



THIRUVALLUVAR UNIVERSITY

SERKKADU, VELLORE-632115

**B.Sc. NUTRITION FOOD SERVICE
MANAGEMENT AND DIETETICS**

SYLLABUS

FROM THE ACADEMIC YEAR

2023 - 2024

Semester-II

S.No.	Part	Study Components		Ins. Hrs /week	Credit	Title of the Paper	Maximum Marks		
		Course Title					CIA	Uni. Exam	Total
SEMESTER II									
1.	I	Language	Paper-2	6	3	Tamil/Other Languages	25	75	100
2.	II	English	Paper-2	4	3	English	25	75	100
3.	II	NMSDC: Language Proficiency for Employability	Paper-1	2	2	Overview of English Communication	25	75	100
4.	III	Core Course –CC III	Paper-2	5	5	Food Science	25	75	100
5.	III	Core Course –CC IV	Paper -3	5	5	Basic Cookery Practical	25	75	100
6.	III	Elective II Generic/ Discipline Specific	Elective II	6	3	Chemistry-II Chemistry Practical	25	75	100
7.	IV	Skill Enhancement Course SEC-2	Paper2	2	2	Life Skill Strategies and Techniques	25	75	100
8.	IV	Skill Enhancement Course SEC-3 (Discipline Specific)	Paper 1	2	2	Basics in Food Product Development	25	75	100
		Sem. Total		32	25		200	600	800

SEMESTER -II

Title of the Course		FOODSCIENCE								
Category	Year I	L	T	P	O	Credits	Inst Hrs	Marks		
	Sem							CIA	External	Total
Core Course CCIII	II	Y				5	5	25	75	100

Learning Objectives
To enable the students to:
Understand the classification of foods according to their functions.
Gain knowledge on the composition and nutritive value of foods.
Know the basic methods of cooking and its influence on food.

UNIT	CONTENT	HOURS
UNIT I	<p>Introduction to Food and Cooking Methods Definition- Food, food science, nutrients, balanced diet; 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</p>	12
UNIT II	<p>Cereals, Millets, Pulses, Legumes and Nuts: Cereal and Millets– Structure, composition and nutritive value of rice, wheat and millets. Milling of wheat and rice, parboiling of rice. Effect of cooking on the nutritive value of cereals. Dextrinization, gelatinization, retrogradation and gluten formation. Pulses and legumes- Types, nutritive value, 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. Textured Vegetable Protein. Nuts -Types, composition, role of nuts in cookery Oilseeds -Types, methods of processing, uses and shelf life</p>	15

UNIT III	<p>Vegetables, Fruits and Milk:</p> <p>Vegetables - Classification, nutritive value, types of pigments, selection of vegetables, effect of cooking on colour, texture, flavour, appearance and nutritive value.</p> <p>Fruits- Classification, nutritive value, changes that occur during ripening, enzymatic browning and its prevention.</p> <p>Milk - Composition and nutritive value, types of milk, pasteurization, homogenization and coagulation of milk, Effect of cooking and processing on milk. Non-fermented milk products – Skimmed milk and milk powder; fermented milk products – cheese and curd.</p>	15
UNIT IV	<p>Fleshy foods and Egg</p> <p>Meats – structure, nutritive value, cuts of meat, selection of meat, post mortem changes in meat, ageing, factors affecting tenderness of meat, changes during cooking.</p> <p>Poultry - types, nutritive value, selection, changes during cooking.</p> <p>Fish - classification, nutritive value, selection, changes during cooking.</p> <p>Eggs - Structure, nutritive value, selection, uses in cookery; foam formation and factors affecting foam formation, changes during cooking.</p>	18
UNIT V	<p>Fats and Oils - Types - difference between cold pressed and regular cooking oils, hydrogenated fat, emulsification, rancidity, smoking point. Factors affecting absorption of oils while frying foods, harmful effects of reheated oils. Uses of fat in cookery - factors affecting absorption of fats - smoking point - Rancidity.</p> <p>Sugar - Types of sugars, stages of sugar cookery, crystallization, factors affecting crystallization.</p> <p>Spices and Condiments – Classification, uses in Indian cookery</p> <p>Beverages - Classification - fruit based beverages; milk-based beverages nutritive value and uses, alcoholic beverages, coffee, tea and cocoa, malted beverages.</p>	15
TOTAL		75

COURSE OUTCOMES

After successful completion of the course the student will be able to:

COs	Description
CO1	Identify and classify foods based on the food groupings system and illustrate their use.
CO2	Define the foods, describe its structure and distinguish their composition.
CO3	Demonstrate ability to appraise nutritive value of different food groups and select good quality foods.
CO4	Compare the nutrients present in different types of food and choose foods rich in specific nutrients.
CO5	Analyze the effect of cooking on the quality of food and discriminate the desirable and undesirable changes.

REFERENCES:

1. Brow, A., (2000), Understanding Food, Thomson Learning Publications,
2. Chandrasekhar, U., (2002), Food Science and Application in Indian Cookery, Phoenix Publishing House P. Ltd., New Delhi.
3. Mehas, K. Y. and Rodgers, S. L. (2000), Food Science and You, McMillan McGraw Company, New York.
4. Parker, R. (2000), Introduction to Food Science, Delmer, Thomson Learning Co., Delma.
5. Peckham, G. C. and Freeland-Graves, J. H. (1979), Foundations of Food Preparation, 4th edition, Macmillan Publishing Co. Inc., New York.
6. Potter, N., and Hotchkiss, J. H., (1995), Food Science, 5th edition, Chapman & Hall, New York.
7. Shakuntala, M. and Shadaksharaswamy, M., (2000), 2nd Edition, Foods, Facts and Principles, New Age International Pvt. Ltd., Publishers, New Delhi.
8. Shewfelt R. L. (2015), Introducing Food Science, CRC Press, Taylor and Francis Group, Boca Raton.
9. Srilakshmi, B., (2010), Food Science, 6th edition New Age International (P) Limited, New Delhi.
10. Sunetra, R., (2007), Food Science and Nutrition, Oxford University Press, India.
11. Thangam E. Philip, (2010), Modern Cookery for Teaching and the Trade Volume - 1 & 2 (6th Revised Edition), Orient Black, Telangana.
12. Vaclavik, V. A. and Elizabeth, W. C. (2013), Essentials of Food Science 2nd ed., Springer Publication, New Delhi.

E- LEARNING RESOURCES

- <https://www.pdfdrive.com/food-science-books.html>
- <https://archive.org/details/textbookoffoodsc0000khadhttps://himitepa.l>
- k.ipb.ac.id/e-
- book/https://lib.rudn.ru/file/Food_Science_Nutrition_Catalogue_ebook
- [.pdfhttps://www.vet-ebooks.com/food-science-and-technology/](https://www.vet-ebooks.com/food-science-and-technology/)

Mapping with Programme Outcomes

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	S	S	M	M	L	S	M	S
CO2	S	S	S	S	M	M	L	S	M	S
CO3	S	S	S	S	M	M	L	S	M	S
CO4	S	S	S	S	M	M	L	S	M	S
CO5	S	S	S	S	M	M	L	S	M	S

MappingwithProgrammeSpecificOutcomes

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	3	2	2	3
CO2	3	3	2	2	3
CO3	3	3	2	2	3
CO4	3	3	2	2	3
CO5	3	3	2	2	3
Weightage	15	15	10	10	15
Weightedpercentage(roundedof) OfCourseContributiontoPOs	3	3	2	2	3

		BASIC COOKERY PRACTICAL								
Category	Year I	L	T	P	O	Credits	InstHrs.	Marks		
	Sem II							CIA	External	Total
Core Course CCIV				Y		5	5	25	75	100

Learning Objectives										
To enable the students to:										
Understand the scientific principles underlying the preparation of food										
Apply the principles of cookery in cooking food to preserve its nutrient content and minimize cooking time.										
Acquire skills in preparation of foods with good palatability and preservation of nutritive value										

UNIT	CONTENT	HOURS
UNIT I	<p>Introduction to Basic Cooking Skills Introduction to different cooking methods, cooking terminology; equipment and techniques used for pre-preparation and for different cooking methods. Methods of measuring and weighing liquids and drying ingredients. The Use and care of simple kitchen equipment. Introduction to food safety, sanitation and hygiene in the kitchen, Safe practices in handling knives, sharp instruments, fuels and Materials at high temperature.</p>	10
UNIT II	<p>Cereals, Millets and pulses Cereals and Millets: Methods of combining fine and coarse cereal with Liquid (eg. Ragi porridge, rava upma) Method of cooking cereals and factors influencing texture and nutritive value-cooking rice by boiling and straining, absorption method, steaming, pressure cooking, microwave cooking; Gelatinization and dextrinization Preparation of recipes using rice-puttu, dosai, idli/idiappam, lemon rice, curd rice, coconut rice, fried rice, tamarind rice, tomato rice, mint pulao-afew Wheat and Millet preparations- Kesari, Phulka, poori, paratha, naan, ragi adai, samaicurd rice, thinai uppuma, -afew Pulses: Factors influencing texture, digestibility and nutritive value of whole gram/legumes and pulses-soaking, addition of sodium bicarbonate, addition of salt, water quality-hard and soft water, pressure cooking, boiling and straining. Pulse preparations-Sundal, sambhar, sprouted green gram patchadi, Vadai, pongal, ompodi, green gram payasam, masala vadai, medhu vadai-afew</p>	15

<p>UNIT III</p>	<p>Vegetables and Fruits Vegetables: Basic cuts of vegetables- Slice and mince (onions) Shred (cabbage, spinach), dice (carrot), chop (tomato), grating (beetroot), and their uses in dishes. Changes in colour, texture and nutritive value of vegetables due to different methods of cooking, cooking medium and addition of acid/alkali. Vegetable preparations – Poriyal, Aloo methi curry, vegetable cutlet, thoran, vegetable kurma, avial, keera masiyal, vegetable salad, vegetable soup, vegetables sandwich, kootu, mint chutney and carrot halwa- a few Fruits: Enzymatic browning in fruits and methods to prevent it. Fruit preparations- stewed apple, banana fritters, fruit salad, fruit punch, fruit yoghurt and fruit smoothie, preserve/jam- a few</p>	<p>20</p>
<p>UNIT IV</p>	<p>Eggs, milk and milk products, meat and fish: Egg Cookery: Boiling of eggs- hard and soft boiled eggs. Best method of boiling eggs. Prevention of Ferrus sulphide formation on the yolk. Poaching and frying. Coagulation of egg protein- stirred and baked custard Egg preparations - egg curry, omelet, French toast, caramel custard (steamed), scrambled eggs and fried eggs- a few Factors affecting whipping quality of egg white – effect of salt, sugar, vinegar, fat and milk, type of container used and beaters, Stages of foam formation in whipped egg whites and their uses in cookery. Milk and milk products Curdling of milk using lime juice, buttermilk, tomato juice. Milk preparations Cream of tomato soup, paneer masala, payasam, patchadi, thayir vadai, morkulumbu, basundhi, lassi, spiced buttermilk and baked macaroni and cheese- a few. Meat and Fish Methods of tenderizing meat- Pounding, mincing addition of acids like curd/lime juice in marinade, addition of proteolytic enzymes- raw papaya Effect of different methods of cooking on flavour, texture and appearance of meat and fish. Meat preparations- mutton ball curry, mutton vindaloo, mutton keema, liver fry, chicken spring roll, chicken sweet corn soup, chicken biriyani. Seafood preparations- fish fry, fish moilee, fish cutlet, sweet and sour prawns- a few</p>	<p>15</p>
<p>UNIT V</p>	<p>Sugar cookery, Fats and oils and Beverages Sugar Cookery- Stages of sugar cookery and uses. Preparations of sweets using different stages of sugar cookery Fats and oils- Effect of temperature of oil on texture and palatability of foods- Frying poor is at different temperatures Smoking point of oil- bread cube test. Emulsions- definition, Preparation of mayonnaise Beverages- Preparation of Coffee and Tea using different methods</p>	<p>15</p>

MappingwithProgrammeSpecificOutcomes

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	2	1	3	3
CO2	3	2	1	3	3
CO3	3	2	3	3	3
CO4	3	3	1	3	3
CO5	3	3	3	3	3
Weightage	15	12	9	15	15
Weightedpercentage(roundedof)of CourseContributionto POs	3	2	1	3	3

Title of the Course		LIFE SKILL STRATEGIES AND TECHNIQUES								
Category	Year	L	T	P	O	Credits	InstH rs	Marks		
	Sem							CIA	External	Total
Elective/ SEC-2	II	Y		Y		2	2	25	75	100
Learning Objectives										
To enable the student to:										
Develop skills for a healthy personal and professional approach to life.										
Gain competency and confidence through mastery of skills needed for holistic living										
UNIT	CONTENT									HOURS
UNIT I	Communication Skills Developing Listening, Speaking and Reading Skills, An introduction to Scientific Writing, Letter Writing, and Usage of Non-verbal Communication. Writing for Grants- a brief Proposal, Statement of Purpose (SoP). Effective use of social media in communicating messages.									10
UNIT II	Professional Skills Resume Writing. Interview Skills. Group Discussions, Presentation Skills. Work-Life Balance- Strategies to achieve them, Time Management.									10
UNIT III	Leadership/Management Skills Leadership skills, Managerial skills, Team building, Entrepreneurial skills, Ethics and Integrity.									10
UNIT IV	Basic Lifestyle-related Skills Healthy eating using simple cooking practices, Home makeover skills, Basics in Gardening, Stress Management- Yoga and Fitness practices- benefits for a Holistic Life, An introduction to Martial Arts as a protective strategy.									10
UNIT V	Human Value Skills Strategies and techniques to promote Non-Violence, Service to the community, developing skills pertaining to administering First Aid.									10
	Practical 1. Workshop on Leadership/Writing Skills, Yoga and Martial Arts. 2. Developing Listening and Speaking Skills. 3. Practical Demonstration on healthy recipes. 4. A practical exposure to administering First Aid.									10
	TOTAL									60

COURSE OUTCOME

After successful completion of the course, the student will be able to:

CO1. Describe different skills and techniques needed to maintain a healthy personal and professional approach to life.

CO2. Identify skills needed for a healthy lifestyle.

CO3. Explain the need to develop various skill sets for a holistic life.

CO4. Develop confidence with respect to emotional competency, personal and professional life.

CO5. Recommend life skill strategies for the holistic development of the individual.

Reference:

1. Ashokan,M.S.(2015).Karmayogi:AbiographyofE.Sreedharan.Penguin,UK.
2. HansonC. W.(2021).ResumeWriting2021:Theultimateguidetowritingaresumethatlandsyouthejob. Independently Published, Kindle.
3. JaneE.,BurtS.,andNudelmanG.(2018).ProfessionalCommunication: Deliver effective written, spoken and visual messages. 4th ed. Juta and CompanyPvt. Ltd.,Cape Town, SouthAfrica.
4. KellyT.,andKellyD. (2014).CreativeConfidence:UnleashingtheCreative PotentialWithinUs All. WilliamCollins
5. KumarS.,andLataP.(2015).CommunicationSkills.2nded.Oxford UniversityPress, India.
6. KurienV.,andSalveG.(2012).ITooHadaDream.RoliBooksPrivate Limited
7. O'TooleJ.(2019)TheEnlightenedCapitalists:CautionaryTalesofBusiness PioneersWho Triedto Do WellbyDoing Good.Harpercollins.
8. SullivanD.R.E.(2022).EffectiveLeadershipSkillsforTeachersofYoung Children. 3rd ed. RedleafPress.

e-LearningResources:

1. Fries,K.(2019).8EssentialQualitiesThatDefineGreatLeadership.Forbes. Retrieved2019-02-15
from <https://www.forbes.com/sites/kimberlyfries/2018/02/08/8-essential-qualities-that-define-great-leadership/#452ecc963b63>
2. HowtoBuildYourCreativeConfidence,TedTalkbyDavidKelly
- https://www.ted.com/talks/david_kelley_how_to_build_your_creative_confidence
3. India'sHiddenHotBeds ofInventionTedTalkbyAnilGupta
- https://www.ted.com/talks/anil_gupta_india_s_hidden_hotbeds_of_invention
4. Knowledge@WhartonInterviewsFormerIndianPresidentAPJAbdulKalam -."ALeader Should Know How to Manage Failure" <https://www.youtube.com/watch?v=laGZaS4sdeU>
5. Martin,R.(2007).HowSuccessfulLeadersThink.HarvardBusinessReview,85(6): 60.
6. NPTELCourseonLeadership-<https://nptel.ac.in/courses/122105021/9>

MappingwithProgrammeOutcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	S	S	S	S	S	S	S	S
CO2	S	S	S	S	S	S	S	S	S	S
CO3	S	S	S	S	S	S	S	S	S	S
CO4	S	S	S	S	S	S	S	S	S	S
CO5	S	S	S	S	S	S	S	S	S	S

MappingwithProgrammeSpecificOutcomes

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	3	3	3	3
CO2	3	3	3	3	3
CO3	3	3	3	3	3
CO4	3	3	3	3	3
CO5	3	3	3	3	3
Weightage	15	15	15	15	15
Weighted percentage (rounded of) of Course Contribution to Pos	3	3	3	3	3

Title of the Course		BASICS IN FOOD PRODUCT DEVELOPMENT								
Category	Year I	L	T	P	O	Credits	Inst Hrs	Marks		
	Sem							CIA	External	Total
Skill Enhancement Course SEC3	II	Y				2	2	25	75	100

Learning Objectives
To enable the student to:
Determine customer needs and desires that can lead to new product development
Discuss the preparation of new products based on utility, convenience, and unique dietary requirements.
Recognize the novelty in traditional Indian foods

UNIT	CONTENT	HOURS
UNIT I	Introduction to the development of food products Concepts, definitions & characteristics. Factors to consider for food product development (external and internal factors).	3
UNIT II	Phases of food product development Development of product prototype-market research, concept testing approaches, product formulation and specification, product optimization, process development & optimization, product attributes, scale up requirements; Product prototype testing-consumer testing, packaging testing, shelf life testing, product integrity and conformance to standards; Marketing plans - price structure, place & distribution system, promotional program, market positioning, test marketing, results evaluation	10
UNIT III	Concepts in sensory evaluation of foods Sensory attributes of foods: Chemical senses (olfactory and gustatory); physical, kinesthetic and tactile senses (appearance, color, texture, & overall taste).	5
UNIT IV	Sensory evaluation methods Definition, advantages, and disadvantages. Subjective tests: Analytical tests (sensitivity tests, difference tests, ranking tests), descriptive tests, and consumer/preference tests.	5
UNIT V	Objective and instrumental evaluation methods Objective methods for appearance, size, shape, volume, specific gravity, refractive index, moisture, fat, and others. Instrumental methods for evaluation of color, viscosity, texture & aroma	7
TOTAL		30

COURSE OUTCOMES

After successful completion of the course, the student will be able to:

COs	Description
CO1	Identify, categorize, and analyze major trends in product development.
CO2	Identify the processes & stages for new product development from conception to commercialization.
CO3	Understand the role of sensory and objective evaluation in product development, quality control, and research in the food and other consumer industries.
CO4	Explain the adequate theoretical background and practical understanding of sensory evaluation of food.
CO5	Develop a new food product from concept to prototype or pilot-scale production with the inclusion of a critical analysis of the quality, safety, shelf-life, packaging, labeling, and cost of the product.

REFERENCES

1. Awasthi D, Jaggi R and Padmanand V. A Manual for Entrepreneurs: Food Processing Industry. Tata McGraw-Hill Publishing Limited. 2006.
2. Bedekar S J. Marketing Concepts and Strategies, Oxford University Press. 1991.
3. Connie M. Weaver and James R. Daniel. The Food Chemistry Laboratory – A manual for Experimental Foods, Dietetics and Food Scientists, CRC Press, New York. (Practical). 2003.
4. Fuller G W. New Food Product Development- From concept to marketplace. CRC Press, Taylor & Francis Inc., USA. 2005.
5. Lyon D H, Francombe M A, Hasdell T A and Lawson K (eds). Guidelines for Sensory Analysis in Food Product Development and Quality Control. Chapman and Hall, London. 1992.
6. Moskowitz H R. New Directions for Product Testing and Sensory Analysis of Foods. Food and Nutrition Press, Connecticut. 1985.
7. Moskowitz, H R, Saguy I, Samand Straus T. An Integrated Approach to New Food Product Development. CRC Press, Taylor & Francis Inc., USA. 2009.
8. Paine F A and Paine H Y (eds). A Handbook of Food Packaging, 2nd Edn. Blackie Academic and Professional. 1992.

E-LEARNING RESOURCES

□ <http://epgp.inflibnet.ac.in/Home/Download>

Mapping with Programme Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	S	M	M	M	L	M	M	S
CO2	S	S	S	M	M	M	L	M	M	S
CO3	S	S	S	M	M	M	L	M	M	S
CO4	S	S	S	M	M	M	L	M	M	S
CO5	S	S	S	M	M	M	L	M	M	S

MappingwithProgrammeSpecificOutcomes

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	3	3	1	3
CO2	3	3	3	1	3
CO3	3	3	3	1	3
CO4	3	3	3	1	3
CO5	3	3	3	1	3
Weightage	15	15	15	5	15
Weightedpercentage(roundedof) ofCourseContributionto Pos	3	3	3	1	3

