and Hotel GuestRoom, Guest Services, HousekeepingControl Desk, Linen Room" Kindle Edition. 2. Reeta Pal and Nishant Pal (2022), Housekeeping - Housekeeping Procedures,Hotel Guest Room,Housekeeping Manpower Planning, Cleaning Science and Managing Quality Service, Kindle.
E-resource	1. https://www.ihmnotes.in/assets/Docs/Books/9780199451746.pdf 2. https://hoteltechreport.com/news/hotel-housekeeping-duties 3. https://uou.ac.in/sites/default/files/slm/DHA-102.pdf 4. https://www.slideshare.net/slideshow/personal-attributes-of-

	housekeeping-staff-62900148/62900148 5. https://www.slideshare.net/slideshow/duties-and-responsibilities-of-an-executive-housekeeper/49650816 6. https://www.ihmnotes.in/assets/Docs/Sem-3&4/Accomodation/Ch-1,%20Linen%20Room.pdf 7. http://kubershah.blogspot.com/2017/04/uniform-room.html
L– Lecture T–Tutorial P–Practical C- Credit	

MappingofCO'swithPO'sandPSO's

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

(Correlation:3–High,2–Medium,1–Low)

Course Designed By: Mrs. M. Deepika	**Verified By HOD: Mrs. R. Prailin**
Checked By CDC: Mrs. C. Magila	**Approved By: Dr. J. Caroline Rose, Principal.**

Dr. J. Prakash Maran Professor, Department of Food Science and Nutrition , Periyar University, Salem 11	**Mr. S. M. Prasad, M.Sc. M.Phil., SET.,** Assistant Professor and Head, Department of Nutrition and Dietetics, (UG and PG), Sadakathullah Appa College (Autonomous) Rahmath Nagar, Tirunelveli	**Dr. M. Pushpa Devi,** Assistant Professor and Head, Department of Clinical Nutrition, Kongunadu Arts and Science College, Coimbatore.
Mrs. S. Geetha Chief Exceutive Officer, Asai Amudhan Food Industry, Titan Township, Mathigiri, Hosur	**Ms. Vanguri Irin,** Food Safety Executive and Operation Manager, Hunger Box, Bengaluru.	

B.Sc. Nutrition and Dietetics LOCF–CBCS with effect from 2025- 2026 Onwards								
Course Code	**Course Title**	**Course Type**	**Sem**	**Hours**	**L**	**T**	**P**	**C**
25UND1NM1	**NUTRITION FOR FITNESS**	**SEC /NME THEORY**	**I**	**30**	**2**	**-**	**-**	**2**

Learning Objective: Enable the students to

- ✓ Understand the concepts of fitness
- ✓ Relate importance of nutrition in fitness
- ✓ Comprehend the role of nutrition and fitness in maintaining body composition
- ✓ Explore career opportunities in fitness centres

Unit	Course Content	Knowledge Levels	Sessions
I	**Basics of Nutrition** Definition- food, nutrients, nutrition, health, general guidelines for healthy eating - **balanced diet, food pyramid, concept of my plate****. Classification of nutrients–macro and micro nutrients; non-essential nutrients in fitness. ****SDG 2: Zero Hunger**	K2	06
II	**Fitness and Competition Meals** **Fitness**–Definition, health related fitness; physical activity –unstructured, structured. **Pre and post competition meal –definition and role****. ****SDG 3: Good Health and Well-Being**	K2	05
III	**Exercise and Ergogenic Aids** **Exercise-** definition, basic principles of exercise – over load, progression, recuperation, individuality, reversibility, over use; moderate intensity and vigorous intensity exercise; role of exercise in health. **Ergogenic aids**–definition; types–mechanical, psychological, physiological, pharmacological and nutritional; **Role of nutritional ergogenic aids – water, carbohydrates, proteins, vitamins, antioxidants and minerals****. ****SDG 12: Responsible Consumption and Production**	K2	07
IV	**Body Weight and Composition** Ideal body weight, Body Mass Index, Introduction to body composition, **importance of body composition analysis****, factors affecting body composition. **Role of physical activity in improving body composition**, **role of nutrition in improving body composition****. ****SDG 4: Quality Education**	K2	06
	Fitness in Stress Management Meaning of stress, general adaptation syndrome - alarm stage, resistance stage, exhaustion stage, types of stress –		

V	eustress and distress. **Stress management techniques-role of yoga and meditation; importance of nutrition and exercise in stress management**.** ****SDG16: Peace, Justice and Strong Institutions**	K3	06

Course Outcome	**CO1:** Understand the concept of nutrition in relation to fitness	K2
	CO2: Determine the nutritional requirement for fitness and physical Performance	K2
	CO3: Illustrate the relationship between body composition and fitness	K3
	CO4: Interpret and explain the role of physical activity in preventing Lifestyle disorders	K2
	CO5: Relate and speculate the role of nutrition in preventing lifestyle related diseases and Assess and validate the role of stress management	K3

Learning Resources	
Text Books	1. Mahan,L.K.& Ecott-Stump,S., (2000). Krause's Food, Nutrition and Diet therapy, 10th edition, W.B. Sunders ltd, London. 2. Sizer, F. & Whitney, E., (2000), Nutrition- Concepts & Controversies, 8th edition, Wadsworth Thomson learning, New York. 3. Shills, M.E., Olson, J.A., Shike, N. and Ross, A.C,(1999). Modern Nutrition in Health & disease, 9th edition, Williams & Wilkins, UK.
Reference Books	1. Parizkova.J., Ed.Wolinsky.I.,(2001). Nutrition, Physical Activity and Health in Early Life, CRC press, New York. 2. Whitney,E.N. & Rolfes. S.R.,(2002). Understanding Nutrition, 8th edition, West/Wadsworth, an International Thomson Publishing Co. London.
E-resource	✓ https://mdpires.com/bookfiles/book/3237/Nutrition_and_Fitness.pdf?v=1750813405 ✓ https://www.ncbi.nlm.nih.gov/books/NBK235943/ ✓ https://www.physio-pedia.com/Principles_of_Exercise ✓ https://study.com/academy/lesson/supplements-ergogenic-aids-effects-on-performance.html
L– Lecture T–Tutorial P–Practical C- Credit	

Mapping of CO's with PO's and PSO's

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

(Correlation: 3–High, 2–Medium, 1–Low)

Course Designed By: Mrs. R. Prailin	**Verified By HOD: Mrs. R. Prailin**
Checked By CDC: Mrs. C. Magila	**Approved By: Dr. J. Caroline Rose** **Principal**

Dr. J. Prakash Maran Professor, Department of Food Science and Nutrition, Periyar University, Salem 11.	**Mr. S. M. Prasad, M.Sc. M.Phil., SET.,** Assistant Professor and Head, Department of Nutrition and Dietetics, (UG and PG), Sadakathullah Appa College (Autonomous), Rahmath Nagar, Tirunelveli	**Dr. M. Pushpa Devi,** Assistant Professor and Head, Department of Clinical Nutrition, Kongunadu Arts and Science College, Coimbatore.
Mrs. S. Geetha Chief Executive Officer, Asai Amudhan Food Industry, Titan Township, Mathigiri, Hosur	**Ms. Vanguri Irin,** Food Safety Executive and Operation Manager, Hunger Box, Bengaluru.	

B.Sc. Nutrition and Dietetics LOCF–CBCS with effect from 2025- 2026 Onwards								
Course Code	**Course Title**	**Course Type**	**Sem**	**Hours**	**L**	**T**	**P**	**C**
25UND1NM2	**FOOD PROCESSING**	**SEC / NME THEORY**	**I**	**30**	**2**	**-**	**-**	**2**

Learning Objective: Enable the students to

- ✓ Understand the scope and importance of food processing in the food industry
- ✓ Explain various processing techniques used for cereals, pulses, oil seed, fruits and vegetables.
- ✓ Illustrate the techniques used in processing milk, fish, meat, poultry and eggs including value-added product preparation.

Unit	Course Content	Knowledge Levels	Sessions
I	Definition Scope and importance of food processing. Cereal – **processing of raw and parboiled rice and rice products-Puffing and flaking****. Wheat and corn processing, feed for livestock from wheat bran and germ. Potato processing–potato chip, flakes and powder. ****SDG 9: Industry, Innovation and Infrastructure**	K2	07
II	Decortication processing of legumes, effect of processing of legumes on their nutrient composition and quantity and quality, **quick cooking legumes, instant legume powders, legume protein concentrates, by- products utilization of legume processing and storage of legumes****. ****SDG 12: Responsible Consumption and Production**	K2	07
III	Processing of oil seeds, packing and storage of fats and oils, change during to rage of oils. Oil specialty products-margarine, mayonnaise, salad dressing and fat substitutes, **Nutritional food mixes from oilseeds–processing oil seeds for food use****, protein enriched foods. ****SDG 8: Decent Work and Economic Growth**	K2	05
IV	Storage and handling of fresh fruits and vegetables, processing of fruits and vegetables juice concentrates and powders, **by-products from fruits and vegetables waste**** . Canning process of fruits and vegetables. **Cultivation of mushroom**** and its processed products. ****SDG 15: Life on Land**	K2	06
V	Processing of milk, manufacture of butter, paneer and cheese. **Fish processing–canning, freezing, drying, salting, smoking and curing, uses of by-products. Meat processing - curing and smoking, Poultry and egg powder– processing and storage****. ****SDG 14: Life Below Water**	K3	05

Course Outcome	**CO1:** Understand the scope, importance, and basic processing methods of cereals and potatoes	K2
	CO2: Explain the processing methods, storage and nutritional impact of legumes	K2
	CO3: Describe the processing and preservation techniques of oilseeds and fat-based food products	K2
	CO4: Outline the storage, handling and processing of fruits and vegetables including by-product utilization	K2
	CO5: Apply processing methods for milk, fish, meat, poultry and eggs to enhance shelf life and nutrition	K3

Learning Resources	
Text Books	1. Norman N.P. and Joseph H.H. (1997). Food Science, CBS Publishing , New Delhi,. 2. Stadelman. W.J., Olson. V.M, Shemwell, G.A and Parch S. (1998). Egg and Poultry Meat Processing, Elliwood Ltd. 3. Subbulakshmi. G., Shobha.A. (2008). UDIPI, Food processing and preservation, New age international publisher, New Delhi.
Reference Books	1. Sivasankar. B., (2015). Food Processing and Preservation, PHI Learning private limited, New Delhi. 2. Sumati R. Mudambi, M.V. Rajagopal. (2015). Fundamental of food, nutrition and diet therapy. New age international publishers, New Delhi.
E-resource	✓ https://www.britannica.com/technology/food-processing ✓ https://www.eufic.org/en/food-production/article/processed-food-qa ✓ https://onlinecourses.nptel.ac.in/noc25_ag22/preview
L– Lecture T–Tutorial P–Practical C- Credit	

Mapping of CO's with PO's and PSO's

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

(Correlation: 3–High, 2–Medium, 1–Low)

Course Designed By: Mrs. M. Deepika	**Verified By HOD: Mrs. R. Prailin**
Checked By CDC: Mrs. C. Magila	**Approved By: Dr. J. Caroline Rose** **Principal**

Dr. J. Prakash Maran Professor, Department of Food Science and Nutrition, Periyar University, Salem 11.	**Mr. S. M. Prasad, M.Sc. M.Phil., SET.,** Assistant Professor and Head, Department of Nutrition and Dietetics, (UG and PG), Sadakathullah Appa College (Autonomous), Rahmath Nagar, Tirunelveli	**Dr. M. Pushpa Devi,** Assistant Professor and Head, Department of Clinical Nutrition, Kongunadu Arts and Science College, Coimbatore.
Mrs. S. Geetha Chief Executive Officer, Asai Amudhan Food Industry, Titan Township, Mathigiri, Hosur	**Ms. Vanguri Irin,** Food Safety Executive and Operation Manager, Hunger Box, Bengaluru.	

B.Sc. Nutrition and Dietetics LOCF–CBCS with effect from 2025- 2026 Onwards								
Course Code	**Course Title**	**Course Type**	**Sem**	**Hours**	**L**	**T**	**P**	**C**
25UND1NM3	**BASICS OF FOOD AND NUTRITION**	**SEC / NME THEORY**	**I**	**30**	**2**	**-**	**-**	**2**

Learning Objective: Enable the students to

- ✓ Understand the basic concepts of food, nutrition and health
- ✓ Identify the sources and functions of macro and micronutrients
- ✓ Learn methods of food preparation and preservation
- ✓ Understand the principles of a balanced diet and nutrient requirements
- ✓ Recognize dietary guidelines for common non-communicable diseases

Unit	Course Content	Knowledge Levels	Sessions
I	Meaning of health, nutrition, nutrients, signs of good nutrition. Food- Meaning, Functions, Classification- based on function, Basic V & IV food groups, Food Pyramid. Balanced Diet- Definition, concept of balanced diet, RDA. **Definition- Malnutrition, Undernutrition, over nutrition and Specific deficiencies**.** ****SDG 2: Zero Hunger**	K2	06
II	**Food Preparation and Preservation** Cooking- objectives of cooking, different methods of cooking- moist heat and dry heat method- merits and demerits.**Food Preservation- major principles and techniques**.** ****SDG 12: Responsible Consumption and Production**	K2	07
III	**Macro Nutrients** Meaning, Classification, Functions, **Digestion, Absorption, Deficiency and Sources of Carbohydrates, Proteins, Fats**.** ****SDG 3: Good Health and Well- Being**	K2	06
IV	**Micro Nutrients** **Vitamins:** Classification, Functions, **Deficiency,** Sources and Requirements- **Fat and Water Soluble Vitamins**.** **Minerals:** Functions, **Deficiency,** Sources and Requirements- **Calcium, Iron, Iodine, Zinc, Magnesium, Fluorine**.** ****SDG 4: Quality Education**	K2	06
V	**Dietary Management for Non- Communicable Disease** **Diabetes mellitus, Cardio vascular disease, Hypertension and Obesity**.** ****SDG 11: Sustainable Cities and Communities**	K3	05

Course Outcome	**CO1:**Describe the basic concepts of food, health and nutrition and understand food classification and food groups	K2
	CO2: Explain basic food preparation and preservation techniques	K2
	CO3: Discuss the functions, sources and deficiency symptoms of macro nutrients	K2
	CO4: Identify the role, requirements and deficiencies of essential vitamins and minerals	K2
	CO5: Apply basic dietary principles in managing common non-communicable diseases	K3

Learning Resources	
Text Books	1. Srilakshmi. B (2016). Food Science. New Delhi, New Age International Pvt. Ltd. 2. Srilakshmi. B (2016). Nutrition Science. New Delhi, New Age International Pvt. Ltd. 3. Srilakshmi. B (2016). Dietetics. New Delhi, New Age International Pvt. Ltd. 4. Swaminathan. M (1985). Essential of Food and Nutrition. Vol I and Vol II, Madras. Ganesh and Company, Hyderabad.
Reference Books	1. Sheila John, Jasmine and Jenifer Arulmani (2007). Essentials of Nutrition and Dietetics for Nursing. B.I Publications Pvt Ltd. 2. Raheena Begum (2001). A Textbook of Foods, Nutrition and Dietetics. Sterling Publishers Pvt. Ltd. 3. Mudambi, R.S. and Rao. S (1987). Food Science. New Delhi: Wiley Eastern Limited. 4. Potter, N.M. and Birch, G.G. (1986). Food Science, AVI, West Port, Conn.
E-resource	✓ https://archive.org/details/textbookoffoodsc0000khad ✓ https://www.healthline.com/nutrition/micronutrients#definition ✓ https://openoregon.pressbooks.pub/nutritionscience/chapter/8a-classification-vitamins-minerals/ ✓ https://egyankosh.ac.in/bitstream/123456789/44170/3/Unit-21.pdf ✓ https://www.scribd.com/document/560860565/IGNOU-Block-4-Unit-2-Non-Communicable-Diseases-1
L– Lecture T–Tutorial P–Practical C- Credit	

Mapping of CO's with PO's and PSO's

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

(Correlation: 3–High, 2–Medium, 1–Low)

Course Designed By: Dr. M. Aswini	**Verified By HOD: Mrs. R. Prailin**
Checked By CDC: Mrs. C. Magila	**Approved By: Dr. J. Caroline Rose** **Principal**

	Mr. S. M. Prasad, M.Sc. M.Phil., SET., Assistant Professor and Head, Department of Nutrition and Dietetics, (UG and PG), Sadakathullah Appa College (Autonomous), Rahmath Nagar, Tirunelveli	**Dr. M. Pushpa Devi,** Assistant Professor and Head, Department of Clinical Nutrition, Kongunadu Arts and Science College, Coimbatore.
Mrs. S. Geetha Chief Executive Officer, Asai Amudhan Food Industry, Titan Township, Mathigiri, Hosur		**Ms. Vanguri Irin,** Food Safety Executive and Operation Manager, Hunger Box, Bengaluru.

B.Sc., Nutrition and Dietetics LOCF–CBCS with effect from 2025-2026 Onwards								
Course Code	**Course Title**	**Course Type**	**Sem**	**Hours**	**L**	**T**	**P**	**C**
25UND2NM1	**BASICS OF FUNCTIONAL FOODS**	**NME/SEC THEORY**	**II**	**30**	**2**	**-**	**-**	**2**

Learning Objective: Enable the students to

1. Understand the concept of functiona1 foods
2. Gain knowledge on role of functional food in health promotion
3. Know about the inclusion of functional foods in daily diet

Unit	Course Content	Knowledge Levels	Sessions
I	**Classification of functional foods** **Functional foods**: Definition, meaning, history, health benefits, types- whole foods, **fortified foods, enhanced foods**.** ****SDG2- Zero Hunger**	K2	7
II	**Prebiotics** **Prebiotics**: Definition, recommended intake, **sources- inulin, FOS, health benefits**.** ****SDG3:Good Health and Well-Being**	K2	7
III	**Probiotics and Symbiotic** **Probiotics:** definition, criteria, sources- **yoghurt, kefir, health benefits****. Symbiotic: definition, health benefits. Difference between probiotics, prebiotics and symbiotic. ****SDG9:Industry, Innovation and Infrastructure**	K2	5
IV	**Free radicals and antioxidants** Free radicals: definition, formation- exogenous and endogenous, ill effects. Antioxidants: definition, types, defense mechanism, **role of antioxidants in human health****. ****SDG12:Responsible Consumption and Production**	K2	6
V	**Specific functional foods for cancer and diabetic** **Anticancer foods: turmeric****, honey, **garlic****, onion, ginger, saffron, cumin seeds, black pepper, **tea****,cinnamon cloves. **Antidiabetic foods: fenugreek, bitter gourd, jamun****,** onion, barley, curry leaves, garlic, soya cranberry. ****SDG15:Life on Land**	K3	5

Course Outcome	**CO1:** Describe and classify the functional foods	K2
	CO2: Explain the sources and enumerate the health benefits of prebiotics	K2
	CO3: Differentiate the probiotics and symbiotic and associate their health benefits.	K3
	CO4: justify the effects of bioactive compounds and cite the role of functional components and antioxidants.	K3
	CO5: Summarize the preventive role of functional foods in diseases.	K3

Learning Resources	
Text Books	1. Srilakshmi. V (2019). Nutrition Science, New Age International (P) Ltd, India. 2. Subbulakhmi, G, Subhadra, M. (2014). Functional foods and Nutrition, Daya Publishing House, Astral International Pvt, Ltd, New Delhi, India. 3. Krause, Hunseher, M.A. (2020). Food and Nutrition Therapy, 12th Edition, Saunders Elsevier Company, London, UK. 4. Swaminathan. M. (2014). Essentials of Food and Nutrition An Advanced Text Book). Vol I, Bappco, India.
Reference Books	1.Michael. Z. (2010). Hand Book of Nutrition, Thime Medical and Scientific Publishers Pvt. Ltd, India. 2.Carroll Luttz and Przytulski (2010). Nutrition and Diet Therapy, 5th edition, Jaypee Brothers Medical Publishers, New Delhi, India.
E- resource	1. https://pmc.ncbi.nlm.nih.gov/articles/PMC4648921/ 2. https://www.healthline.com/nutrition/probiotics-and-prebiotics#whats-the-difference 3. https://www.ijcmas.com/9-11-2020/T.%20Thilagavathi.pdf 4. https://pmc.ncbi.nlm.nih.gov/articles/PMC3614697/ 5. https://pmc.ncbi.nlm.nih.gov/articles/PMC3249911/
L– Lecture T–Tutorial P–Practical C- Credit	

Mapping of CO's with PO's and PSO's

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

(Correlation:3–High,2–Medium,1–Low)

Course Designed By: Mrs. M. Deepika	**Verified By HOD: Mrs. R. Prailin**
Checked By CDC: Mrs. C. Magila	**Approved By: Dr. J. Caroline Rose, Principal.**

Dr. J. Prakash Maran Professor, Department of Food Science and Nutrition, Periyar University, Salem 11.	**Mr. S. M. Prasad, M.Sc. M.Phil., SET.,** Assistant Professor and Head, Department of Nutrition and Dietetics, (UG and PG), Sadakathullah Appa College (Autonomous), Rahmath Nagar, Tirunelveli	**Dr. M. Pushpa Devi,** Assistant Professor and Head, Department of Clinical Nutrition, Kongunadu Arts and Science College, Coimbatore.
Mrs. S. Geetha Chief Exceutive Officer, Asai Amudhan Food Industry, Titan Township, Mathigiri, Hosur	**Ms. Vanguri Irin,** Food Safety Executive and Operation Manager, Hunger Box, Bengaluru.	

B.Sc Nutrition and Dietetics LOCF–CBCS with effect from2025- 2026 Onwards								
Course Code	**Course Title**	**Course Type**	**Sem**	**Hours**	**L**	**T**	**P**	**C**
25UND2NM2	**NUTRITION FOR HEALTH**	**SEC / NME THEORY**	**II**	**30**	**2**	**-**	**-**	**2**

Learning Objective: Enable the students to

1. Know the role of vegetarian diet in preventing the degenerative diseases
2. Acquire knowledge about the types of diet
3. Improve the life style through physical activity

Unit	Course Content	Knowledge Levels	Sessions
I	Basic Components of Foods and their Functions, **Energy producing nutrients, digestion, absorption and food sources of: Carbohydrates, Lipids, Proteins**.** ****SDG 2: Zero Hunger**	K2	6
II	Applying Nutrition in Daily Life: Planning a healthy diet: Principles of meal planning, use of food pyramid and nutrition guidelines, Dietary diversity score, Nutrition adequacy score and use of nutrition label; **Nutrient requirement throughout lifecycle pregnancy, lactation, Infancy to oldage**.** ****SDG 3: Good Health and Well-Being**	K2	6
III	Role of Diet in Disease Prevention and Management: **Cardiovascular diseases and fat intake**,** Cancer: risk factors for cancer and role of diet in cancer prevention. Diabetes mellitus: risk factors for Type II diabetes, use of alternative sweeteners and principles of dietary restriction, Osteoporosis: bone health, use of calcium supplement and phytoestrogen. **** SDG 11: Sustainable Cities and Communities**	K2	7
IV	Role of Diet in Disease Prevention and Management: etiology, symptoms, diet management and restrictions in fevers, diahorrea, constipation, peptic ulcer, allergy, jaundice, renal stones and post operative conditions; **Weight imbalances and dietary modifications**.** ****SDG 4: Quality Education**	K2	6
V	Nutraceuticals and functional foods for health and disease prevention Nutraceuticals: Meaning, classification and importance in disease prevention. Functional foods – Meaning, classification and importance in disease prevention. **Concept of probiotics, prebiotics and synbiotics and gut health**.** **** SDG 9: Industry, innovation and Infrastructure**	K3	5

Course Outcome	**CO1:** understand the basic components of food, their sources, digestion and absorption	K2
	CO2: Apply nutrition knowledge for planning a health daily diet across the lifecycle	K2
	CO3: Explain the role of diet in prevention of non-communicable diseases.	K2
	CO4: Describe dietary management of common disorders including fever, GI issues and weight imbalance	K2
	CO5: Apply knowledge of nutraceuticals and functional foods in maintaining health and disease prevention	K3

Learning Resources	
TextBooks	1.Srilakshmi B (2018). Dietetics, New Age Publishers 2.Srilakshmi B (2018). Nutrition Science, New Age Publishers 3.Janice Thompson & Melinda Manore (2013). Nutrition for Life. 3rd edition, Pearson education.
Reference Books	1 Judith E. Brown, (2017). Nutrition Now. 8th edition, Cengage Learning. 2. Blake, J.S. (2008). Nutrition & You. San Francisco: Pearson Education.
E-resource	1. https://www.ncbi.nlm.nih.gov/books/NBK597379/ 2. https://bio.libretexts.org/Bookshelves/Human_Biology/Human_Biology_(Wakim_and_Grewal)/18%3A_Digestive_System/18.3%3A_Digestion_and_Absorption 3. https://www.slideshare.net/slideshow/mine-65718436/65718436 4. https://www.slideshare.net/slideshow/nutraceuticals-71153808/71153808 5. https://link.springer.com/book/10.1007/978-1-4614-3480-1
L– Lecture T–Tutorial P–Practical C- Credit	

Mapping of CO's with PO's and PSO's

	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PSO1**	**PS02**	**PSO3**
CO1	3	2	2	2	3	2	3	2	3	2	2	3	3
CO2	3	3	2	3	2	2	2	2	3	3	3	3	3
CO3	3	3	3	3	2	2	2	2	3	3	3	3	3
CO4	2	2	2	3	2	3	2	2	3	3	2	3	2
CO5	2	2	2	2	2	3	3	3	2	3	2	3	3

(Correlation:3–High,2–Medium,1–Low)

Course Designed By: Ms. B. Madhumitha	**Verified By HOD: Mrs. R. Prailin**
Checked By CDC: Mrs. C. Magila	**Approved By: Dr. J. Caroline Rose, Principal.**

Dr. J. Prakash Maran Professor, Department of Food Science and Nutrition, Periyar University, Salem 11.	**Mr. S. M. Prasad, M.Sc. M.Phil., SET.,** Assistant Professor and Head, Department of Nutrition and Dietetics, (UG and PG), Sadakathullah Appa College (Autonomous), Rahmath Nagar, Tirunelveli	**Dr. M. Pushpa Devi,** Assistant Professor and Head, Department of Clinical Nutrition, Kongunadu Arts and Science College, Coimbatore.
Mrs. S. Geetha Chief Exceutive Officer, Asai Amudhan Food Industry, Titan Township, Mathigiri, Hosur	**Ms. Vanguri Irin,** Food Safety Executive and Operation Manager, Hunger Box, Bengaluru.	

B.Sc Nutrition and Dietetics LOCF–CBCS with effect from2025- 2026 Onwards								
Course Code	**Course Title**	**Course Type**	**Sem**	**Hours**	**L**	**T**	**P**	**C**
25UND2NM3	**FOOD PRESERVATION**	**NME THEORY**	**II**	**30**	**2**	**-**	**-**	**2**

Objective: Enable the students to

1. Define key principles, scope and various methods of food preservation
2. Explain low and high temperature preservation techniques
3. Differentiate between Class I and Class II preservatives and identify the types of food spoilage

Unit	Course Content	Knowledge Levels	Sessions
I	**Introduction to Food Preservation** Food preservation – Definition, Scope of food preservation, Principles of preservation, methods of food preservation.**Preservation by low temperature**- Introduction, **Refrigeration, Freezing- slow freezing, quick freezing and dehydro freezing**.** Principles of freezing, changes occur during freezing. ****SDG 7: Affordable and Clean Energy**	K2	7
II	**Preservation by high temperature and drying** **Preservation by High Temperature** – **Sterilization, Pasteurization, Canning**** and Blanching. **Drying and dehydration** – definition, difference between sun drying and types of driers used in the food industry Methods of Drying. **** SDG 9: Industry, Innovation and Infrastructure**	K2	7
III	**Preservation by evaporation and preservatives** **Evaporation-** Definition, factors influencing evaporation. **Preservatives-** types – class I and Class II preservatives- definition and types, **use of salt, sugar, acids and vinegar****. **** SDG 12: Responsible Consumption and Production**	K2	5
IV	**Food Spoilage:** Definition, difference between contamination and spoilage, **causes of food spoilage, microbial, enzymatic, chemical and physical spoilage****, factors influencing food spoilage, spoilage of preserved foods and its causative factors and **control measures****. **** SDG 3: Good Health and Well-Being**	K2	6

V	**Modern and Emerging Techniques** **Irradiation, high- pressure processing (HPP), pulsed electric field (PEF)**,** ultra-sonication, hurdle technology- principle and applications. ****SDG 13: Climate Action**	K3	5
	<u>Related Experience</u> 1. Preparation of vadagam, vathal 2. Preparation of Jam, Jellies, Marmalade, squash 3. Preparation of pickles, sauces, Ketchup		

Course Outcome	**CO1:** Describe traditional food preservation methods including low and high temperature	K2
	CO2: Explain evaporation, drying, dehydration methods and usage of various preservatives	K2
	CO3: Identify the evaluate causes and control measures for different types of food spoilage.	K3
	CO4: Compare emerging food preservation techniques and their practical applications	K3
	CO5: Analyze the role of food preservation in maintain food safety, quality and extending shelf life	K3

Learning Resources	
TextBooks	1. BrennanJGand Grandison AS (2012) Food processing handbook. 2nd Edition, John Wiley. 2. ManoranjanKalia(2014). Food Quality Management Second Edition, Aggrotech Publishing Academy, Udaipur. 3. Walter A. Mercer, (1988) Advances in Food Research First Edition, AcademicPress,UniversityofCalifornia, 3U.S.A. 4. Potter N (1995). Food Technology,5thEdition,CornellUniversity,Ithaca,NewYork.
Reference Books	1. Coles R, Mc Dowell D and Kirwan MJ, Food Packaging Technology, CRC Press, 2003 2. Frazier W C and Westhoff D C, Food Microbiology, TMH Publication, New Delhi, 2004. 3. Meyer LH, Food Chemistry, CBS Publication, New Delhi,19878. 4. Ranganna S, Handbook of Analysis and Quality Control for Fruits and Vegetable, Products, 2nded. 5. Dantyagi, S. (1996). Fundamentals of Textiles and their Care New Delhi: Orient Longman. 6. Duelkar, D. (1983). Household Textile and Laundry Work New Delhi: Atma Ram and Sons. 7. Wingate, B.I. (1976). Textile Fabrics and their Selection. U.S.A: Prentice Hall, Inc.

E- resource	1. https://www.ficsi.in/blog/common-food-preservation-techniques/ 2. https://www.britannica.com/topic/food-preservation 3. https://actascientific.com/ASNH/pdf/ASNH-03-0529.pdf 4. https://www.slideshare.net/AsthaPatel30/food-preservation-247574559
L– Lecture T–Tutorial P–Practical C- Credit	

MappingofCO'swithPO'sandPSO's

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

(Correlation:3–High,2–Medium,1–Low)

Course Designed By: Mrs. M. Deepika	**Verified By HOD: Mrs. R. Prailin**
Checked By CDC: Mrs. C. Magila	**Approved By: Dr. J. Caroline Rose, Principal.**

Dr. J. Prakash Maran Professor, Department of Food Science and Nutrition , Periyar University, Salem 11	**Mr. S. M. Prasad, M.Sc. M.Phil., SET.,** Assistant Professor and Head, Department of Nutrition and Dietetics, (UG and PG), Sadakathullah Appa College (Autonomous), Rahmath Nagar, Tirunelveli	**Dr. M. Pushpa Devi,** Assistant Professor and Head, Department of Clinical Nutrition, Kongunadu Arts and Science College, Coimbatore.
Mrs. S. Geetha Chief Exceutive Officer, Asai Amudhan Food Industry, Titan Township, Mathigiri, Hosur	**Ms. Vanguri Irin,** Food Safety Executive and Operation Manager, Hunger Box, Bengaluru.	

HEALTH & WELLNESS (AUDIT COURSE)

Purpose

The Health & Wellness course focuses on teaching the elements of physical, mental, emotional, social, intellectual, and environmental well-being which are essential for the overall development of an individual. The course also addresses the dangers of substance abuse and online risks to promote emotional and mental health.

Skill Areas

- Physical Fitness
- Nutrition
- Mental Health
- Awareness on Drug Addiction and its Effects

Learning Outcomes

Upon completion of the Health & Wellness course, students will be able to:

1. Demonstrate proficiency in sports training and physical fitness practices.
2. Improve mental and emotional well-being, fostering a positive outlook on health and life.
3. Develop competence and commitment as responsible professionals in the field of health and wellness.
4. Gain awareness of drug addiction and its ill effects.

Focus Areas

1. Stress Management
2. Breaking Bad Habits
3. Improving Interpersonal Relationships
4. Building Physical Strength & Inner Strength

Role of the Facilitator

1. **Mentorship & Motivation** – Guide students in wellness, stress management, fitness, and daily well-being.
2. **Promoting a Safe & Inclusive Environment** – Ensure active participation in a respectful atmosphere.
3. **Individualised Support & Monitoring** – Provide personal guidance, monitor progress, and mentor students effectively.

Guided Activities & Sub-Components

1. Introduction to Holistic Well-being

- Introduce the **core components of health & well-being: Physical, Mental, Emotional, Social, Intellectual, and Environmental well-being****.
- Provide worksheets on each component and explain their interconnectedness.

****SDG 3: Good Health and Well-being**

2. Wellness Wheel Exercise

- Guide students to assess their **well-being in different life dimensions****.
- Conduct exercises on various aspects of wellness.
- Explain the benefits of applying the wellness wheel for balance in life.
  Tech Tools for Wellness (1 period)
- Explore the use of apps for meditation, sleep tracking, or healthy recipes.

- Demonstrate how technology can support healthy lifestyles.

****SDG 4: Quality Education**

3. Breaking Bad Habits

- Open a discussion on common bad habits and their harmful effects.
- Provide worksheets for students to identify personal bad habits.
- Discuss triggers, causes, and consequences with examples.
- **Guide them in replacing bad habits with healthy alternatives****.

****SDG 12: Responsible Consumption and Production**

4. Physical Well-being

a) Fitness

- Introduce different types of fitness activities: basic exercises, cardiovascular training, strength training, flexibility workouts.
- Provide both theoretical explanations and outdoor activities.

b) Nutrition

- **Encourage reflection on eating habits and body type****.
- Provide knowledge tests on nutrition sources and benefits.
- Suggested activity: Stove-less/Fireless cooking competition with explanation of nutritive values.

c) Yoga & Meditation

- Discuss benefits of yoga and meditation for overall health.
- Demonstrate postures through visuals/videos.

d) Brain Health

- Discuss importance of brain health for daily life.
- Habits that affect brain health: irregular sleep, poor diet, excess screen time.
- Habits that help: reading, exercise, proper rest.

e) Healthy Lungs

- Importance of lung health for daily life.
- Bad habits: smoking, lack of physical activity.
- Benefits of breathing exercises and meditation.

f) Hygiene & Grooming

- Importance of oral, vision, hearing, and skin hygiene.
- Role of grooming in confidence and professional growth.

  Suggested Activities (sample): Nutrition: Invite a nutritionist to talk among the students on the importance of nutrition to the body or show similar videos shared by experts on social media. Organize a ‘Stove less/fireless cooking competition' for students where they are expected to prepare a nutritious dish and explain the nutritive values in parallel.

****SDG 2: Zero Hunger**

5. Emotional Well-being

a) Stress Management**

- Worksheets to identify stress factors and their impact.
- Relaxation techniques: deep breathing, progressive muscle relaxation, guided imagery.
- Reflective practice on effectiveness of techniques.

b) Importance of Saying "NO"

- Why saying "NO" is important for physical, mental, and academic well-being.
- Factors preventing students from saying "NO".
- Practice exercises on asserting boundaries.
- Suggested activity: Students create songs/raps on saying "NO".

c) Body Positivity & Self-Acceptance**

- Define body positivity and its importance.
- Encourage kindness to self and respect for uniqueness.

****SDG 16: Peace, Justice and Strong Institutions**

6. Social Well-being

a) Practicing Gratitude

- Importance of gratitude in relationships.
- Ripple effect of gratitude.
- Suggested activity: Gratitude Day (students honor housekeeping staff).

b) Cultivating Kindness & Compassion**

- Difference between kindness and compassion.
- Practices: small gestures, perspective-taking, self-compassion.

c) Practicing Forgiveness**

- What forgiveness is and what it isn't.
- Benefits of forgiveness.
- Forgiveness practices.

d) Celebrating Differences

- Value of diversity in culture, backgrounds, beliefs, abilities.
- Strength in differences → problem-solving & innovation.
- Suggested activity**: cultural sharing, inclusivity events****.

e) Digital Detox

- Concept of digital detox.
- Benefits of reducing screen time for real-world connections.

****SDG 10: Reduced Inequalities**

7. Intellectual Well-being

a) Being a Lifelong Learner

- Relevance of intellectual growth in the 21st century.
- Importance of **problem-solving skills****.
- Habits: reading, using libraries, extra-curriculars.

b) Digital Literacy**

- Components: critical thinking, communication, problem-solving, digital citizenship.
- Importance of safe and effective use of digital platforms.

c) Transfer of Learning

- Applying knowledge from one subject to another.
- Suggested activity: “Idea Expo” where students solve real-world problems.

****SDG 9: Industry, Innovation, and Infrastructure**

8. Environmental Well-being

- Define environmental well-being (physical, chemical, biological, social, psychosocial).
- Ways to initiate change: responsibility, **awareness, volunteering****, civic engagement.
- Suggested activity: Clean campus drive, noise pollution awareness, volunteer clubs.

****SDG 13: Climate Action**

9. Mental Well-being

a) Self-Reflection & Journaling

- Steps: self-reflection, awareness, action, achieving balance.
- Role of journaling in finding purpose and coping with stress.

b) Mindfulness & Meditation

- Nature walks, connecting with surroundings.
- Activities: hiking, gardening, serving people.
- **Creative expressions****: writing, music, visual arts.

****SDG 15: Life on Land**

10. Situational Awareness & Life Skills

a) Being Street Smart

- Characteristics of street-smart individuals.
- **First-aid, CPR, handling emergencies**** (fire, flood, etc.).

b) Digital Awareness

- Cyber security, information literacy, privacy, fraud detection.
- Suggested activity: Quiz on emergency numbers, **CPR demo****.

****SDG 11: Sustainable Cities and Communities**

11. Understanding Addiction

- Environmental cues and triggers of **substance abuse****.
- Adverse health, social, financial, and reputational impacts.
- Seeking help and **recovery options****.
- Suggested activity: Case studies, awareness videos, expert talks from NGOs/government.

Closure & Reflection (2 periods)

- Each student writes a handwritten summary of learnings.
- Action plan for future wellness practices.

****SDG 1: No Poverty**

Suggested Activities

- **Nutrition**: Stove-less/Fireless cooking competition; Nutritionist talk
- **Stress Management**: Guided meditation, relaxation worksheets
- **Gratitude**: "Gratitude Day" honoring support staff
- **Environmental Awareness**: Campus cleaning, anti-noise campaigns, eco-volunteering
- **Substance Abuse Awareness**: Case studies, videos, expert talks from NGOs/Government

Assessment & Evaluation

- **Mode**: Continuous assessment through worksheets, reports, and guided activity participation.
- **Marks Distribution**:
  - Worksheets & Reflections – 40 marks
  - Participation in Guided Activities – 40 marks
  - Final Handwritten Summary & Action Plan – 20 marks
- **Total**: 100 Marks
- **No Examination Required**
- **Evaluation**: Conducted by the Physical Director with Mentor support.

Course Outcome	**CO1:** Apply holistic health practices by integrating physical, mental, emotional, social, intellectual, and environmental well-being.	K3
	CO2: Demonstrate effective stress management and emotional resilience through mindfulness, yoga, and reflective practices.	K3,K4
	CO3: Adopt healthy lifestyle behaviors by breaking harmful habits, maintaining hygiene, and practicing digital detox.	K3
	CO4: Exhibit social responsibility and inclusivity by fostering gratitude, kindness, compassion, forgiveness, and respect for diversity.	K4,K5
	CO5: Recognize and address wellness challenges such as substance abuse, cyber risks, and environmental issues with preventive and recovery strategies	K2,K5

References / Resource Materials

The course acknowledges that individual needs for references and resources may vary. However, the following materials and resources may be helpful:

1. Core Tools

- **The Well-Being Wheel** – A self-assessment framework to evaluate different aspects of personal wellness.

2. Facilities & Spaces

- Some activities may require access to specific facilities, resources, or spaces (e.g., sports ground, yoga hall, seminar room, library, computer lab).
- Students may coordinate with the college administration to reserve these as required.

3. Online Resources

1. **United Nations Sustainable Development Goals – Goal 3: Good Health & Well Being** https://www.un.org/sustainabledevelopment/health/
2. **Mindfulness and Meditation** – Stanford Health Library https://healthlibrary.stanford.edu/books-resources/mindfulnessmeditation.html

3. **Breaking Bad Habits / Building Good Habits** – James Clear
   https://jamesclear.com/habits
4. **6 Ways to Keep Your Brain Sharp** – Lorman
   https://www.lorman.com/blog/post/how-to-keep-your-brain-sharp
5. **How Does Your Environment Affect Your Mental Health?** – Verywell Mind
   https://www.verywellmind.com/how-your-environment-affects-your-mental-health-5093687
6. **How to Say No (Without Feeling Guilty)** – BetterUp
   https://www.betterup.com/blog/how-to-say-no

Mapping of CO's with PO's and PSO's

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

(Correlation: 3 – High, 2 – Medium, 1 – Low)

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LOCF – CBCS with effect from 2025 - 2026 Onwards								
Course Code	**Course Title**	**Course Type**	**Sem**	**Hours**	**L**	**T**	**P**	**C**
25UEVS301	**ENVIRONMENTAL STUDIES**	**IDC THEORY**	**III**	**30**	**2**	**-**	**-**	**2**
Objective: The course aims to impart foundational knowledge of environmental systems, natural resources, ecosystems, biodiversity, and pollution. It emphasizes sustainability, conservation, and environmental ethics. Students will understand environmental challenges and legal frameworks, fostering responsible citizenship and awareness of global and local environmental issues for sustainable living and informed decision-making.								

Unit	Course Content	Knowledge Levels	Sessions
I	**Introduction to environmental studies**** Multidisciplinary nature of environmental studies; components of environment – atmosphere, hydrosphere, lithosphere and biosphere. Scope and importance; Concept of sustainability and sustainable development. ****SDG 11 – Sustainable Cities and Communities**	K1,K2	6
II	**What is an ecosystem?** Structure and function of ecosystem; **Energy flow in an ecosystem****: food chain, food web and ecological succession. Case studies of the following ecosystems: a) Forest ecosystem b) Grassland ecosystem c) Desert ecosystem d) Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries) ****SDG 15 – Life on Land**	K2,K3	6
III	**Natural Resources:** Renewable and Non-renewable Resources-Land Resources and land use change; Land degradation, soil erosion and desertification- Deforestation: Causes and impacts due to mining, dam building on environment, forests, biodiversity and tribal populations. **Water: Use and over-exploitation of surface and ground water, floods, droughts, conflicts over water**** (international & inter-state)-Heating of earth and circulation of air; air mass formation and precipitation-Energy resources: Renewable and non-renewable energy sources, use of alternate energy sources, growing energy needs, case studies. ****SDG 6 – Clean Water and Sanitation**	K2,K3,K4	6
IV	**Biodiversity and Conservation** Levels of biological diversity :genetic, species and ecosystem diversity; Bio-geography zones of India; Biodiversity patterns and global biodiversity hot spots -India as a mega-biodiversity nation; Endangered and endemic species of India -Threats to biodiversity: habitat loss, poaching of wildlife, man-wildlife conflicts, biological invasions; **Conservation of biodiversity****: In-situ and Ex-situ conservation of	K2,K3,K4	6

	biodiversity- Ecosystem and biodiversity services: Ecological, economic, social, ethical, aesthetic and Informational value. ****SDG 14 – Life Below Water**		
V	**Environmental Pollution** Environmental pollution : types, causes, effects and controls; Air, water, soil, chemical and noise pollution-Nuclear hazards and human health risks - Solid waste management: Control measures of urban and industrial waste..-Pollution case studies.Environmental Policies & Practices -**Climate change, global warming, ozone layer depletion****, acid rain and impacts on human communities and agriculture.-Environment Laws : Environment Protection Act; Air (Prevention & Control of Pollution) Act; Water (Prevention and control of Pollution) Act; Wildlife Protection Act; Forest Conservation Act. ****SDG 13 – Climate Action**	K2,K4,K5	6

Course Outcome	**CO1:**Understand the multidisciplinary nature and various components of the environment, and explain the significance of sustainability and sustainable development.	K1,K2
	CO2: Describe the structure and function of different ecosystems and analyze the flow of energy through food chains, food webs, and ecological succession.	K2,K3
	CO3: Identify renewable and non-renewable natural resources and evaluate the impact of human activities such as deforestation, mining, and water misuse on the environment.	K2,K3,K4
	CO4: CO4: Examine the levels of biodiversity, identify threats to biodiversity, and assess the importance of conservation strategies including in-situ and ex-situ methods.	K2,K3,K4
	CO5: Understand various types of environmental pollution and evaluate policies and practices for pollution control and environmental protection laws.	K2,K4,K5

Learning Resources	
Text Books	1. Rajendra Kumar Sharma – Environmental Studies
Reference Books	1. Carson, R. 2002. Silent Spring. Houghton Mifflin Harcourt. 2. Gadgil, M., & Guha, R.1993. This Fissured Land: An Ecological History of India. Univ. of California Press. 3. Gleeson,B. and Low, N. (eds.) 1999. Global Ethics and Environment, London, Routledge. 4. Gleick, P.H. 1993. Water in Crisis. Pacific Institute for Studies in Dev., Environment & Security. Stockholm Env. Institute, Oxford Univ. Press. 5. Groom, Martha J. Gary K. Meffe, and Carl Ronald carroll. Principles of Conservation Biology. Sunderland: Sinauer Associates, 2006. 6. Grumbine, R. Edward, and Pandit, M.K. 2013. Threats from India's Himalaya dams. Science, 339: 36-37.

	7. McCully, P.1996. Rivers no more: the environmental effects of dams(pp. 29-64). Zed Books. 8. McNeil, John R. 2000. Something New Under the Sun: An Environmental History of the Twentieth Century
Website Link	1. https://www.scribd.com/document/635540113/Untitled
L – Lecture T – Tutorial P – Practical C - Credit	

Mapping of CO's with PO's and PSO's

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

(Correlation: 3 – High, 2 – Medium, 1 – Low)

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