



**MARUDHAR KESARI JAIN COLLEGE FOR WOMEN
(AUTONOMOUS)**

Vaniyambadi – 635 751

**PG and Research Department Foods and Nutrition
for**

Undergraduate Programme

Bachelor of Science in Nutrition Food Service Management and Dietetics

From the Academic Year 2024-25

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1. Preamble

Nutrition plays a major role in fostering optimal health and well-being of an individual, and provides an absolute understanding of the intricate interplay between food, nourishment and human physiology. The Department of Nutrition, FSM & Dietetics of Marudhar Kesari Jain College for Women, Vaniyambadi strives to produce young budding nutritionists and dietitians who through rigorous research, education and outreach empower individuals to make informed choices about their diet and lifestyles, promoting longevity, vitality and resilience.

Nutrition is not only a cornerstone of preventive healthcare but also a catalyst for social change and sustainable development. We, the Department of Nutrition, Food Service Management & Dietetics engage with communities, policymakers and industry partners to address predominant nutritional challenges, foster food security and promote environmental stewardship.

The programme is aimed at training undergraduate graduate students who would have adequate background knowledge and practical skills for application in postgraduate research, teaching, industrial production, medical, hospital and environmental management

The Department aims to equip the undergraduate students with a sound knowledge of the fundamental principles involved in the study of Nutrition, FSM and Dietetics, to produce graduates who would create an impact in the diverse fields of human endeavors, considering the ubiquitous nature of food and the wide – ranging applications of the knowledge of Nutrition.

The main objective of the Department is to provide focus for a career in various fields of applied science including Food Industries, Medical Coding, Research Institution, Hospital Administration, Food Service Sectors, Free Lancing, Health Sectors, Quality Control, Biotechnology, Government and Non-Government agencies.

PROGRAMME OUTCOMES (PO)

Programme	B.Sc., Nutrition Food Service Management & Dietetics
Programme Code	US08
Duration	3years [UG]
Programme Outcomes	PO1: Disciplinary Knowledge: Capable of demonstrating comprehensive knowledge and understanding of one or more disciplines that form a part of an undergraduate Programme of study. PO2: Communication Skills: Ability to express thoughts and ideas effectively in writing and orally; Communicate with others using appropriate media; confidently share one's views and express herself / himself; demonstrate the ability to listen carefully, read and write analytically, and present complex information in a clear and concise manner to different groups. PO3: Critical thinking: Capability to apply analytic thought to a body of knowledge; analyze and evaluate evidence, arguments, claims, beliefs on the basis of empirical evidence; identify relevant assumptions or implications; formulate coherent arguments; critically evaluate practices, policies and theories by following scientific approach to knowledge development. PO4: Problem solving: Capacity to extrapolate from what one has learned and apply their competencies to solve different kinds of non-familiar problems, rather than replicate curriculum content knowledge; and apply one's learning to real life situations. PO5: Analytical reasoning : Ability to evaluate the reliability and relevance of evidence ;identify logical flaws and holes in the arguments of others ;analyze and synthesize data from a variety of sources; draw valid conclusions and support them with evidence and examples and addressing opposing viewpoints. PO6: Research-related skills: A sense of inquiry and capability for asking relevant/appropriate questions, problem arising, synthesizing and articulating; Ability to recognize cause-and-effect relationships, define problems, formulate hypotheses, test hypotheses, analyse, interpret and draw conclusions from data, establish hypotheses, predict cause-and-effect relationships; ability to plan, execute and report the result so far as experiment or investigation. PO7: Cooperation / Teamwork: Ability to work effectively and respect fully with diverse teams; facilitate cooperative or coordinate effort on the part of a group, and act together as a group or a team in the interests of a common cause and work efficiently as a member of a team. PO8: Scientific reasoning: Ability to analyse, interpret and draw conclusions from quantitative/qualitative data; and critically evaluate ideas, evidence, and experiences from an open-minded and reasoned perspective

Programme Specific Outcomes:	This program provides comprehensive knowledge and nutritional practical skills in the area of Food Microbiology, Food Science, Menu Planning, Human Physiology and Nutritional Biochemistry. Students will be able to show case their expertise on food standards and quality control, Formulation of novel food products and sensory evaluation. Students will be able to demonstrate their practical skills by analyzing disease condition and prescribed diet for necessary conditions
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Eligibility for Admission:

Candidates for admission to the first year of the Bachelor of (B.Sc., Nutrition, Food Service Management & Dietetics) Department of Foods & Nutrition shall be required to have passed the Higher Secondary Examination with Biology, Chemistry, Pure Science and Home Science as major subjects of any other Board accepted as equivalent there to by Thiruvalluvar University course shall be required to have passed the by the Government of Tamil Nadu or any equivalent

Methods of Evaluation and Assessment

Methods of Evaluation		
Internal Evaluation		25 Marks
External Evaluation	End Semester Examination	75 Marks
	Total	100 Marks
Methods of Assessment		
Recall (K1)	Simple definitions, MCQ, Recall steps, Concept definitions	
Understand / Comprehend (K2)	MCQ, True/False, Short essays, Concept explanations, short summary or overview	
Application (K3)	Suggest idea/concept with examples, suggest formulae, solve problems, Observe, Explain	
Analyze (K4)	Problem- Solving questions, finish a procedure in many steps, Differentiate Between various ideas, Map knowledge	
Evaluate (K5)	Longer essay/Evaluation essay, Critique or justify with pros and cons	
Create (K6)	Check knowledge in specific or of beat situations, Discussion, Debating or Presentations	

Semester - I							Semester - II						
Code	Course Title	Hours Distribution				C	Code	Course Title	Hours Distribution				C
		L	T	P	S				L	T	P	S	
24UFTA11	Tamil -1	4	1	0	0	3	24UFTA12	Tamil –2	4	1	0	0	3
24UFEN11	English-1	4	1	0	0	3	24UFEN12	English–2	4	1	0	0	3
24UNDC11	CC1BasicsinFoodMicrobiolog y	3	1	2	0	5	24UNDC21	CC – 3 HumanPhysiology	3	1	2	0	5
24UNDP102	CC - 2 (Practical) BasicsinFoodMicrobiology	0	0	4	0	3	24UNDC22P	CC - 4 (Practical) HumanPhysiology	0	0	4	0	2
24UCHA11	EC-1AL Chemistry-I	3	1	0	0	3	24UCHA21	EC-2AL Chemistry-II	3	1	0	0	4
24UNDS11	SEC – 1 NM Women’s Health and Wellness	1	0	1	0	2	24UCHA21P	EC - 3 AL PracticalChemistry-II	0	0	2	0	2
24UCHP103	SEC – 2 Practical Chemistry-I	1	0	1	0	2	24UNDS21	SEC – 3 Life skill strategies and Techniques	1	0	1	0	2
24UNDF11	FC- Foundation in Home Science	1	1	0	0	2		AEC– 1 Life skills through Yoga	1	1	0	0	2
TOTAL					30	23	TOTAL					30	23

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

Students must complete at least one online course (MOOC) from platforms like SWAYAM, NPTEL, or Nanmudalvan within the fifth semester. Additionally, engaging in a specified Self-learning Course is mandatory to qualify for the degree, and successful participation will be acknowledged with an extra credit of 2*.

1st YEAR: FIRST SEMESTER

Course Code	Course Name	Category	L	T	P	S	Cred its	Hours	Marks		
									CIA	External	Total
24UNDC101	Core Course -1 BASICS IN FOOD MICROBIOLOGY	Core	3	1	2	0	5	6	25	75	100
Learning Objectives											
LO1	Understand the interaction between micro-organisms and food.										
LO2	Discuss the factors that favor or inhibit the growth of microbes.										
LO3	Understand the role of microbes in fermentation, spoilage and foodborne diseases.										
LO4	Describe the microorganisms found in food, including bacteria, fungi, viruses, and parasites										
LO5	Recognize the signs of food spoilage caused by microbial activity and understand the mechanisms involved.										
Unit	Content										Hours
1	History and Development of Food Microbiology History and Development of Food Microbiology. Definition and Scope of food microbiology. Inter-relationship of microbiology with other sciences. Characteristics of Microorganisms in Food. - Types of micro-organisms (Bacteria, Molds, and Yeast) associated with food their morphology and structure.										14
2	Microbial Growth in Food Bacterial growth curve and microbial growth in food. Factors affecting the growth of microorganisms in food. Methods for the Destruction of bacteria. Cultivation of Micro- organisms.										14
3	Microbial Food Spoilage Spoilage of specific food groups-Milk and dairy products, Meat, poultry and sea foods, Cereal and cereal products, Pulses and pulses products, Fruits and vegetables and Canned products.										14
4	Food Fermentation Fermentation- Definition and Benefits of fermentation and types of Microorganisms used in food fermentations. Dairy Fermentations-starter cultures and their types, concept of probiotics, Fermented Foods-types, methods of manufacture of vinegar, sauerkraut, tempeh, miso, soya sauce, beer, wine.										14
5	Food Borne Illness Types–food borne infections (Salmonellosis, Shigellosis, Vibriopara haemoliticus, Enter pathogenic Escherichia coli, Hepatitis A) Food borne bacterial intoxications (Staphylococcal, Bacillus cereus, Botulism). Trends in Food Microbiology- Rapid methods for detection of microorganisms in food.										14

CO	Course Outcomes
CO1	To understand the structure and functions of microbes (Bacteria, Molds, Yeast)
CO2	To Gain knowledge on Microbial Growth, Destruction of Bacteria
CO3	To gain knowledge on the microbes related to food spoilage
CO4	To study the importance of fermented foods and methods of manufacture
CO5	To gain Knowledge on food Borne illness

Text books:	
1	Aneja R.K “Modern Food Microbiology” (1 st Edition) Division of scientific International Tech (2018)
2	Adams M.R “Food Microbiology” (6 th edition) New age International Publisher (2001)
3	George. Ban ward “Basic Food Microbiology” (2 nd edition) CBS publisher pvt. Ltd (2001)
4	Ramanathan. N“ Food Microbiology”(2 nd edition)New Age International Publisher (2010)
5	Samtson “Modern Food Microbiology” CBS exclusive Publisher (2011)
Reference Books:	
1	Banwart, G.J. “Basic Food Microbiology” 2 nd Edition. CBS Publishers, 1998.
2	Vijaya Ramesh. “Food Microbiology”. MJP Publishers, Chennai,2007
3	William Cand Westh of, Dennis C. Food Microbiology, TMH, New Delhi, 2004
4	Khetarpaul, Neelam. “Food Microbiology” Daya Publishing House,2006
5	Adams, M.R. and M. O. Moss.” Food Microbiology”. New Age International, 2002

Mapping with Programme Outcomes and Programme Specific Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	2	3	3	2	3	2	2	3	3	3	3
CO2	3	3	3	2	3	2	2	3	3	3	3
CO3	3	3	3	3	2	2	2	3	3	3	3
CO4	3	2	3	3	3	2	2	3	3	3	2
CO5	2	3	3	3	3	2	3	2	3	2	3
Total	13	14	15	13	14	10	11	14	15	14	14
Average	2.6	2.8	3	2.6	2.8	2.2	2.2	2.8	3	2.8	2.8

3 – Strong, 2- Medium, 1- Low

1ST YEAR: FIRST SEMESTER

Course Code	Course Name	Category	L	T	P	S	Credits	Hours	Marks		
									CIA	External	Total
24UNDP102	Core Course 2- Basics in Food Microbiology practical	Core	0	0	4	0	3	4	25	75	100
Learning Objectives											
LO1	Understand and demonstrate proficiency in Basic Microbial Cultural Techniques										
LO2	Learn How to Prepare and Examine Food Samples Under a Microscope										
LO3	Study the Effects of Different Environmental Conditions (pH Temperature)										
LO4	Understand Different Preparation Methods										
LO5	Understands the concepts of Microbial Growth and Factors Influencing Microbial Growth										
Unit	Content									Hours	
1	Laboratory safety rules and precautions. Familiarization with Instruments used in Microbiological Lab-Microscope, Autoclave, and Hot air Oven, Incubator, Centrifuge, pH meter.									12	
2	Sterilization Methods-Autoclave, Hot air Oven, UV Lamp and Laminar Airflow									12	
3	Examination of Yeast, Molds, protozoa and Bacteria									12	
4	Examination of Wet Methods and Hanging Drop preparations									12	
5	Examination of Stained Organisms- Simple staining and Gram Staining Method									12	

CO	Course Outcomes
CO1	To Understand the Knowledge About Safety Precautions and Lab Instruments
CO2	To Gain Knowledge About the Preparation of Culture Media – Microbes
CO3	To Examine the Microbes Characteristics and Evaluating with Microscope
CO4	To Gain Knowledge about the Different Kinds of Chemical Preservation Methods
CO5	To Analyses Various Staining Methods

Text books:	
1	Diane Robert “Practical Food Microbiology (3 rd edition
2	K.L. Garg “Laboratory manual of Food Microbiology” (2 nd edition)
3	Subhash Chandra prakash “Text Book of Practical Microbiology”(1 st edition)
4	Rump as Aha “Microbiology Practical Manual” (2 nd edition)
5	Mukesh Kumar “competency based practical microbiology manual” (1 st edition)
Reference Books:	
1	Gunejavk. Sofos J.N 2007 control of Food borne Microorganism CR C press
2	Jaya J M. Loessner M. J and Golden DA 2005 “Modern Food Microbiology” springer
3	Doores.S2017“Microbiological analysis of food” CR C press-Publisher
4	Foresythe.S.J 2012“The microbiology of safe food”
5	Farver J. Mand peterkin 2016 “Microbiological Safety and quality of food” ASM press

Mapping with Programme Outcomes and Programme Specific Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	3	3	3	3	2	2	3	3	2	3
CO2	3	3	3	2	2	2	2	3	2	2	3
CO3	3	3	3	2	2	2	2	2	3	2	3
CO4	3	3	2	2	3	2	2	3	3	2	2
CO5	3	3	3	2	2	2	2	2	3	2	2
Total	15	15	14	11	12	10	10	13	14	10	13
Average	3	3	2.8	2.2	2.4	2	2	2.6	2.8	2	2.6

3 – Strong, 2- Medium, 1- Low

1ST YEAR: FIRST SEMESTER

Course Code	Course Name	Category	L	T	P	S	Credits	Hours	Marks		
									CIA	External	Total
24UCHA102	Allied / Generic – 1 ALLIED CHEMISTRY	Core	3	1	0	0	3	4	25	75	100
Learning Objectives											
LO1	To understand Chemical Bonding and Nuclear Chemistry.										
LO2	To understand the Nuclear Chemistry.										
LO3	To understand types of reactions.										
LO4	To correlate types of thermodynamics process.										
LO5	To understand separation and purification techniques.										
Unit	Content									Hours	
1	Chemical Bonding and Nuclear Chemistry: Chemical Bonding: Molecular Orbital Theory-bonding, anti-bonding and non-bonding orbitals. Molecular orbital diagrams for Hydrogen, Helium, Nitrogen; discussion of bond order and magnetic properties. Nuclear Chemistry: Fundamental particles - Isotopes, Isobars, Isotones and Isomers.									9	
2	Industrial Chemistry: Fuels: Fuel gases: Natural gas, water gas, semi water gas, carbureted water gas, producer gas, CNG, LPG and oil gas (manufacturing details not required). Silicones: Synthesis, properties and uses of silicones. Fertilizers: Urea, NPK fertilizer, superphosphate, triple superphosphate.									9	
3	Fundamental Concepts in Organic Chemistry: Hybridization: Orbital overlap, hybridization and geometry of CH ₄ , C ₂ H ₄ and C ₆ H ₆ . Electronic effects: Inductive effect, electromeric effect, mesomeric effect, hyper conjugation and steric effects - examples. Reaction mechanisms: Types of reactions–aromaticity (Huckel’s rule)– aromatic electrophilic substitution: nitration, halogenation, Friedel-Craft’s alkylation and acylation.									9	
4	Thermodynamics and Phase Equilibria: Thermodynamics: Types of systems, reversible and irreversible processes, Statements of first law and second law of thermodynamics. Carnot’s cycle and efficiency of heat engine. Entropy and its significance. Relationship between Gibbs free energy and entropy.									9	
5	Analytical Chemistry: Principles of volumetric analysis. Separation and purification techniques – extraction, distillation and crystallization. Chromatography: principle and application of column, paper and thin layer chromatography.									9	

CO	Course Outcomes
CO1	Gain in-depth knowledge about the theories of chemical bonding, nuclear reactions and its applications.
CO2	Evaluate the efficiencies and uses of various fuels and fertilizers.
CO3	Explain the type of hybridization, electronic effect and mechanism involved in the organic reactions.
CO4	Apply various thermodynamic principles, systems and phase rule.
CO5	Explain various methods to identify an appropriate method for the separation of chemical components.

Text books:	
1	Arun Bahl S. and Bahl B. S, “Advanced Organic Chemistry”, S.Chandand Company New Delhi, 23 rd ed., 2012.
2	Soni P. L. and Chawla H. M, “Text Book of Organic Chemistry”, Sultan Chand& Sons, New Delhi, 29 th ed., 2007.
3	Gopalan R, “Analytical Chemistry”, Sultan Chand & Sons, 2017.
4	Puri B. R, Sharma L. R. and Madan S. Pathania, “Principles of Physical Chemistry”, Vishal Publishing Co., 48 th ed., 2024.
5	Veeraiyan V. and Vaithyanathan S, “Text book of Ancillary Chemistry”, Priya Publications, Karur,2006.
Reference Books:	
1	Soni P. L. and Mohan Katyal, “Textbook of Inorganic Chemistry”, Sultan Chand& Sons, New Delhi, 20 th ed., 2006.
2	Sharma B. K, “Industrial Chemistry”, GOEL publishing House, Meerut, 16 th ed., 2014.
3	Puri B. R. and Sharma L. R, “Text book of Physical Chemistry”, 47 th ed., 2020.
4	Puri, Sharma, Pathania and Kaur, “Textbook of Physical Chemistry”,Vishal Publishing Co., New Delhi, 2018.
5	Veeraiyan V, “Text book of Ancillary Chemistry”, Priya Publications, Karur, 1 st ed., 2009.

Mapping with Programme Outcomes and Programme Specific Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	3	3	3	3	3	3	2	3	3	3
CO2	2	3	3	3	2	3	3	2	3	3	3
CO3	3	3	3	2	3	3	3	2	3	3	3
CO4	3	3	3	3	3	3	3	2	3	3	3
CO5	3	2	3	3	3	3	3	2	3	3	3
Total	14	14	15	14	14	15	15	10	15	15	15
Average	2.8	2.8	3.0	2.8	2.8	3.0	3.0	2.0	3.0	3.0	3.0

3 – Strong, 2- Medium, 1- Low

1ST YEAR: FIRST SEMESTER

Course Code	Course Name	Category	L	T	P	S	Credits	Hours	Marks		
									CIA	External	Total
24UCHP103	ALLIED CHEMISTRY PRACTICAL	Core	0	0	2	0	2	2	25	75	100
Learning Objectives											
LO1	Different types of organic compounds with respect to their properties.										
LO2	Determination of elements in organic compounds.										
LO3	Identification of organic functional groups.										
LO4	Identify the components and structure of an unknown organic molecule										
LO5	Skills to solve problems related to the identification of organic molecules through a series of tests and observations.										
Unit	Content									Hours	
1	Systematic Analysis of Organic Compounds The analysis must be carried out as follows: (a) Preliminary Tests To distinguish between aliphatic and aromatic compounds.									6	
2	To distinguish – Saturated and unsaturated compounds.									6	
3	Detection of special elements (N, S, Halogens).									6	
4	Identification of Functional group tests (Absence of special elements) Phenol, Acids (mono & di), Aldehyde and Glucose.									6	
5	Identification of Functional group tests (Presence of special elements) Presence aromatic primary amine, Amides (mono & di).									6	

CO	Course Outcomes
CO1	Gain an understanding of the use of standard flask and volumetric pipettes, burette.
CO2	Design, carry out, record and interpret the results of volumetric titration.
CO3	Apply their skill in the analysis of water/hardness.
CO4	Analyze the chemical constituents in allied chemical products.
CO5	Describe the measurable skills, abilities, knowledge in qualitative analysis.

Text books:

1	Venkateswaran V, Veerasamy R and Kulandaivelu A. R, "Basic Principles of Practical Chemistry", Sultan Chand & Sons, 2 nd ed., 1997.
2	Vogel A. I, Tatchell A. R, Furnis B. S, Hannaford A. J and Smith P. W. G, "Vogel's Textbook of Practical Organic Chemistry", Prentice Hall, 5 th ed., 1989.
3	Donald L. Pavia, Gary M. Lampman, George S. Engel & Roger G. Gries, "Experimental Organic Chemistry", Cengage Learning, 2005.
4	Jerry Mohrig, Craig Hammond & Paul F. Snyder, "Techniques in Organic Chemistry", Macmillan Learning, 4 th ed., 2014.
5	Mann F. G and Saunders B. C, "Practical Organic Chemistry", Pearson Education, 4 th ed., 1975.

Reference Books:

1	Ralph J. Fessenden and Joan S. Fessenden, "Organic Chemistry Laboratory Manual", Brooks/Cole, 3 rd ed., 1982.
2	Middleton H, "Organic Qualitative Analysis", Longmans, Green and Co., 1 st ed., 1951.
3	Bansal R. K, "Laboratory Manual of Organic Chemistry", New Age International Publishers, 5 th ed., 2010.
4	John Leonard, Barry Lygo and Garry Procter, "Advanced Practical Organic Chemistry", CRC Press, 3 rd ed., 2013.
5	Lisa Nichols, Organic Chemistry Laboratory Techniques", Libre Texts, 1 st ed., 2016.

Mapping with Programme Outcomes and Programme Specific Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	3	3	3	3	3	3	2	3	3	3
CO2	2	3	3	3	2	3	3	2	3	3	3
CO3	3	3	3	2	3	3	3	2	3	3	3
CO4	3	3	3	3	3	3	3	2	3	3	3
CO5	3	3	3	3	3	3	3	2	3	3	3
Total	15	15	15	15	15	15	15	15	15	15	15
Average	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0

3 – Strong, 2- Medium, 1- Low

1ST YEAR: FIRST SEMESTER

Course Code	Course Name	Category	L	T	P	S	Credits	Hours	Marks		
									CIA	External	Total
24UNDS101	SEC 1 NM WOMEN'S HEALTH AND WELLNESS	Core	1	0	1	0	2	2	25	75	100
Learning Objectives											
LO1	Understand the Diverse Factors that has a Bearing on Women's Health										
LO2	Highlight the Factors that Contribute to a Healthy Lifestyle among Women Across the Globe										
LO3	Describe the anatomy and Physiology of the Female Reproductive System										
LO4	Recognize the unique Mental Health Challenges Faced by Women										
LO5	Develop Nutrition and Fitness Plans to Women's Health Needs										
Unit	Content									Hours	
1	NUTRITION FOR WOMEN Dietary Guidelines for a healthy lifestyle, Nutrient requirements for adolescents' girls and adult women with special focus on Protein, Iron, Vitamin C, and Calcium, Factors affecting nutrient intake in women.									6	
2	PHYSICAL HEALTH Significance of body weight and body composition parameters, Benefits of aerobic, exercises on general health, bone health. Yoga and Fitness -benefits									6	
3	REPRODUCTIVE HEALTH Menstrual Health-safe and hygienic practices to be followed, Pre- and Post- Menopausal concerns- preventive measures, sexually transmitted diseases-an Overview									6	
4	STRESS MANAGEMENT Common mental health problems - Depression, Anxiety, Stress. Strategies to improve mental health.									6	
5	SOCIAL HEALTH Balancing home and career, strengthening relationships, enhancing communication skills and leadership skills.									6	

CO	Course Outcomes
CO1	Define terms related to nutrition, physical. reproductive, mental and social health
CO2	Discuss the need of right nutrition , Exercise and Skills needed for the overall well being of women
CO3	Explaining the Significance of Maintaining Physical , Reproductive ,Mental and social for overall well being of an women
CO4	Devise Strategies to Improve Women's Health in a Holistic Manner
CO5	Recommends Pleasure for a Healthy Life style

Text books:	
1	Linda sparke “Women's Health ”Primary care clinical guide(5 th edition)-2019
2	Merlene gold man “Women and Health”(2 nd edition)-2013
3	M.Susanandkaren “Health and Hormone”Revised edition-2009
4	Judith's “women's health and welfare”(1 st edition)-2007
5	Christiane northrup “Physical and emotional Health and Healing” Revised edition-2010
Reference Books:	
1	Minkin M.J. and Wright C.V. (2003) The Yale Guide to Women's Reproductive Health from menarche to menopause. Yale University Press, London.
2	Sizer F.S.and Whitney.(2014) B Nutrition: Concepts & Controversies.13 th Ed, Wadsworth, Cengage Learning, USA.
3	Sperry L.(2016)Mental Health and Mental Disorders.ABC-Clio,California
4	Williams M.H., Anderson D.E.,Rawson E.S.(2013)Nutrition for Health ,Fitness and Sport. McGraw Hill, New York.
5	Wrzus C, Hänel M, Wagner J, Neyer FJ.(2013)Social network changes and life events across the life span: a meta-analysis. Psychol Bull;139(1):53-80.

Mapping with Programme Outcomes and Programme Specific Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	3	2	3	3	3	2	3	3	2	3
CO2	3	3	3	3	3	3	2	2	3	2	3
CO3	3	3	2	3	3	3	2	2	3	2	3
CO4	3	3	2	2	3	3	3	3	2	2	2
CO5	3	2	3	2	3	3	2	3	3	3	3
Total	15	14	12	13	15	15	11	13	14	11	14
Average	3	2.8	2.4	2.6	3	3	2.2	2.6	2.8	2.2	2.8

3 – Strong, 2- Medium, 1- Low

1ST YEAR: FIRST SEMESTER

Course Code	Course Name	Category	L	T	P	S	Credits	Hours	Marks		
									CIA	External	Total
24UNDF101	FC – FOUNDATION COURSE IN HOME SCIENCE	Core	1	1	0	0	2	2	25	75	100
Learning Objectives											
LO1	Understand the basics in Nutrition, Food Service Management & Dietetics										
LO2	Gain awareness on the care opportunities in home science.										
LO3	Understand the scope, significance, and multi-disciplinary nature of home science										
LO4	Acquire skills in home management, organization, budgeting, time management										
LO5	Develop critical thinking skills to analyze situations related to home science										
Unit	Content									Hours	
1	Introduction To Food Science Definition, Food groups and their Nutritive aspects of food constituents. Functions of food physiological, psychological and social. Relationship between food, nutrition and health.									6	
2	Introduction to Nutrition And Dietetics A. Definition of Nutrition, Basic function of Carbohydrates, Lipids, Proteins, Vitamins and Minerals. B. Definition of balanced diet, Importance of menu planning. Difference between normal and therapeutic diets C. Role of diet and life style changes in health promotion and disease prevention									6	
3	Introduction Of Food Service Management A. Definition of Food Service Management; types of food service establishments- commercial and non-commercial B. Food service-Types C. Introduction to concepts of management, functions of manager in managing sources like manpower, materials, money, time, machinery and methods.									6	
4	Introduction to Electives Under Home Science A. Human Development Stages of Human Life span B. Interior Decoration – Introduction and concept of interior design, C. Textile and Clothing – Yarn, cotton, Jute, Silk, Manmade Fibers									6	
5	Career Opportunities In Home Science- Nutrition, Food Service Management And Dietetics A. Seeding importance of higher studies and its role in enhancing job opportunities B. Exposure to Job opportunities-Role and Responsibilities of Nutritionist and Dietitian and Community Nutritionist, CDPO, Food Safety Officer Registered Dietitian, Lactation Consultant and Manager of Food/Hospitality Service. C. Extension Education									6	

CO	Course Outcomes
CO1	Describe basic concepts in Food Science, Nutrition, Dietetics and Food Service Management
CO2	Identify the relationship between food, nutrition, diet and health
CO3	Explain the concept of Food Services and Food Service Management
CO4	Analyze the importance of the study of Food Service Management, Human Development, Interior Decoration and Textiles
CO5	Summarize the career opportunities available in-Home Science, Nutrition, Dietetics and Food Service Management

Text books:	
1	Meenakshi Bala Subramaniam “Foundation of Home Science ” New age International Pvt Ltd (1 st edition) -2003
2	P.M. Nair “Home science ”APH publishing corporation(1 st edition)-2011
3	A. P. Pillai “Home science and Techniques” Anmol Publications pvt. Ltd
4	Smukherjee “Foundation of science and Nutrition” New central book Agency Publisher (1 st edition) -2005
5	Veerbalarastogi “Foundation of Home Science” New central Publisher Pvt Ltd(1 st edition)- 2007
Reference Books:	
1	Anastasia Snelling(2014),Introduction to Health Promotion ,Wiley Publications.
2	Premlata Mullick (2012),Text book of Home science, Kalyani Publishers
3	Emie Cohen (2021),How Food Heals: A Look into Food as Medicine for Our Physical and Mental Health, New Degree Press
4	Gurie Hughes (2021), Food and Mental Health: A Guide for Health Professionals, Rout ledge Publishers
5	Kaveri Chakra barthy and A.S. Chakra barthy, (2021), Text book of Nutrition in Health and Disease, Springer Publications

Mapping with Programme Outcomes and Programme Specific Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	3	2	3	3	3	3	3	3	3	3
CO2	3	3	2	2	3	3	2	3	3	3	3
CO3	3	3	3	2	3	3	2	3	3	3	3
CO4	3	3	2	2	3	3	2	3	3	3	3
CO5	3	3	2	2	3	3	33	2	2	2	2
Total	15	15	11	11	15	15	12	15	14	14	14
Average	3	3	2.2	2.2	3	3	2.4	3	2.8	2.8	2.8

3 – Strong, 2- Medium, 1- Low

1ST YEAR: SECOND SEMESTER

Subject Code	Course Name	Category	L	T	P	S	Credits	Hours	Marks		
									CIA	External	Total
24UNDC21	Core Course 2- HUMAN PHYSIOLOGY	Core	3	1	2	0	5	6	25	75	100
Learning Objectives											
LO1	To enable the students to know about the cells and tissues										
LO2	To gain basic understanding of human anatomy and physiology										
LO3	To discuss the fundamental relationship between anatomy and physiology										
LO4	Use familiarity with the human body and its functioning to make healthful choices with regard to nutrition and take appropriate action when signs of illness arise										
LO5	To Understand about the hormones and its functions.										
Unit	Content									Hours	
1	Cells and tissues- Structure and function of cell and its organelles. Cell Division and Classification. Structure, Types and functions of tissues. Blood- Constituents of blood- RBC, WBC and Platelets and its functions, Blood groups Immune system- Types of Immunity, Role of Antigen and Antibody.									14	
2	Nervous system Structure and functions of brain (cerebrum, brainstem, cerebellum), Structure and Functions of Spinal cord; Functions of Autonomic Nerves and Cranial nerves Structure and functions of external organs (Eyes, Ears, Skin, Taste and Smell)									14	
3	Heart and circulation Anatomy of the heart and blood vessels, origin and conduction of heart beat, cardiac cycle, Blood Pressure Definition and factors affecting blood pressure. Respiratory system Anatomy and physiology of respiratory organs. Mechanism of respiration, Gaseous exchange in the lungs and tissues. (Inhalation and Exhalation)									14	
4	Digestive system Anatomy of Gastro-intestinal tract, Digestion and absorption of carbohydrates, proteins and fats. Excretory system- Structure of kidney, structure of nephron, physiology of urine Formation.									14	
5	Endocrine system Hormones secreted by Pituitary gland, thyroid, parathyroid and adrenal glands and its functions, Menstrual cycle. Sex hormones –Role of hormones in pregnancy and Lactation.									14	

CO	Course Outcomes
CO1	Recall the structure and functions of the cell, its organelles and the various tissues
CO2	Describe the structure and functions of the various organs and systems in the body
CO3	Identify the microscopic structure of basic tissues, label the parts of primary physiological systems in the body such as nervous, respiratory, digestive, endocrine and reproductive systems
CO4	Evaluate the role of the nervous and endocrine system in regulating the activities of other systems.
CO5	Perform haematological study on blood such as blood smear, blood count and blood grouping, record pulse, blood pressure and interpretation normal ECG

Text books:	
1	Wilson, K.J.W. (1987) Anatomy and Physiology in Health and Illness.6 th ed. ELBS, Churchill Livingstone, London
2	Waugh A and Grant A. (2012) Ross and Wilson Anatomy and Physiology in Health and Illness.11 th ed. Churchill and Livingston, Elsevier
3	Tortora G.J. Anagnostakos N.P.(1984) Principles of Anatomy and Physiology,4 th edition, Harper and Row Publishers, New York
4	Subramaniam, S and Madhavan Kutty, K.(1971). The Text Book in of Physiology. Orient Longman Ltd., Madras.
Reference Books:	
1	Beck, W.S. (1971) Human Design . Harcourt Brace Jovanovich Inc., New York.
2	CC CHATTERJEE Human Physiology 14 th edition Volume -1
3	Creager, J.G. (1992)Human Anatomy and Physiology. 2 nd ed. WMC Brown Publishers, England
4	Guyton, A.C.(1979)Physiology of the Human Body.5 th ed. Saunders College of Publishing Philadelphia
5	Subramaniam,S .and Madhavan Kutty,K. (1971) The Text Book of Physiology. Orient Longman Ltd., Madras.

Mapping with Programme Outcomes and Programme Specific Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	3	2	3	3	3	3	3	3
CO3	3	3	3	2	3	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3	2	3	3	3
CO5	3	3	3	3	3	3	3	3	3	3	3
Total	15	15	15	14	14	15	15	14	15	15	15
Average	3.0	3.0	3.0	2.8	2.8	3.0	3.0	2.8	3.0	3.0	3.0

3–Strong, 2-Medium, 1-Low

Subject Code	Course Name	Category	L	T	P	S	Credits	Hours	Marks		
									CIA	External	Total
24UNDC22P	Core Course 2- HUMAN PHYSIOLOGY PRACTICAL	Core	0	0	4	0	2	4	25	75	100
Learning Objectives											
LO1	To learn about the various types of tissues found in the body through microscope										
LO2	To understand the haemoglobin present in the blood										
LO3	To create the visual effect to identify the blood group										
LO4	To determine the blood pressure and pulse rate										
LO5	To discuss about the internal organs and Demonstration on blood cells determination										
Unit	Content									Hours	
1	Microscopic studies of different tissues epithelial tissue, Connective tissue, muscular tissue and nervous tissue									12	
2	Estimation of Haemoglobin.									12	
3	Identification of blood groups									12	
4	Determination of Blood pressure Respiratory rate and pulse rate									12	
5	Demonstration Experiments: Study of structure of brain, heart, kidney, male and female reproductive organs using models/charts/videos. Microscopic study of WBC, RBC estimation									12	

CO	Course Outcomes
CO1	Recall the structure the various types of tissues through microscopic examination.
CO2	Describe the Haemoglobin present in the blood
CO3	Identify the blood groups of various persons
CO4	Evaluate the blood pressure, Respiratory rate and pulse rate
CO5	Demonstration studies of internal organs ,WBC, RBC estimation

Text books:	
1	"Human Physiology: An Integrated Approach" by Dee Unglaub Silverthorn
2	"Physiology Laboratory Manual" by R. A. McKinley
3	"Laboratory Manual for Human Physiology" by H. W. Wilson
4	"Principles of Physiology" by Michael L. Johnson
5	"Human Physiology: From Cells to Systems" by Lauralee Sherwood
Reference Books:	
1	"Human Physiology Laboratory Manual" by G. A. R. S. (Ravi) Ghosh
2	Laboratory Exercises in Human Physiology" by David M. D. Alworth and L. C. T. Tansley
3	Physiology Laboratory Manual" by R. C. McKinley
4	A Photographic Atlas for the Anatomy and Physiology Laboratory" by Michael J. Arguello
5	"Human Physiology: An Integrated Approach" by Dee Unglaub Silverthorn

Mapping with Programme Outcomes and Programme Specific Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	3	2	3	3	3	2	3	3	2	3
CO2	3	3	3	3	3	3	2	2	3	2	3
CO3	3	3	2	3	3	3	2	2	3	2	3
CO4	3	3	2	2	3	3	3	3	2	2	2
CO5	3	2	3	2	3	3	2	3	3	3	3
Total	15	14	12	13	15	15	11	13	14	11	14
Average	3	2.8	2.4	2.6	3	3	2.2	2.6	2.8	2.2	2.8

3 – Strong, 2- Medium, 1- Low

1ST YEAR: SECOND SEMESTER

Course Code	Course Name	Category	L	T	P	S	Credits	Hours	Marks		
									CIA	External	Total
24UCHA21	Elective Course 2 Allied Chemistry - II	Core	3	1	0	0	4	6	25	75	100
Learning Objectives											
LO1	To understand the mechanisms of polymerisation and their impact on polymer properties.										
LO2	To analyze real-world problems and apply the fundamental principles of photochemical reactions to identify potential solutions.										
LO3	To apply the concepts of electrochemistry to analyze the behavior of batteries and fuel cells.										
LO4	To encompass the core concepts of corrosion delves into the application of protective coatings, such as paints, enamels, and lacquers, to safeguard materials from corrosion.										
LO5	To assess various pharmaceutical drugs, including sulfa drugs, antibiotics, anesthetics, antiseptics, analgesics, antipyretics, tranquilizers, and sedatives.										
Unit	Content									Hours	
1	Polymer Chemistry - Introduction, classification of polymers, types of polymerisation, addition polymerization - mechanism of free radical polymerization, condensation and copolymerization. Thermoplastic and thermosetting polymers, difference between thermoplastic and thermosetting polymers, preparation, properties and uses of Polythene, PVC, Teflon, Nylon 6,6 and Polyesters									12	
2	Photochemistry - Grothus-Draper's law and Stark-Einstein's law of photochemical equivalence, Quantum yield - Hydrogen-chloride reaction. Jablonskii diagram - Phosphorescence, fluorescence, chemiluminescence and photosensitization and photosynthesis (definition with examples)..									12	
3	Electrochemistry - Electrolytes – Definition and Examples – Classification - Specific and Equivalent Conductance – Ostwald's Dilution Law and its Limitations. Batteries - primary and secondary batteries - difference between primary and secondary batteries. Lead storage battery - cell diagram, cell reaction and uses. Fuel cell H ₂ -O ₂ fuel cell - explanation with diagram.									12	
4	Corrosion and Protective Coatings - Corrosion - types, corrosion control methods. Electrochemical corrosion and its prevention - Electroplating and Electroless plating - applications. Paints - Components of Paint – Requisites of a Good Paint - Pigments Classification of Pigments based on Colour. Dyes – Definition – Classification based on Constitution and Application – Chromophores and Auxochromes. Enamels and Lacquers - composition and uses.									12	

5	Pharmaceutical Chemistry - Sulpha Drugs – Preparation and uses of Sulphapyridine and Sulphadiazine - mode of action of Sulpha drugs - Antibiotics - Uses of Penicillin, Chloramphenicol and Streptomycin - Anaesthetics - General and Local Anaesthetics - Antiseptics - Analgesics, Antipyretics, Tranquilizers, Sedatives - Examples and their applications	12
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CO	Course Outcomes
CO1	Critically evaluate the properties and applications of different types of polymers to select the most suitable materials for specific purposes.
CO2	To explain the laws of photochemistry and calculate quantum yields.
CO3	Construct electrochemical cells, such as batteries and fuel cells, based on theoretical principles
CO4	Ability to design and implement effective corrosion prevention strategies for various materials and environments.
CO5	Develop new pharmaceutical compounds with improved efficacy and reduced toxicity

Textbooks:

1	Fried, J. R., “ <i>Polymer Science and Engineering</i> ”, Prentice Hall, 3 rd ed., 2003.
2	Turro, N. J., “ <i>Modern Molecular Photochemistry of Organic Molecules</i> ”, University Science Books, 1991.
3	Newman, J., “ <i>Electro chemical Engineering</i> . Prentice Hall”, 3 rd ed., 2004.
4	Fontana, M. G., & Staehle, R. H., “ <i>Corrosion Engineering</i> ”, McGraw-Hill, 4 th ed., 2017.
5	Albert, A. A., & Phillips, D. J., “ <i>Medicinal Chemistry: An Introductory Text</i> ”, Wiley, 5 th ed., 2002.

Reference Books:

1	Atkins, P. W., & de Paula, J., “ <i>Physical Chemistry</i> ”, Oxford University Press, 10 th ed., 2014.
2	Gilbert, A., & Baggott, J., “ <i>Essentials of Molecular Photochemistry</i> ”, Blackwell Scientific Publications, 1991.
3	Shriver, D. F., & Atkins, P. W., “ <i>Inorganic Chemistry</i> ”, W. H. Freeman, 5 th ed., 2010.
4	Bardwell, A. J., “ <i>Principles of Corrosion Engineering</i> ”, Butterworth-Heinemann, 2 nd ed., 2009.
5	Lehninger, A. L., Nelson, D. L., & Cox, M. M., “ <i>Principles of Biochemistry</i> ”, W. H. Freeman, 5 th ed., 2013.

Mapping with Programme Outcomes and Programme Specific Outcomes

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PSO 1	PSO 2	PSO 3
CO1	3	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	3	2	3	3	3	3	3	3
CO3	3	3	3	2	3	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3	2	3	3	3
CO5	3	3	3	3	3	3	3	3	3	3	3
Total	15	15	15	14	14	15	15	14	15	15	15
Average	3.0	3.0	3.0	2.8	2.8	3.0	3.0	2.8	3.0	3.0	3.0

3Strong, 1- Medium, 1- Low-3

1ST YEAR: SECOND SEMESTER

Course Code	Course Name	Category	L	T	P	S	Credits	Hours	Marks		
									CIA	External	Total
24UCHA21P	Elective Course 3 Chemistry Practical for Physical and Biological Sciences - II	Core	0	0	2	0	2	30	25	75	100
Learning Objectives											
LO1	Different types of organic compounds with respect to their properties.										
LO2	Determination of elements in organic compounds.										
LO3	Identification of organic functional groups.										
LO4	Identify the components and structure of an unknown organic molecule.										
LO5	Skills to solve problems related to the identification of organic molecules through a series of tests and observations.										
Unit	Content									Hours	
1	Systematic Analysis of Organic Compounds The analysis must be carried out as follows: (b) Preliminary Tests (c) To distinguish between aliphatic and aromatic compounds.									6	
2	To distinguish – Saturated and unsaturated compounds.									6	
3	Detection of special elements (N, S, Halogens).									6	
4	Identification of Functional group tests (Absence of special elements) Phenol, Acids (mono & di), Aldehyde and Glucose.									6	
5	Identification of Functional group tests (Presence of special elements) Presence aromatic primary amine, Amides (mono & di).									6	

CO	Course Outcomes
CO1	Gain an understanding of the use of standard flask and volumetric pipettes, burette.
CO2	Design, carry out, record and interpret the results of volumetric titration.
CO3	Apply their skill in the analysis of water/hardness.
CO4	Analyze the chemical constituents in allied chemical products.
CO5	Describe the measurable skills, abilities, knowledge in qualitative analysis.
Textbooks:	
1	Venkateswaran V, Veerasamy R and Kulandaivelu A. R, “Basic Principles of Practical Chemistry”, Sultan Chand & Sons, 2 nd ed., 1997.
2	Vogel A. I, Tatchell A. R, Furnis B. S, Hannaford A. J and Smith P. W. G, “Vogel's Textbook of Practical Organic Chemistry”, Prentice Hall, 5 th ed., 1989.
3	Donald L. Pavia, Gary M. Lampman, George S. Engel & Roger G. Gries, “Experimental Organic Chemistry”, Cengage Learning, 2005.
4	Jerry Mohrig, Craig Hammond & Paul F. Snyder, “Techniques in Organic Chemistry”, Macmillan Learning, 4 th ed., 2014.
5	Mann F. G and Saunders B. C, “Practical Organic Chemistry”, Pearson Education, 4 th ed., 1975.
Reference Books:	
1	Ralph J. Fessenden and Joan S. Fessenden, “Organic Chemistry Laboratory Manual”, Brooks/Cole, 3 rd ed., 1982.
2	Middleton H, “Organic Qualitative Analysis”, Longmans, Green and Co., 1 st ed., 1951.
3	Bansal R. K, “Laboratory Manual of Organic Chemistry”, New Age International Publishers, 5 th ed., 2010.
4	John Leonard, Barry Lygo and Garry Procter, “Advanced Practical Organic Chemistry”, CRC Press, 3 rd ed., 2013.
5	Lisa Nichols, Organic Chemistry Laboratory Techniques”, Libre Texts, 1 st ed., 2016.

Mapping with Programme Outcomes and Programme Specific Outcomes

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PSO 1	PSO 2	PSO 3
CO1	3	3	3	3	3	3	3	2	3	3	3
CO2	2	3	3	3	2	3	3	2	3	3	3
CO3	3	3	3	2	3	3	3	2	3	3	3
CO4	3	3	3	3	3	3	3	2	3	3	3
CO5	3	3	3	3	3	3	3	2	3	3	3
Total	15	15	15	15	15	15	15	15	15	15	15
Average	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0

3 – Strong, 2- Medium, 1- Low

1ST YEAR: SECOND SEMESTER

Course Code	Course Name	Category	L	T	P	S	Credits	Hours	Marks		
									CIA	External	Total
24UNDS21	LIFE SKILL STRATEGIES AND TECHNIQUES	Core	1	0	1	0	2	2	25	75	100
Learning Objectives											
LO1	To gain self-competency and confidence										
LO2	To practice emotional competency										
LO3	To gain an edge through professional competency										
LO4	To aim for Holistic Life										
LO5	To understand the importance of human value strategies and techniques skills										
Unit	Content									Hours	
1	Communication Skills Developing Listening, Speaking and Reading Skills, An introduction to Scientific Writing, Letter writing, and Usage of Non-verbal Communication									6	
2	Professional Skills Resume writing Interview Skills. Group Discussions, Presentation Skills. Work-Life Balance- Strategies to achieve them, Time Management.									6	
3	Leadership/Management Skills Leadership skills, Managerial skills, Team building, Entrepreneurial skills, Ethics and Integrity.									6	
4	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.									6	
5	Human Value Skills Strategies and techniques to promote Non-Violence, Service to the community, developing skills pertaining to administering First Aid									6	

CO	Course Outcome
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

Text books:	
1	Ashokan M.S.(2015).Karmayogi A biography of Sreedharan. Penguin
2	Hanson C.W. (2021). Resume Writing 2021:The ultimate guide to writing a resume that lands you the job. Independently Published, Kindle.
3	Jane E., Burt S., and Nudelman G. (2018).Professional Communication: Deliver effective written, spoken and visual messages. 4th ed. Juta and Company Pvt. Ltd., Cape Town, South Africa.
4	Kelly T, and Kelly D. (2014). Creative Confidence: Unleashing the Creative Potential Within Us All. William Collins
5	Kumar S ,and LataP.(2015).CommunicationSkills.2 nd ed.Oxford University Press, India.
Reference Books:	
1	Fries, K.(2019). Essential Qualities That Define Great Leadership . Forbes. Retrieved 2019-02-15
2	How to Build Your Creative Confidence ,Ted Talk by David Kelly
3	India's Hidden Hot Beds of Invention Ted Talk by Anil Gupta -
4	Knowledge and What on Interviews Former Indian President APJ Abdul Kalam .& quote; A Leader Should Know How to Manage Failure & quot.
5	Martin, R.(2007).How Successful Leaders Think. Harvard Business Review,85(6): 60.

Mapping with Programme Outcomes and Programme Specific Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	3	2	3	3	3	3	3	3
CO3	3	3	3	2	3	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3	2	3	3	3
CO5	3	3	3	3	3	3	3	3	3	3	3
Total	15	15	15	14	14	15	15	14	15	15	15
Average	3.0	3.0	3.0	2.8	2.8	3.0	3.0	2.8	3.0	3.0	3.0

3- Strong, 2- Medium, 1- Low