SNDT Women's University, Mumbai

Bachelor of Science
(Food Science Nutrition)

B.Sc. (FSN)

As per NEP 2020

Semester – III & IV

Syllabus

(w.e.f. Academic Year 2025-26)

Structure with Course Titles

SN	Courses	Type of Course	Credits	Marks	Int	Ext
Semester III						
30130111	Nutrition through the Life Span (2+2)	Major (Core)	4	100	50	50
30130112	Food Microbiology (2+2)	Major (Core)	4	100	50	50
30130113	Human Nutrition-I (4 + 0)	Major (Core)	4	100	50	50
30330121	Traditional Indian Cuisines (Pr)(0 + 2)	Minor stream	2	50	0	50
30430111/ 30430112	Culinary Science -I (Th) (2+0) / Science and Society (2+0) *	OEC	2	50	0	50
		AEC	2	50	50	0
31330101	Nutrition for the Community (0+2)	FP	2	50	50	0
		CC	2	50	50	0
			22	**550**	**300**	**250**

SN	Courses	Type of Course	Credits	Marks	Int	Ext
Semester IV						
40130111	Design Thinking and Innovation for Food Science and Nutrition Entrepreneurs (2 + 2)	Major (Core)	4	100	50	50
40130112	Basic Diet Therapy (2+2)	Major (Core)	4	100	50	50
40130113	Human Nutrition-II (4 + 0)	Major (Core)	4	100	50	50
40430111/ 40430112	Culinary Science -II (Th) (2+0) / Health for All (2+0) *	OEC	2	50	0	50
40730121/ 40730112	Culinary Science (Pr.) (0 + 2) / Assessment of Nutritional Status* (Th) (2 + 0)	SEC	2	50	0	50
		AEC	2	50	0	50
41730101	Assessment of Nutritional Status (Pr.) (0 + 2)	CEP	2	50	50	0
		CC	2	50	50	0
			22	**550**	**250**	**300**

Exit with UG Diploma with 10 extra credits (44 + 10 credits)

* This paper is suggested in other specializations so that it can be opted under OEC.

Semester: III

3.1 Major (Core)

Course Title	**Nutrition through the Life Span (Theory and Practical)**
Course Credits	**4**
Course Outcomes	After going through the course, learners will be able to
	1. Analyze different factors affecting nutrient needs at different stages in the life cycle. 2. Develop an ability to plan balanced diets for different age groups keeping basic nutrition principles in mind. 3. Developing basic meal planning skills. 4. Develop computational proficiency in meal planning. 5. Sensitizing students towards the accessibility of good nutrition
Module 1(Credit 1)	**Fundamentals of Meal Planning**
Learning Outcomes	After learning the module, learners will be able to
	1. Develop an understanding of the basic principles underlying meal planning. 2. Create an exchange list for planning balanced diets.
Content Outline	1. Factors affecting meal planning 2. Reference Indian Man & Woman, DRIs 3. Balanced Diet, MyPlate 4. General nutrition guidelines
Module 2(Credit 1)	**Nutrition Requirements during the Lifespan**
Learning Outcomes	1. Understand the Principles of planning balanced diets for different stages in the lifespan based on their physiological requirements, physical activity, income group, social and cultural background 2. Correlate the physiological changes taking place different stages of the lifespan and the nutritional demands during this period.
Content Outline	1. Nutrition during Adulthood: Sedentary and Moderate worker 2. Nutrition during Pregnancy & Lactation 3. Nutrition during Infancy: Breast feeding & Complementary feeding 4. Nutrition during Childhood 5. Nutrition during Adolescence 6. Nutrition for the Elderly
Module 3(Credit 1)	**Meal Planning during Adulthood and Infancy**
Learning Outcomes	After learning the module, learners will be able to: 1. Create and prepare meals for varying requirements for Sedentary Reference Man & Woman. 2. Suggest modifications in meal plans and recipes to meet special needs during for moderate and heavy workers. 3. Suggest modifications in meal plans and recipes to meet special needs during for pregnant and lactating women

Content Outline	1. Plan a full day's diet for a sedentary man/woman 2. Modify a full day's diet of adult sedentary woman to a Pregnant and Lactating Women. 3. Plan and prepare Multi-nutrient recipe for pregnant women 4. Plan and prepare Galactogogue recipes for lactating women 5. Planning and preparation of complementary foods for the weaning period
Module 4(Credit 1)	**Meal planning for children, adolescents and elderly**
Learning Outcomes	After learning the module, learners will be able to: 1. Create meal plans for children and adolescents to meet their nutritional demands. 2. Plan healthy finger-foods for preschoolers and packed lunches for children and adolescents 3. Modify meal plans to suit the physiological and nutritional needs of the elderly
Content Outline	1. Plan and prepare finger foods for preschool children. 2. Planning and preparation of packed lunch for school-going children. 3. Planning and preparation of a nutrient dense healthy snack options for adolescents 4. Modify the plans of adults to suit the elderly and preparation of meals.
Assignments/Activities towards Comprehensive Continuous Evaluation (CCE) Students will plan and prepare full day normal diets for select stages of the lifespan. Short assignments on planning recipes to meet special needs during various stages of the lifespan, galactagogues', packed lunches, finger foods, etc Assignments to be given for small topics like amount and type of foods consumed at home, etc	

References: -

1. ICMR (2017). Indian Food Composition Tables. National Institute of Nutrition, Hyderabad, India.
2. ICMR-NIN Expert Group on Nutrient Requirement for Indians, Recommended Dietary Allowances (RDA) and Estimated Average Requirements (EAR) – 2020
3. Indian Council of Medical Research (2024), National Institute of Nutrition (NIN). Dietary Guidelines for Indians.
4. Mudambi, S.R., Rajgopal, M.V.(2012), Fundamentals of Foods and Nutrition, New Age International Pvt. Ltd.
5. Srilakshmi, B. (2020) Dietetics. 9th Edition, New Age International Publisher, New Delhi, 313.

3.2 Major (Core)

Course Title	**Food Microbiology (Theory and Practical)**
Course Credits	**4**
Course Outcomes	After going through the course, learners will be able to
	1. Develop an understanding of the nature and sources of microorganisms. 2. Evaluate the role of microorganisms in food contamination and spoilage. 3. Application of principles of food hygiene and sanitation towards the management of food safety 4. Develop analytical skills for the identification and enumeration of microorganisms from common sources. 5. Sensitization to the need for management of microbiological quality of food to ensure food safety.
Module 1(Credit 1)	**Introduction to Food Microbiology & Food Contamination**
Learning Outcomes	After learning the module, learners will be able to
	1. Explain the general characteristics of microorganisms, types of microorganisms that can be found in food, including fungi and bacteria. 2. Identify the sources of food contamination and devise strategies to prevent it. 3. Identify signs of microbial food spoilage and ways to prevent it
Content Outline	1. Factors affecting growth of microorganisms-pH, a_w, OR-Potential, Nutrient requirements, Accessory Growth Factors, and Biological Structures. 2. Physiological requirements, Morphological and Reproductive characteristics of molds, yeast and bacteria and their significance in food. 3. Sources of food contamination-Air, water, soil, sewage, and other sources 4. Contamination and spoilage of: Cereals and Cereal Products Milk and Milk Products Meat and Meat Products
Module 2(Credit 1)	**Beneficial Effects of Microorganisms, Food Hygiene, Safety and Sanitation**
Learning Outcomes	1. Describe the role of beneficial microorganisms in food processing and preservation, and their potential health benefits. 2. Explore the principles of food safety and hygiene 3. Identifying role of microorganisms in food spoilage, food fermentations, and food-borne diseases.

Content Outline	1. Role of microorganisms in the manufacture of fermented foods, beer, wine, vinegar, traditional fermented foods of India, Indian Pickles, Prebiotics and Probiotics 2. Sanitation in food safety establishments, Personal hygiene and health of the food handler. 3. Good Manufacturing Practices (GMP) and Food Hygiene Monitoring (HACCP) 4. Food-Borne Diseases-Food Infections and Intoxications
Module 3(Credit 1)	**Practical – Basic Microbiological Techniques**
Learning Outcomes	Apply appropriate laboratory techniques commonly used in the food microbiology laboratory for identifying morphological and cultural characteristics of food-related microorganisms.
Content Outline	1. Principles, working, and use of laboratory equipment like compound microscope, autoclave, incubator 2. Preparation of glassware and media 3. Staining Techniques: Monochrome and Gram Staining 4. Demonstration of Capsule and Endospore Staining 5. Bacterial Motility using Hanging Drop Method
Module 4(Credit 1)	**Practical – Isolation of microorganisms and application of fermentation techniques**
Learning Outcomes	After learning the module, learners will be able to: 1. Apply various microbiological techniques for isolation of microorganisms on surfaces, soil, air, and milk. 2. Apply microbial fermentation techniques for the preparation of selected fermented foods
Content Outline	1. Isolation of bacteria from soil using serial dilutions (Pour Plate and Streak Plate Method) 2. Microbiological quality of Milk MBRT 3. Application of Microbiological principles: Observation of mold growth on foods. Preparation of Fermented Foods: Sourdough bread, Kimchi, Pickled vegetables, Homemade cheese, Curds
Assignments/Activities towards Comprehensive Continuous Evaluation (CCE) Students will perform staining, bacterial motility and bacterial isolation practicals. Assignments on observation of mold and bacterial growth on actual food samples. Students will prepare any one fermented food and observe changes brought about by microorganisms Assignments / projects / presentations on fermented foods.	

References:

1. Frazier ,W.C,&Westhoff,D.1988, 6th Edition, Food Microbiology .Tata McGraw-Hill
2. Guthrie ,R.K.[ed].1972.Food sanitation Inc.Eaglewood Cliff,N.J
3. Jay, J, (2012).Modern Food Microbiology. Springer, Netherlands
4. Pelczar ,M.L .,and R.D Reid -1972 Microbiology.McGraw &Hill ,New York
5. Reid,G.[ed]1982.Prescott and Dunn's industrial microbiology AVI Publishing Co. Inc., Westport ,Conn
6. Roday, S (2012). Food Hygiene and Sanitation, McGraw Hill Publication India Pvt. Ltd

7. Stanier,R.Y.,E.A.Adelberg,and Ingraham .1976 .The microbial world .4th ed.Prentice Hall.

3.3 Major (Core)

Course Title	**Human Nutrition -I (Theory)**
Course Credits	**4**
Course Outcomes	After going through the course, learners will be able to
	1. Examine the physiological processes of digestion and nutrient absorption. 2. Explain the functions of essential macronutrients nutrients in the human body. 3. Analyze the effects of nutrient deficiencies and excess on health and metabolism. 4. Describe and evaluate the role of water, electrolytes, and fluid balance in maintaining homeostasis. 5. Explain the interrelationships between these nutrients and their influence on health
Module 1(Credit 1)	**Basic Concepts of Human Nutrition**
Learning Outcomes	After learning the module, learners will be able to: 1. Know the contributions of various scientists and key developments in nutrition science. 2. Explain the processes of digestion and absorption of macronutrients in the human body. 3. Analyze the inter-relationship between water and electrolytes in maintaining fluid balance. 4. Evaluate the impact of fluid balance changes on physiological functions and overall health.
Content Outline	**History of Nutrients - Eminent Scientists and developments in Nutrition Science** **Basic concepts in Human Nutrition:** Digestion, Absorption of macronutrients- Transport across cell membrane – active, passive, diffusion **Water, Electrolytes and Acid-Base balance** Sources, functions and distribution (Regulation of intra and extra cellular volume), deficiencies of the following: Water and Electrolytes- Sodium, Potassium and Chloride Mechanisms of water balance, electrolyte balance, osmolality and Acid-Base Balance and Water Intoxication. **ENERGY BALANCE:** Forms of energy, its unit measurement of energy, Gross calorific values, Physiological fuel value RQ, SDA, thermogenesis,

	Direct and Indirect calorimetry BMR, RMR, estimation of BMR and factors affecting BMR Determination of energy metabolism during work, Energy balance, Assessment of energy requirement
Module 2(Credit 1)	**Carbohydrates in Human Nutrition**
Learning Outcomes	After learning the module, learners will be able to
	Explain the functions, sources, and effects of nutrient deficiencies and excess on the human body.
Content Outline	**CARBOHYDRATES:** Types, sources, dietary requirement, physiological significance and functions. Glycaemic index and glycaemic load Sugar alcohols, Fibre - types, properties, function, role in various diseases. EAR-RDA of carbohydrates Effects of excess and deficiency of carbohydrates
Module 3(Credit 1)	**Proteins in Human Nutrition**
Learning Outcomes	After learning the module, learners will be able to
	Explain the concept of protein quality, describe amino acid imbalance, and discuss their implications on health.
Content Outline	**PROTEINS:** Classification, sources, requirements, physiological significance, and functions Indispensable and dispensable amino acids Methods of protein quality evaluation- BV, Protein digestibility, NPU, PER, AAS, PDCAAS, DIAAS Amino acid imbalance, nitrogen balance, antagonism and toxicity. Factors affecting protein utilization and RDA of proteins. PEM - clinical and biochemical aspects. Vegetarianism
Module 4(Credit 1)	**Lipids in Human Nutrition**
Learning Outcomes	After learning the module, learners will be able to
	1. Explain the role of lipids in nutrition and health, and describe their impact on overall well-being. **2.** Describe the inter-relationship between macronutrients and explain how they work together to support bodily functions.
Content Outline	**LIPIDS:** Types, sources, metabolism, functions, dietary requirements EFA- definition, functions, sources, effects of deficiency Transport of lipoproteins and deficiencies of lipids Hydrogenation

	Functions, role of fat in cardio-vascular diseases. RDA Inter relation between carbohydrate, fat and protein in energy metabolism. Starvation, excess of macronutrient.
Assignments/Activities towards Comprehensive Continuous Evaluation (CCE) Presentations on eminent scientists in nutrition, their discoveries, and their impact on human health. Assignments on comparison of vegetarian and non-vegetarian diets based on protein quality, health benefits, and risks. Case Study presentations on manifestations of macronutrient deficiencies	

References:

1. Agarwal, A., & Udipi, S. A. (2013). *Textbook of human nutrition*. Jaypee Brothers Medical Publishers.
2. Bamji, M. S., Rao, N. P., & Reddy, V. (2003). *Textbook of human nutrition*. Oxford & IBH Publishing Co. Pvt. Ltd.
3. Chaney, M. S., & Ross, M. L. (1979). *Nutrition* (9th ed.). Houghton Mifflin.
4. Davidson, S., Passmore, R., & Eastwood, M. A. (1986). *Human nutrition and dietetics* (8th ed.). Churchill Livingstone.
5. Garrow, J. S., & James, W. P. T. (1993). *Human nutrition and dietetics* (9th ed.). Churchill Livingstone.
6. Guthrie, H. A. (1986). *Introductory nutrition*. Times Mirror/Mosby College Publishing.
7. Lanham-New, S. A., Hill, T. R., & Gallagher, A. M. (Eds.). (2019). *Introduction to human nutrition* (3rd ed.). Wiley-Blackwell.
8. Stephenson, T. J., & Passerrello, C. (2024). *Human nutrition: Science for healthy living* (3rd ed.). McGraw Hill.
9. Swaminathan, M. (1985). *Advanced textbook on food and nutrition* (Vols. I & II). The Bangalore Printing and Publishing Co. Ltd.
10. Willett, W. C., & Skerrett, P. J. (2017). *Eat, drink, and be healthy: The Harvard Medical School guide to healthy eating*. Free Press.

3.4 Minor Stream

Course Title	**Traditional Indian Cuisines (Practical)**
Course Credits	2
Course Outcomes	After going through the course, learners will be able to - 1. Appreciate India's culinary history 2. Explore different traditional cuisines of India. 3. Compare differences in use of various spices and ingredients. 4. Prepare various recipes of each type of cuisine, preparations made in different regions, different seasons and festivals. 5. Use various spices and ingredients and prepare recipes of each type of cuisine.
Module 1 (Credit 1)	**North Indian Cuisine and East Indian Cuisine**
Learning Outcomes	1. Examine use of various spices and ingredients in making North Indian cuisine and East Indian cuisine. 2. Explore preparations made in different regions, different seasons and festivals in North India and East India. 3. Apply basic culinary skills in making specific dishes. 4. Describe and demonstrate cuisines of North India and East India.
Content Outline	Prepare popular and / or lesser-known recipes, different meals and preserves etc. from Punjab, Uttar Pradesh, Jammu and Kashmir, Madhya Pradesh West Bengal, Assam, Orissa dishes.
Module 2 (Credit 1)	**South Indian Cuisine and West Indian Cuisine**
Learning Outcomes	1. Examine use of various spices and ingredients in making South Indian cuisines and West Indian cuisines. 2. Explore preparations made in different regions, different seasons and festivals in South India and West India. 3. Apply basic culinary skills in making specific dishes. 4. Describe and demonstrate cuisines of South India and West India.
Content Outline	Prepare popular and / or lesser-known recipes, different meals and preserves etc. from Maharashtra, Gujarat, Rajasthan Tamil Nadu, Karnataka, Kerala, Andhra Pradesh, Telangana.

Assignments/Activities towards Comprehensive Continuous Evaluation (CCE):	
Students will perform cooking practicals for recipes from cuisines of the northern, eastern, western, and southern parts of India. Assignments on regional recipes prepared among households of acquaintances from these regions of India. Short presentations on typical ingredients used in cuisines of northern, eastern, western, and southern parts of India.	

References:

1. Banerji C (2008), 'Eating India: Exploring the Food and Culture of the Land of Spices' Bloomsbury
2. Philip T (1978), 'Indian Cuisine', published by Ministry of Information and Broadcasting
3. 3.. Chitra P, 'Foods of Earth Tastes of Heaven'
4. Cookery Books of Nita Mehta.
5. Cookery Books of Tarla Dalal.
6. Dalal T, 'The complete Gujarati Cook Book'
7. Dubey K, (2022), 'The Indian Cuisine' Published by PHI Learning Pvt.
8. Food Magazines
9. Nambiar, V (2021) 'Indian Food Anthropology and the Eat Right Movement' - Volume 2.
10. Patil V (1992), 'Food Heritage of India: A collection of Unusual Recipes from every corner of India, Government of India: 14-15. pp:123-147, Vakil & sons ltd Bombay Print Publications

3.5 OEC

Course Title	**Culinary Science -I (Theory)**
Course Credits	**2**
Course Outcomes	After going through the course, learners will be able to 1. Enlist types of food commodities 2. Observe changes taking place in foods during cooking 3. Describe their role and uses in food preparations 4. Discuss Popular recipes made with them 5. Discuss Preparations made seasonally or during festivals
Module 1(Credit 1)	**Cereal and Cereal products**
Learning Outcomes	After learning the module, learners will be able to 1. Enlist types of cereals, cereal products millets, pseudocereals 2. Describe their role & use in popular, seasonal and festive food preparations
Content Outline	**Cereal, Cereal Products, Millets, Pseudo Cereals and Uncommon Cereals** 1. Types of rice and rice products and their uses. 2. Types of wheat products and their uses. 3. Preparations as per season and festival. 4. Popular dishes made using cereals 5. Types of millets, their products and their uses. 6. Preparations as per season and festival. 7. Popular dishes made using millets, uncommon cereals.
Module 2(Credit 1)	**Pulses and Legumes**
Learning Outcomes	After learning the module, learners will be able to 1. Enlist types and varieties of pulses, legumes, nuts, oilseeds, oils and other seeds 2. Describe their role & use in popular, seasonal and festive food preparations
Content Outline	**PULSES, LEGUMES NUTS, OILSEEDS, OILS AND OTHER SEEDS** 1. Types, products, plant protein concentrate, Textured vegetable protein and uses 2. Preparations as per season and festival. 3. Popular dishes made using legumes. 4. Types, products and uses 5. Preparations as per season and festival. 6. Popular dishes made using nuts.
Assignments/Activities towards Comprehensive Continuous Evaluation (CCE) Collect samples and discuss varieties of the foods Select/plan popular, seasonal and festive recipes with the foods.	

References:

1. Nambiar Vanisha. Festive Foods of India, Magnum Publications, 2024
2. Parvinder. S. Theory of cookery. Bali Oxford University. Press, 2017 ND
3. Pushpesh Pant. Indian: The Cookbook
4. S. L. Doshi. Anthropology of Foods and Nutrition. Rawat Publication, Jaipur 1995.

3.5 OEC

Course Title	**Science and Society (Theory)**
Course Credits	2
Course Outcomes	After going through the course, learners will be able to -
	1. Comprehend the nature of science and scientific enquiry 2. Analyze the role of science and technology in society 3. Interpret basic scientific information and evaluate basic ethical and social issues in science 4. Communicate science-related issues clearly 5. Apply scientific knowledge to real-world problems
Module 1 (Credit 1)	**Introduction to Science and Society**
Learning Outcomes	1. Develop awareness of the association between science and society 2. Apply scientific method to interpret societal interactions 3. Distinguish between scientific and pseudoscientific constructs
Content Outline	1. The scientific method – Strengths and limitations 2. Science and technology – The historical perspective 3. Science, media and public understanding 4. Pseudoscience and misinformation
Module 2 (Credit 1)	**Science, Society, and Environment**
Learning Outcomes	1. Apply scientific method to interpret climate and environmental changes 2. Evaluate the role of science in the formulation of public policy
Content Outline	1. Climate change and environmental science 2. Science and public policy 3. Gender, race and equity in science 4. Science and Religion – Evolution versus Creation

Assignments/Activities towards Comprehensive Continuous Evaluation (CCE):

1. Individual / group projects / essays on science and society
2. Classroom debates on pseudoscience and misinformation
3. Group or individual assignments climate change, gender and equity in science.

References:

1. Avery, J. S (2016). Science and Society, World Scientific
2. Ede, A. and Cormack, L (2016). A History of Science in Society – From Philosophy to Utility (3rd Edition), University of Toronto Press
3. Pal, Y. (1993). Science and Society – Some Perspectives, Gyan Publishing House (ISBN: 9788121204583, 9788121204583)

.3.7 FP

Course Title	**Nutrition For the Community**
Course Credits	**2**
Course Outcomes	**After going through the course, learners will be able to**
	1. Report the availability of different varieties of food products/ingredients and their uses in culinary preparation 2. Identify and present traditional food consumption patterns. 3. Discuss the process of management of home-scale businesses by Food Entrepreneurs. 4. Evaluate the current food-related myths and popular diets by engaging with Professionals in Food Science, nutrition or Dietetics. 5. Evaluate the current food-related myths and popular diets by engaging with Professionals in Fitness
Module 1(Credit 1)	**Understanding Local Markets and Ingredients and their Use in Cuisines**
Learning Outcomes	**After learning the module, learners will be able to**
	1. Describe food ingredients/commodities, their seasonal availability and their specific use in food preparation 2. Discuss the typical ingredients and recipes in traditional cuisines of India
Content Outline	1. Market survey to collect information on availability and use of ingredients/commodities 2. Interview senior people from different regional backgrounds and cuisines to elicit information on their food culture and the typical ingredients used for traditional preparations.
Module 2(Credit 1)	**Engagement with Food Entrepreneurs & Professionals in the Community**
Learning Outcomes	**After learning the module, learners will be able to**
	1. Discuss the process of management of home-scale food businesses by local food entrepreneurs. 2. Critique the common food-related myths, recent nutrition-relate market trends reported by Professionals in the field.
Content Outline	1. Interviewing home-scale food entrepreneurs and understand the management of their business. 2. Interviews with nutritionists and gymnasium trainers about nutrition-related myths, recent trends in their practice, case studies, etc

Assignments/Activities towards Comprehensive Continuous Evaluation (CCE):

Market survey and report of food commodities.

Interview home-scale food entrepreneurs and nutrition and health professionals and present the findings

Engage with a Senior from a specific region to understand traditional ingredients and dietary patterns used in their cuisine. Exhibit the findings

References:

1. Community Nutrition in India" by Dr. Prabha Bisht published by Star Publications, ISBN-13: 978-9381246795;
2. Community Nutrition Third Edition Nweze Nnakwe, PhD, RD, LD, ISBN:9781284108323
3. Textbook Of Community Nutrition by Suryatapa Das, Kolkata Academic Publishers 2014 ISBN: 9789383420025

References:

1. Principles of Nutritional Assessment: Rosalind Gibson 3rd Edition, April 2024
2. Clinical Nutrition and Dietetics Manual for Nurses: Sri Ramachandra University, Porur, Chennai, Tamil Nadu, India 1st edtion 2023
3. Kesari A, Noel JY. Nutritional Assessment. [Updated 2023 Apr 10]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2025 Jan-.
4. Kumar, V., Abbas A. K., Fausto N. (2008). Robbins &Cotran Pathologic Basis of Disease
5. (7thed.). Pennsylvania: Saunders Elsevier, Inc.

Semester: IV

4.1 Major (Core)

Course Title	**Design Thinking and Innovation for Food Science and Nutrition Entrepreneurs (theory and Practical)**
Course Credits	**4**
Course Outcomes	After going through the course, learners will be able to:
	1. Identify and define complex food and nutrition-related problems using user-centered research and empathy-based observation. 2. Apply design thinking tools and methods to ideate and develop innovative, sustainable solutions for food systems. 3. Prototype, test, and refine food product or service ideas through iterative feedback loops. 4. Evaluate user needs, technical feasibility, and business viability to create impactful food-related innovations. 5. Develop and present entrepreneurial business models based on the design thinking process for real-world food and nutrition challenges.
Module 1(Credit 1	**Introduction to Design Thinking & Problem Identification**
Learning Outcomes	After learning the module, learners will be able to:
	1. Understand the foundational principles of DT&I 2. Conduct user research in food systems context 3. Define real-world food and nutrition problems using user-centric data
Content Outline	1. Overview of Design Thinking and Innovation (DT&I) 2. Principles of empathy, observation, and contextual research 3. Relevance of DT&I to food science and nutrition 4. Identifying user needs in health, diet, sustainability, and food access 5. Secondary and primary research: ethnographic studies, contextual inquiry 6. Problem framing and user journey mapping
Module 2(Credit 1)	**Analysis, Ideation, and Concept Development**
Learning Outcomes	After learning the module, learners will be able to 1. Analyze and structure food-related problems visually 2. Apply ideation tools to generate multiple solutions 3. Select and evaluate creative food and nutrition ideas

Content Outline	1. Tools for problem analysis: affinity mapping, SWOT, persona creation, etc. 2. Ideation methods: brainstorming, SCAMPER, lateral thinking 3. Concept development and evaluation 4. Creativity techniques for food innovations 5. Case studies of successful food innovations 6. Preparing a product pitch (concept, nutritional profile, sustainability, user value) 7. Storytelling and visual presentation 8. Ethical and regulatory considerations
Module 3(Credit 1)	**Practical - Prototyping and Iterative Design**
Learning Outcomes	1. Translate food ideas into low-fidelity and high-fidelity prototypes 2. Conduct testing and gather meaningful user feedback 3. Refine concepts iteratively for better functionality and user satisfaction
Content Outline	1. Types of prototypes: paper, soft, edible, digital (service design) 2. Human-centered design in food product/service development 3. Prototyping tools and techniques for food innovations 4. User feedback methods, usability testing, refinement cycles 5. Design ethics, food safety, and user experience
Module 4 (Credit 1)	**Practical – Business Modelling and Innovation Pitch**
Learning Outcomes	After learning the module, learners will be able to 1. Apply design thinking to develop viable business models 2. Plan for implementation, scaling, and sustainability 3. Pitch a compelling food innovation backed by research and prototyping
Content Outline	1. Basics of entrepreneurship in food and nutrition 2. Business model canvas for food ventures 3. Market analysis and go-to-market strategies 4. Branding, storytelling, and pitch preparation 5. Final project presentations: idea to impact
Assignments/Activities towards Comprehensive Continuous Evaluation (CCE) Suggested Sample Student Projects • Smart Nutrition Meal Kit for Urban Professionals • Zero-Waste Functional Food Packaging or • Digital App for Diet Diversity in Rural India	

References:

1. Brown, T. (2009). *Change by design: How design thinking creates new alternatives for business and society*. Harvard Business Press.
2. Liedtka, J., & Ogilvie, T. (2011). *Designing for growth: A design thinking tool kit for managers*. Columbia University Press.
3. Kelley, T., & Kelley, D. (2013). *Creative confidence: Unleashing the creative potential within us all*. Crown Business.
4. Osterwalder, A., Pigneur, Y., Bernarda, G., & Smith, A. (2014). *Value proposition design: How to create products and services customers want*. Wiley.
5. Martin, R. L. (2009). *The design of business: Why design thinking is the next competitive advantage*. Harvard Business Press.
6. Yadav, S., & Sharma, D. (2016). *Entrepreneurship in the food processing sector*. LAP Lambert Academic Publishing.
7. Francis, F. J., & Smith, R. (2013). *Food product development: From concept to the marketplace*. Springer.
8. Wided Batat, Design Thinking for Food Well-Being, The Art of Designing Innovative Food Experiences, Springer International Publishing (2021)
9. Cross, N. *Design Thinking: Understanding How Designers Think and Work*; Berg: Oxford, UK, (2011)

4.2 Major (Core)

Course Title	**Diet Therapy (Theory and Practical)**
Course Credits	**4**
Course Outcomes	1. Apply principles of nutrition for therapeutic modifications of diets for specific conditions. 2. Develop an ability to apply dietetic principles for nutritional management of specific therapeutic conditions. 3. Evaluate case studies with reference to therapeutic interventions. 4. Sensitize to the need of holistic health management. 5. Create customized diets for specific therapeutic conditions.
Module 1(Credit 1)	**Introduction to Therapeutic Diets**
Learning Outcomes	After learning the module, learners will be able to 1. Explain the basic principles of therapeutic diets 2. Apply these principles to modify recipes and diets to meet therapeutic needs. 3. Evaluate food labels and their applications in food selection
Content Outline	1. Definition and Scope of Diet Therapy, Goals and principles of diet therapy 2. Overview of nutritional assessment & the Nutrition Care Process 3. Therapeutic modifications of regular diets: Consistency, texture, nutrient content. Enteral and parenteral feeding, Pre-operative and post-operative nutrition. 4. Food Labelling for food choices and portion control 5. Nutrition for weight management – Overweight, Obesity and Underweight
Module 2(Credit 1)	**Nutritional Management of Disease Conditions**
Learning Outcomes	1. Explain the basic principles of therapeutic modification to suit selected disease conditions 2. Apply these principles to modify recipes and diets to meet therapeutic needs of the selected disease conditions
Content Outline	1. Nutritional management of gastrointestinal diseases – Peptic Ulcer, IBS, Celiac Disease, Ulcerative colitis, Hemorrhoids 2. Nutritional Management of Liver Diseases – Viral Hepatitis, Liver Cirrhosis 3. Nutritional Management of Cardiovascular Diseases- Hypertension, Hyperlipidemia, Atherosclerosis 4. Nutritional management for Diabetes mellitus 5. Nutritional management of Renal Diseases

Module 3(Credit 1)	**Planning and preparation of modified diets**
Learning Outcomes	1. Developing skills for analyzing specific therapeutic conditions and recommending appropriate nutritional recommendations. 2. Develop basic nutritional counseling skills
Content Outline	1. Market survey of nutritional supplements and substitutes (Protein, Fat, Sweeteners) 2. Standardization of recipes 3. Preparing recipes modified for consistency, texture, nutrient content – Fluid diets, Soft and Mechanical soft recipes 4. Planning & Preparation of modified recipes / diets – Macronutrients (High and low carbohydrate (quality and quantity), fiber, protein, fat, and fluid) 5. Planning & Preparation of modified recipes / diets – Micronutrients (Sodium, potassium, calcium, iron) 6. Examining Food Labels.
Module 4(Credit 1) conditions	**Planning and preparation of diets for special disease**
Learning Outcomes	After learning the module, learners will be able to: Create customized meal plans for selected disease conditions
Content Outline	Planning and preparation of modified diets for: 1. Gastrointestinal disorders 2. Diabetes mellitus 3. Liver disorders 4. Renal disorders 5. Weight management
Assignments/Activities towards Comprehensive Continuous Evaluation (CCE) Market survey on different types of protein supplements/sugar substitutes/fats and oils available in the Indian market which can be recommended for supplementing therapeutic diets Students will plan and cook recipes and/or full day diets for selected disease conditions Short assignments on food labels of therapeutic supplements Case study group assignments on nutritional management of specific disease conditions	

References:

1. Mudambi, S.R., Rajgopal, M.V.(2012), Fundamentals of Foods and Nutrition, New Age International Pvt. Ltd.
2. Srilakshmi, B. (2020) Dietetics. 9th Edition, New Age International Publisher, New Delhi, 313.
3. ICMR (2017). Indian Food Composition Tables. National Institute of Nutrition, Hyderabad, India.
4. ICMR-NIN Expert Group on Nutrient Requirement for Indians, Recommended Dietary Allowances (RDA) and Estimated Average Requirements (EAR) – 2020
5. Indian Council of Medical Research (2024), National Institute of Nutrition (NIN). Dietary Guidelines for Indians.

6. Mahan, K.L , Escott-Stump, S , Raymond, J.L (2011)Krause's Food & the Nutrition Care Process, 13 edition, Saunders Publishers.
7. Nix, S. (2012): Williams' Basic Nutrition & Diet Therapy, 14 edition, Mosby publishing.
8. Whitney, E.N., Cataldo, C.B, Rolfes, S.R (2001): Understanding Normal and Clinical Nutrition, Brooks Cole Publishing

4.3 Major (Core)

Course Title	**Human Nutrition II (Theory)**
Course Credits	**4**
Course Outcomes	After going through the course, learners will be able to
	1. Explain the significance of micronutrients in human health 2. Describe the classification, sources, requirements, and functions of fat-soluble vitamins, water-soluble vitamins, macrominerals and microminerals. 3. Explain the physiological roles, deficiency symptoms, and toxicity effects of vitamins and minerals in human health. 4. Evaluate the interrelationship between different nutrients and their impact on overall health and metabolism. 5. Develop strategies for improving micronutrient intake in different population groups based on scientific evidence.
Module 1(Credit 1)	**Fat-Soluble Vitamins in Human Nutrition**
Learning Outcomes	After learning the module, learners will be able to
	1. Explain the classification and functions of fat-soluble vitamins (A, D, E, K). 2. Identify major food sources of fat-soluble vitamins. 3. Explain the effects of deficiencies and toxicities of fat-soluble vitamins.
Content Outline	1. Introduction to Vitamins: History, Classification (Water-soluble & Fat-soluble) Fat-Soluble Vitamins (A, D, E, K): Sources, Bioavailability, Metabolism Physiological Functions Deficiency Disorders and Toxicity Dietary Requirements and Factors Affecting Absorption Interactions with Other Nutrients and Impact on Health
Module 2(Credit 1)	**Water-Soluble Vitamins in Human Nutrition**
Learning Outcomes	After learning the module, learners will be able to
	1. Differentiate between various water-soluble vitamins (Vitamin C, B-complex group) and their metabolic roles. 2. Assess the dietary requirements and sources of water-soluble vitamins. 3. Analyze the consequences of deficiency and excess intake of water-soluble vitamins.
Content Outline	**Water Soluble Vitamins** • Sources, Bioavailability, Metabolism • Physiological Functions • Deficiency Disorders and Toxicity • Dietary Requirements and Factors Affecting Absorption • Interactions with Other Nutrients and Impact on Health 1. Vitamin C 2. Thiamin

	3. Riboflavin 4. Niacin (Tryptophan conversion and Niacin Equivalent) 5. Pyridoxine 6. Cyanocobalamin 7. Folic acid
Module 3(Credit 1)	**Macrominerals in Human Nutrition**
Learning Outcomes	After learning the module, learners will be able to
	1. Explain the roles of macro-minerals in the human body, dietary sources, RDA, and functions of calcium, phosphorus, sodium, potassium, and magnesium. in the body. 2. Evaluate the health risks associated with mineral imbalances and methods of preventing deficiency.
Content Outline	**Macro Minerals:** Sources, Bioavailability, Metabolism Physiological Functions Deficiency Disorders and Toxicity Dietary Requirements and Factors Affecting Absorption Interactions with Other Nutrients and Impact on Health 1. Calcium 2. Phosphorus 3. Sodium 4. Potassium 5. Magnesium
Module 4(Credit 1)	**Microminerals in Human Nutrition**
Learning Outcomes	After learning the module, learners will be able to
	1. Recognize the significance in human health. 2. Describe the functions, sources, recommended intake, deficiencies, and toxicities of iron, iodine, zinc, selenium, copper, and chromium.
Content Outline	**Micro Minerals and Trace Elements** Sources, Bioavailability, Metabolism Physiological Functions Deficiency Disorders and Toxicity Dietary Requirements and Factors Affecting Absorption Interactions with Other Nutrients and Impact on Health 1. Iron 2. Iodine 3. Zinc 4. Selenium 5. Copper 6. Chromium

Assignments/Activities towards Comprehensive Continuous Evaluation (CCE)

Assignment and presentation on Vitamin Deficiencies

Assignment on Mineral Deficiencies and Public Health Impact

Presentation on Micronutrient Deficiencies in Different Populations

References:

1. Whitney, E., & Rolfes, S. R. (2018). *Understanding nutrition* (15th ed.). Cengage Learning.
2. Wardlaw, G. M., Smith, A. M., & Collene, A. L. (2021). *Contemporary nutrition* (12th ed.). McGraw-Hill Education.
3. Sizer, F. S., & Whitney, E. (2020). *Nutrition: Concepts and controversies* (15th ed.). Cengage Learning.
4. Smolin, L. A., & Grosvenor, M. B. (2019). *Nutrition: Science and applications* (4th ed.). Wiley.
5. Guthrie, H. A., & Picciano, M. F. (1995). *Human nutrition* (2nd ed.). Mosby.
6. Bamji, M. S., Krishnaswamy, K., & Brahmam, G. N. V. (2009). *Textbook of human nutrition* (3rd ed.). Oxford & IBH Publishing Co. Pvt. Ltd.
7. Swaminathan, M. (1985). *Advanced textbook on food and nutrition* (Vols. 1 & 2). The Bangalore Printing and Publishing Co. Ltd.
8. Margaret S. Chaney, Mararet L Ross.(2014) Nutrition. Houghton, Mifflin.

4.4 OEC

Course Title	**Culinary Science -2 (Theory)**
Course Credits	**2**
Course Outcomes	After going through the course, learners will be able to
	1. Enlist types of food commodities 2. Observe changes taking place in foods during cooking 3. Describe their role and uses in food preparations 4. Discuss Popular recipes made with them 5. Discuss Preparations made seasonally or during festivals
Module 1(Credit 1	Role of Vegetables, Fruits, Milk in Cookery
Learning Outcomes	After learning the module, learners will be able to
	Enlist types of vegetables, fruits, milk and their products Describe their role & use in popular, seasonal and festive food preparations
Content Outline	**VEGETABLES and FRUITS:** Types and importance of fruits and vegetables. Processing of fruits and vegetables. Preparations as per season and festival. **MILK and MILK PRODUCTS:** Types of milk and their uses. Types of milk products and their uses. Preparations as per season and festival.
Module 2(Credit 1)	**Role of Sugar, Jaggery, Spices and Condiments in Cookery**
Learning Outcomes	After learning the module, learners will be able to
	Enlist types and varieties of sweetening agents & spices and condiments Describe their role & use in popular, seasonal and festive food preparations
Content Outline	**SUGAR, JAGGERY ETC:** Types of sugar and uses. Molasses, honey Syrups Artificial Sweeteners **SPICES AND CONDIMENTS:** Types and uses.
Assignments/Activities towards Comprehensive Continuous Evaluation (CCE) Collect samples and discuss varieties of the foods Select/plan popular, seasonal and festive recipes with the foods	

References:

1. S. L. Doshi. Anthropology of Foods and Nutrition. Rawat Publication, Jaipur 1995.
2. Nambiar Vanisha.Festive Foods of India, Magnum Publications, 202
3. Parvinder. S. Theory of cookery. Bali Oxford University. Press, 2017 ND
4. Pushpesh Pant. Indian: The Cookbook

4.4 OEC

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Course Title	**Health for All**
Course Credits	2
Course Outcomes	After going through the course, learners will be able to -
	1. Explain the basic concepts of health 2. Identify key health behaviors 3. Interpret basic public health concerns 4. Develop skills to interpret health messages 5. Apply behavior modification strategies for positive health outcomes
Module 1 (Credit 1)	**Determinants of Health**
Learning Outcomes	1. Develop awareness of the social determinants of health 2. Explain the association between healthy behaviors of populations and public health
Content Outline	1. Factors influencing health: social, economic, cultural, and environmental determinants 2. Challenges in community health 3. Key health behaviors and public health 4. Health literacy and misinformation
Module 2 (Credit 1)	**Health and Culture**
Learning Outcomes	1. Explain the cultural context of health 2. Develop skills to interpret health communication 3. Apply knowledge of technological tools to monitor basic health parameters
Content Outline	1. Cultural norms, beliefs, and traditions around health 2. Health communication across cultures 3. Community and/or culture-based health concerns and management strategies 4. Digital Technology and Health – Wearables, apps, telemedicine, AI

Assignments/Activities towards Comprehensive Continuous Evaluation (CCE):

1. Individual / group projects / essays on healthy behaviors and community health
2. Classroom discussions on health communication in different communities and cultures
3. Group or individual assignments on applications of digital technology in health monitoring for self.

References:

1. Park, k. (2021). Parks Textbook of Preventive and Social Medicine (28th Ed), Banarsidas Bhanot Publishers
2. Lal, S. (2007). Textbook of Community Medicine: Preventive and Social Medicine (8th Ed), CBS Publishers and Distributers Pvt. Ltd.
3. McKenzie, J.F. (2011). An Introduction to Community Health (5th Ed), Jones and Bartlett Publishers, Inc
4. MacLachlan, M. (2006). Culture and Health-A Critical Perspective Towards Global Health (2nd Ed), John Wiley & Sons Inc.

4.5 SEC

Course Title	**Culinary Science (Practical)**
Course Credits	**2**
Course Outcomes	After going through the course, learners will be able to
	1. Identify types/varieties of food commodities 2. Describe their role and uses in food preparation 3. Prepare Popular recipes 4. Prepare recipes made seasonally or during festivals 5. Learn food handling, proper use of equipment and food presentation
Module 1(Credit 1	**Principles of Food Science in Common Cereal and Pulse Preparations**
Learning Outcomes	After learning the module, learners will be able to
	Enlist types of cereals, cereal products millets, pseudocereals. Describe their role & use in popular, seasonal and festive food preparations
Content Outline	**Preparation & discussion of recipes in terms of the type of Ingredients chosen and their role and Principles of Food Science involved in the recipe**: 1. Rice and rice products. 2. Wheat and wheat products. 3. Millets and their products 4. Pseudo cereals 5. Dals, legumes and their products 6. Nuts and other seeds
Module 2(Credit 1)	**Principles of Food Science in Vegetable, Fruits, Milk Preparations**
Learning Outcomes	After learning the module, learners will be able to
	Enlist types and varieties of pulses, legumes, nuts, oilseeds, oils and other seeds Describe their role & use in popular, seasonal and festive food preparations
Content Outline	**Preparation & discussion of recipes in terms of the type of Ingredients chosen and their role and Principles of Food Science involved in the recipe:** 1. Vegetables and their products 2. Fruit and fruit products 3. Milk 4. Milk products 5. Sweetening agents- Natural and Artificial 6. Spices focusing on their role in cookery and for health
Assignments/Activities towards Comprehensive Continuous Evaluation (CCE) Students will prepare recipes demonstrating various basic principles of food science	

Short assignments on identifying principles of food science in recipes commonly prepared at home Group presentation on role of food additives in cookery

References:

1. S. L. Doshi. Anthropology of Foods and Nutrition. Rawat Publication, Jaipur 1995.
2. Nambiar Vanisha.Festive Foods of India, Magnum Publications, 202
3. Parvinder. S. Theory of cookery. Bali Oxford University. Press, 2017 ND
4. Pushpesh Pant. Indian: The Cookbook

4.5 SEC

Course Title	**Assessment of Nutritional status (Theory))**
Course Credits	**2**
Course Outcomes	**After going through the course, learners will be able to**
	1. Assess nutritional status using clinical, anthropometric, biochemical, and dietary methods. 2. Identifying signs of malnutrition and nutrient deficiencies. 3. Apply the principles of tools such as SGA and MNA to assess malnutrition risk. 4. Interpret body composition data, and evaluate weight changes, fat distribution, and lean body mass. 5. Application of assessment data to create customized nutrition interventions and recommendations to improve health and prevent disease.
Module 1(Credit 1)	**Basic concepts of Nutritional Status Evaluation**
Learning Outcomes	**After learning the module, learners will be able to**
	1. Compare the significance of various methods of nutritional assessment for evaluation of nutritional status. **2.** Employ weight, height, BMI, waist circumference, waist-to-hip ratio, and body composition, and growth charts in human health. **3.** Apply biochemical tests for assessing nutrition status.
Content Outline	**Introduction to Assessment of Nutrition Status** Definition and importance of nutritional assessment Role of nutrition assessment in maintaining health and disease prevention Overview of different methods of nutritional assessment- Progression of nutrient deficiency symptoms and the use of appropriate methods of Nutritional evaluation for each. Advantages and Limitations of each type of nutrition assessment method **Anthropometric Measurements** Use of height, weight, and indicators for wasting, stunting and undernutrition for Children under 5 years. Growth charts for pediatric populations Body mass index (BMI) for adults Waist circumference and waist-to-hip ratio Skinfold thickness and body composition assessment (e.g., body fat percentage) **Biochemical Assessments** Biochemical tests for assessing nutrition status (e.g., CBC, proteins, Lipid profile vitamins, minerals)

Module 2(Credit 1)	**Nutritional Assessment Data Interpretation and Personalized Nutrition**
Learning Outcomes	**1.** Interpret case studies based on medical history, physical exams, and clinical tools to detect malnutrition signs and deficiencies and collect dietary intake data through methods like 24-hour recall and food diaries. **2.** Able to use of SGA to evaluate nutritional status and identify malnutrition risk through standardized tools like the Mini Nutritional Assessment (MNA). **3.** Can interpret weight changes and assess body composition, including fat distribution and lean body mass, to evaluate nutritional status. **4.** Use assessment data and create personalized nutrition interventions to address deficiencies or excesses and improve overall health.
Content Outline	**Clinical Assessments** Identify clinical signs and symptoms major nutritional problem in Indians (PEM, Vitamins & Minerals deficiency) **Dietary Assessment** Methods for collecting dietary intake data at National level, in homogenous groups and individuals (e.g., 24-hour recall, food diaries, food frequency questionnaires) and use of the same for analysing food intake/ nutrient intake Evaluation of dietary patterns and adherence to recommended guidelines **Nutritional Risk Screening** Use of SGA (subjective global assessment and MNA (Mini Nutritional Assessment) method for evaluating nutritional status **Interpreting Results and Creating Nutritional Plans** Analysing assessment data to identify nutritional deficiencies or excesses Developing personalized nutrition interventions and recommendations
<u>Assignments/Activities towards Comprehensive Continuous Evaluation (CCE):</u> Assignments to be given on assessment of nutritional status using anthropometric indices Interpreting biochemical reports and Clinical Signs and Symptoms to understand nutritional status Formulating a Dietary Survey Format	

References:

1. Principles of Nutritional Assessment: Rosalind Gibson 3rd Edition, April 2024
2. Clinical Nutrition and Dietetics Manual for Nurses: Sri Ramachandra University, Porur, Chennai, Tamil Nadu, India 1st Edtion 2023
3. Kesari A, Noel JY. Nutritional Assessment. [Updated 2023 Apr 10]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2025 Jan-. Available from:
4. Kumar, V., Abbas A. K., Fausto N. (2008). Robbins &Cotran Pathologic Basis of Disease
5. (7thed.). Pennsylvania: Saunders Elsevier, Inc.

4.7 CE

Course Title	**Assessment of Nutritional status (Practical)**
Course Credits	**2**
Course Outcomes	**After going through the course, learners will**
	1. Identify various vulnerable groups in society using anthropometry, biochemical, clinical and dietary methods of nutritional assessment. **2.** Interpret clinical manifestation of malnutrition **3.** Design diet surveys emphasizing diet pattern, food habits, cooking practices, hygiene and environment. **4.** Plan and organize Nutrition Education in community. **5.** Plan and prepare appropriate teaching aids and use them.
Module 1(Credit 1)	**Practical Applications of Methods in Nutritional Status Assessment**
Learning Outcomes	**After learning the module, learners will be able to**
	1. Recognize the significance of nutritional assessment in health evaluation, disease prevention, and clinical practice, including various methods for assessing nutritional status. **2.** Practically assess and interpret nutritional status of an individual or small group.
Content Outline	Introduction to Nutritional Assessment Group discussion: Use of real-world case studies/ examples to demonstrate how nutrition impacts health and disease prevention. Anthropometry Weight and height measurements-Interpretation using NCHS standards and IAP classification for children Growth chart for an infant BMI for adults Interpret a mock biochemical report of a malnourished child Clinical signs (Group 1WHO classification) Visit to aanganwadi, ANC, Hospital for practical observations Dietary survey-24-hr recall, calculations and interpretation
Module 2(Credit 1)	**Methods of Nutrition Risk Assessment**
Learning Outcomes	**After learning the module, learners will**
	1. Apply SGA to evaluate nutritional status and identify malnutrition risk through standardized tools like the Mini Nutritional Assessment (MNA). **2.** Plan, conduct and evaluate a nutrition education programme in the community
Content Outline	Nutritional Risk Screening Demonstration of conducting an SGA for evaluating nutritional status based on medical history and clinical signs.

	Practical application of the MNA tool to assess nutritional risk Conduct a baseline survey or interview to find out the need and gap in knowledge. Plan and conduct an appropriate nutrition education programme Evaluate the programme through a feedback mechanism
Assignments/Activities towards Comprehensive Continuous Evaluation (CCE): Assignments on measuring anthropometric indices Case study based on biochemical reports and clinical information. Conducting lectures and demonstrations for selected target groups.	

References:

1. Principles of Nutritional Assessment: Rosalind Gibson 3rd Edition, April 2024
2. Clinical Nutrition and Dietetics Manual for Nurses: Sri Ramachandra University, Porur, Chennai, Tamil Nadu, India 1st edtion 2023
3. Kesari A, Noel JY. Nutritional Assessment. [Updated 2023 Apr 10]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2025 Jan-.
4. Kumar, V., Abbas A. K., Fausto N. (2008). Robbins &Cotran Pathologic Basis of Disease (7thed.). Pennsylvania: Saunders Elsevier, Inc.