अध्ययन मंडल बैठक दिनांक 17.07.2025

विषय – गृहविज्ञान (Home Science)

विश्वविद्यालय अन्तर्गत संचालित एम.एस.सी. आहार एवं पोषण प्रोग्राम में राष्ट्रीय शिक्षा नीति 2020 के अनुरूप **तृतीय एवं चतुर्थ सेमेस्टर** में निम्नानुसार परीक्षा योजना एवं मूल्यांकन पद्धति की अनुशंसा की जाती है -

Course Type	Course Code	Course Title	Paper	Credits	Max Marks	Min Marks	CIA	ESE
Third Semester								
DSC	MFNC-03T	Advance Food Microbiology	T	4	100	40	30	70
DSC	MFNC-03P	Practical (Part -A) (Part – B) FOOD MICRO BIOLOGY ADVANCED NUTRITION	P	4	100	40	30	70
DSE	MFNE-07T	Advanced Nutrition	T	4	100	40	30	70
DSE	MFNE-08T	Institutional Management	T	4	100	40	30	70
DSE	MFNE -09T	Nutrition for Health of women and children	T	4	100	40	30	70
DSE	MFNE - 10T	Nutrient Deficiency and Assessment and Prevention	T	4	100	40	30	70
Note : Select any Three DSE.								
Fourth Semester								
DSC	MFNC - 04	Research Work & Dissertation	P	20	500	200	150	350

टीप :– परीक्षा योजना एवं प्रश्न पत्र के प्रारूप को भी यथावत् लागू करने की अनुशंसा की जाती है।

आज दिनांक 17.07.2025 को **गृहविज्ञान** अध्ययन मंडल की बैठक में निम्नलिखित अध्यक्ष / सदस्य उपस्थित हुये।

क्र.	नाम	पदनाम	अध्यक्ष / सदस्य	हस्ताक्षर
01	श्रीमती नेहा बंजारे	सहायक प्राध्यापक	अध्यक्ष	Neha 17.7.2025
02	डॉ. अलका वर्मा	सहायक प्राध्यापक	सदस्य	17.7.25

TWO YEAR POSTGRADUATE PROGRAM (2025-26)
DEPARTMENT OF HOME SCIENCE
COURSE CURRICULUM

Part - A			
PROGRAM: M.Sc. Food & Nutrition *(Post Graduation)*		**Semester – III**	**Session – 2025-26**
1.	**Course Code**	**MFNC-03T**	
2.	**Course Title**	**ADVANCED FOOD MICROBIOLOGY**	
3.	**Course Type**	Post graduation	
4.	**Pre – requisite (if, any)**	*As per Program*	
5.	**Course Learning Outcome (CLO)**	**Understand the Role of Microorganisms in Food Systems** • Identify and describe the beneficial and harmful roles of microorganisms in various types of food. • **Explain Food Spoilage Mechanisms** • Explain the causes and signs of microbial spoilage in perishable and processed food items. • **Analyze Foodborne Diseases** • Describe the symptoms, sources, and prevention of major foodborne infections and intoxications (e.g., Salmonella, E. coli, Listeria).	
6.	**Credit Value**	04 Credit	Credit = 15 Hours – Learning & Observation
.	**Total Marks**	Maximum Mark: 100	Minimum Passing Marks: 40

PART – B	**Content of the Course**	
Total No. of Teaching – Learning Periods (01 Hour Per Period) – 60 Periods (60 Hours)		
Module/Unit	**Topics (Course Contents)**	**No. of Period**
I	Bacterial morphology, structure, staining, culture media, culture method and identification of bacteria. **Growth and Nutrition of Bacteria :** Intrinsic and extrinsic parameters that affect Microbial growth. Microorganism important role in food microbiology - Mold, yeast, Bacteria.	15
II	**Spoilage and contamination of different groups of foods:** • Cereals and cereal products. • Vegetables and fruits. • Fish and meat products. • Meat and meat products. • Eggs and poultry. • Milk and milk products. • Canned foods.	15
III	**Foods in relation to disease:** • Food borne illness: Bacterial and viral food borne • disorders. • Food borne important animal parasites, mycotoxins. • **FOOD PRESERVATION** • fermentation -dairy products, vegetables, meat, fruits • dehydration, drying, refrigeration, canning.	15
IV	**Indices of Food Sanitary Quality:** • Microbial criteria of food. • Microbial standards and food safety. • Controlling the microbial quality of foods – • Quality control using microbial criteria. • The HACCP (Hazard Analysis and Critical Control Point) system.	15

PART – C Learning Resources: Textbooks, Reference Books & Others

- Scrimshaw, N.S. and Gleason, G.R. (1992) Assessment Procedures. Qualitative Methodologies for Planning and Evaluation of Health related Programmes. International Nutrition foundation for Developing Countries, Boston.
- Van Maanen (1983)" Quantitative Methodology, Sage Publication.
- Cook, T.D. and Richard, C.S. (1979): Qualitative Methods in Evaluation Research, Sage Publications, and London.
- Patton, M.Q. (1980): Qualitative Evaluation Methods Sage Publications.
- Pettitti, D.B. (2000): Meta analysis, Decision Analysis and cost- effectiveness Analysis: Methods for Quantitative Methods in Medicine. Oxford University Press, New York.
- Hunter, J.E. and Shmidt (1990): Methods of Meta- analysis- Correcting Error and Blas in Research Findinge, sage Publications London.
- Walker, R. (1983): applied Qualitative Research, gower, London.
- Margan, D. (1988): rocus Groups as Qualitative research Sage Publication, London.
- Creswell, J. (1994): Research Design: Qualitative and Quantitative Approaches. Thousand Oaks, CA Sage Publications.
- Margan, D (1993): Successful Focus Groups. Sage Publications.
- Mischler, E.G. (1986), Research Interviewing. Context and Narrative, Harvard University Press Cambridge.
- Denzin, N.K. and Licoin Y.S. (1994): Handbook of Qualitative Research, Sage Publications.
- Janesick , V.J. (1993): Stretching Exercises for Cultivative researches, Sage Publications.
- Mienert, C.L. (1986): Clinical Trials: Design, conduct and Analysis, oxford, New York
- Schlessetman, J.J. (1982): Case control studies: Design Conduct and Analysis. Oxford New York.
- Bryman, A. and Crame: D (1994) Quantitative Data Analysis for Social Scientists.
- Bryman, A. and Crame: D (1996) Quantitative Data analysis with Minitabs, Rutledge, London.
- Cameron, M.E. and van Staveren, W.A. (1988): Manual on Methodology for Food consumption Studies, Oxford University Press Oxford.
- Quandt. S.A. and Ritenbaugh, S. (1986): Training Manual in Nutritional Anthropology American Association of Anthropology, Washington, D.C.

PART – D Assessment and Evaluation

Suggested Continuous Evaluation Methods:
Maximum Marks: 100 Marks
Continuous Internal Assessment (CIA):30 Marks
End Semester Examination (ESE): 70 Marks

Continuous Internal Assessment (CIA): (By Course Teacher)	Internal Test / Quiz (02): 20 & 20 Assessment / Seminar: 10 Total Marks: 30	Better marks of the two Test / Quiz + obtained marks in Assignment shell be considered against 30 Marks
End Semester Examination (ESE)	**Two section – A & B** **Section A:** Q1. Objective – 10 x 01 = 10 Marks Q2. Short answer type – 05 x 04 = 20 Marks **Section B:** Descriptive answer type questions 01 out of 02 from each unit – 04 x 10 = 40 Marks	

TWO YEAR POSTGRADUATE PROGRAM (2025-26)

DEPARTMENT OF HOME SCIENCE

COURSE CURRICULUM

PART – A	**Introduction**		
PROGRAM: M.Sc. Food & Nutrition *(Post Graduation)*		**Semester – III**	**Session – 2025-26**
1.	**Course Code**	**MFNC-03P**	
2.	**Course Title**	**PRACTICAL: FOOD MICROBIOLOGY**	
3.	**Course Type**	Post graduation	
4.	**Pre – requisite (if, any)**	*As per Program*	
5.	**Course Learning Outcome (CLO)**	• **Demonstrate Laboratory Safety and Hygiene Practices** Follow standard microbiological safety protocols, aseptic techniques, and waste disposal procedures in the lab. • **Perform Microbial Staining Techniques** Conduct simple staining, Gram staining, and identify bacterial cell morphology under a microscope. • **Enumerate Microorganisms in Food Samples** Estimate total viable counts (TVC), yeast & mold counts, and coliform counts in different food products. • **Preparation of slide media.**	
6.	**Credit Value**	04 Credit	Credit = 15 Hours – Learning & Observation
7.	**Total Marks**	Maximum Mark: 100	Minimum Passing Marks: 40

PART – B	**Content of the Course**	
Total No. of Teaching – Learning Periods (01 Hour Per Period) – 60 Periods (60 Hours)		
Module/Unit	**Topics (Course Contents)**	**No. of Period**
I	Preparation of common laboratory media and special media for cultivation of bacteria, yeast and moulds.	15
II	Staining of bacteria- grams staining, spore, capsule, motility of bacteria, staining of yeast and moulds.	15
III	Identification of important moulds and yeasts (slides).	15
IV	Visits to food processing units or any other organization dealing with advance methods in food microbiology	15

PART – C Learning Resources: Textbooks, Reference Books & Others

- Scrimshaw, N.S. and Gleason, G.R. (1992) Assessment Procedures. Qualitative Methodologies for Planning and Evaluation of Health related Programmes. International Nutrition foundation for Developing Countries, Boston.
- Van Maanen (1983)" Quantitative Methodology, Sage Publication.
- Cook, T.D. and Richard, C.S. (1979): Qualitative Methods in Evaluation Research, Sage Publications, and London.
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- Hunter, J.E. and Shmidt (1990): Methods of Meta- analysis- Correcting Error and Blas in Research Findinge, sage Publications London.

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PART – D Assessment and Evaluation

Suggested Continuous Evaluation Methods:

Maximum Marks: 100 Marks

Continuous Internal Assessment (CIA):30 Marks

End Semester Examination (ESE): 70 Marks

TWO YEAR POSTGRADUATE PROGRAM (2025-26)
DEPARTMENT OF HOME SCIENCE
COURSE CURRICULUM

PART – A	**Introduction**		
PROGRAM: M.Sc. Food & Nutrition *(Post Graduation)*		**Semester – III**	**Session – 2025-26**
1.	**Course Code**	**MFNE-07T**	
2.	**Course Title**	**ADVANCED NUTRITION**	
3.	**Course Type**	Post graduation	
4.	**Pre – requisite (if, any)**	*As per Program*	
5.	**Course Learning Outcome (CLO)**	• Explain the Biochemical Role of Nutrients • Evaluate the Safety and Efficacy of Nutritional Supplements • Promote Evidence-Based Nutrition Education • Effectively communicate nutritional science principles to individuals and communities for health promotion and disease prevention.	
6.	**Credit Value**	04 Credit	Credit = 15 Hours – Learning & Observation
7.	**Total Marks**	Maximum Mark: 100	Minimum Passing Marks: 40

PART – B	**Content of the Course**	
Total No. of Teaching – Learning Periods (01 Hour Per Period) – 60 Periods (60 Hours)		
Module/Unit	**Topics (Course Contents)**	**No. of Period**
I	**Energy:** Energy content of foods. Physiological fuel value review. Measurement of Energy Expenditure: BMR, Methods of measurement of basal metabolism. Estimating energy requirements of individuals. Regulation of energy metabolism: control of food intake, digestion, absorption and body weight. **Carbohydrates:** Types, classification, digestion and transport- review, dietary fibre, fructoligosaccharides, resistant starch- chemical composition and physiological effects Glycaemic index of foods. Sweeteners nutritive and non-nutritive.	15
II	**Proteins:** Classification, digestion, absorption and transport- review. Metabolism of proteins: Role of muscle, liver and gastro intestinal tract.in protein metabolism. Protein quality, methods of evaluating protein quality. Protein and amino acid requirements. Therapeutic applications of specific amino acid. **Lipids:** Classification digestion, absorption, transport- review – Functions of fat E.F.A. Role of n-3 n-6 fatty acids in health and disease. Requirements of total fat and fatty acids. Trans fatty acids, prostaglandins, phospholipids, cholesterol.	15
III	**Water:** Regulation of intra and extra cellular volume Osmolality, water balance and its regulation. **Minerals:** (Note: For each nutrient sources, bio-availability, metabolism, function, requirements, RDA, deficiency and toxicity, interactions with other nutrients are to be discussed) **Macro minerals:** calcium, phosphorus, magnesium, sodium, potassium and chloride. **Micro minerals:** Iron, copper, zinc, manganese, iodine, fluoride. **Trace minerals:** Selenium cobalt, chromium, Cadmium, silicon, boron, nickel.	15

IV	**Vitamins:** Historical background, structure, food sources, absorption and transport metabolism biochemical function, and assessment of status. Interactions with other nutrients. Physiological, pharmacological and therapeutic effects, toxicity and deficiency with respect to the following. Fat soluble Vitamins A,D,E, & K Water Soluble: thiamine riboflavin, niacin, biotin, pyridoxine, folic acid, pantothenic acid, ascorbic acid, cyanocobalamin, choline, inositol, ascorbic acid.	15

PART – C Learning Resources: Textbooks, Reference Books & Others

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- Bryman, A. and Crame: D (1996) Quantitative Data analysis with Minitabs, Rutledge, London.
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- Quandt. S.A. and Ritenbaugh, S. (1986): Training Manual in Nutritional Anthropology American Association of Anthropology, Washington, D.C.

PART – D Assessment and Evaluation

Suggested Continuous Evaluation Methods:
Maximum Marks: 100 Marks
Continuous Internal Assessment (CIA):30 Marks
End Semester Examination (ESE): 70 Marks

Continuous Internal Assessment (CIA): (By Course Teacher)	Internal Test / Quiz (02): 20 & 20 Assessment / Seminar: 10 Total Marks: 30	Better marks of the two Test / Quiz + obtained marks in Assignment shell be considered against 30 Marks
End Semester Examination (ESE)	**Two section – A & B** **Section A:** Q1. Objective – 10 x 01 = 10 Marks Q2. Short answer type – 05 x 04 = 20 Marks **Section B:** Descriptive answer type questions 01 out of 02 from each unit – 04 x 10 = 40 Marks	

Part - A			
PROGRAM: M.Sc. Food & Nutrition *(Post Graduation)*		**Semester – III**	**Session – 2025-26**
1.	**Course Code**	**MFNE-08T**	
2.	**Course Title**	**INSTITUTIONAL MANAGEMENT**	
3.	**Course Type**	Post graduation	
4.	**Pre – requisite (if, any)**	*As per Program*	
5.	**Course Learning Outcome (CLO)**	• Understand the principles and functions of institutional food service management. • Plan and organize efficient food service operations in various institutional settings (e.g., hospitals, hostels, schools, industrial canteens). • Demonstrate the ability to prepare and manage budgets, cost control, and inventory in food service institutions. • Design menus based on nutritional needs, institutional constraints, and cost-effectiveness. • Evaluate the roles and responsibilities of personnel in institutional food services and apply human resource management principles. • Develop skills in leadership, communication, and teamwork for managing institutional operations. • Analyze layout, workflow, and equipment planning for institutional kitchens and service areas.waste management in large-scale food service operations.	
6.	**Credit Value**	04 Credit	Credit = 15 Hours – Learning & Observation
7.	**Total Marks**	Maximum Mark: 100	Minimum Passing Marks: 40

Part -B **Content of course**

PAPER -IV , INSTITUTIONAL MANAGEMENT

UNIT	SUBJECT	HOURS
I	• Definition & Principle of INSTITUTIONAL MANAGEMENT Development and scope of food service History of Food Service. • Food & Economics Money. Organization and Management of food services: Personnel Management. Selection training. Supervision labor laws. Organization of work, space, time tables and work simplification.	**15**
II	• **Quantity Cookery:** o Purchase, Selection. Storage and handling of food in relation to cost and food value. o Food preparation and different types of service of meals shacks. Drink etc. and their evaluation. • Meal planning or various institutions taking into account regional food habits. • Comparative study of different food groups.	**15**
III	• **Food service planning:** • Selection of furnishings and equipment for institution kitchens and dining rooms.	**15**

	• Sanitation and cleaning • Differences in organization and management problems of hostels, annapurnas cafeteria. Hospital. School Lunch Program with reference to foodservices. •	
IV	• **Accounting procedure and cost control:** • Total budget and its distribution. • Record keeping and accounting. • Selling price and total incomes. • Profit, loss and balance sheet.	**15**

PART – D Assessment and Evaluation

Suggested Continuous Evaluation Methods:
Maximum Marks: 100 Marks
Continuous Internal Assessment (CIA):30 Marks
End Semester Examination (ESE): 70 Marks

Continuous Internal Assessment (CIA): (By Course Teacher)	Internal Test / Quiz (02): 20 & 20 Assessment / Seminar: 10 Total Marks: 30	Better marks of the two Test / Quiz + obtained marks in Assignment shell be considered against 30 Marks
End Semester Examination (ESE)	**Two section – A & B** **Section A:** Q1. Objective – 10 x 01 = 10 Marks Q2. Short answer type – 05 x 04 = 20 Marks **Section B:** Descriptive answer type questions 01 out of 02 from each unit – 04 x 10 = 40 Marks	

PRACTICAL

INSTITUTIONAL MANAGEMENT

Max. Marks : 100

1. Practical work at least in one institution related to the above topics.
2. Field trips/visit.
3. Management of a canteen in your institution.
4. Internship Program – 20 days in any 200 Bedded Hospital.

TWO YEAR POSTGRADUATE PROGRAM (2025-26)

DEPARTMENT OF HOME SCIENCE

COURSE CURRICULUM

PART – A	**Introduction**		
PROGRAM: M.Sc. Food & Nutrition *(Post Graduation)*		**Semester – III**	**Session – 2025-26**
1.	**Course Code**	**MFNE-09T**	
2.	**Course Title**	**NUTRITION FOR HEALTH OF WOMEN AND CHILDREN**	
3.	**Course Type**	Post graduation	
4.	**Pre – requisite (if, any)**	*As per Program*	
5.	**Course Learning Outcome (CLO)**	• **Understand Nutritional Needs Across the Female Life Cycle** Describe the specific nutritional requirements of girls and women during adolescence, reproductive age, pregnancy, lactation, and menopause. • **Explain the Role of Nutrition in Maternal and Child Health** Analyze the impact of maternal nutrition on pregnancy outcomes, fetal development, and infant health. • **Understand Infant and Young Child Feeding (IYCF) Practices** •	
6.	**Credit Value**	04 Credit	Credit = 15 Hours – Learning & Observation
7.	**Total Marks**	Maximum Mark: 100	Minimum Passing Marks: 40

PART – B	**Content of the Course**	
Total No. of Teaching – Learning Periods (01 Hour Per Period) – 60 Periods (60 Hours)		
Module/Unit	**Topics (Course Contents)**	**No. of Period**
I	Role of women in national development. Women in family and community: Demographic changes menarche, marriage, fertility, morbidity, mortality, life expectancy, sex ratio, aging, widowhood. Women in society: Women's role, their resources, and contribution to family, and effect of nutritional status. Policies and programs for promoting maternal and child nutrition and health. Concept of small family. Methods of family planning-Merits and demerits	15
II	Women and health: Health facilities. Disease pattern and reproductive health. Importance of nutrition prior to and during pregnancy- Prerequisites for successful outcome. Effect of under nutrition on mother and child including. pregnancy outcome and maternal and child health- Short term and long term effect. Physiology and endocrinology of pregnancy, embryonic and foetal growth and development. Nutritional requirements during pregnancy: Adolescent pregnancy, pregnancy and T.B., TUGR, gestational diabetes.	15
III	Lactation- Development of memory tissue and role of hormones- Physiology and endocrinology of lactation. Synthesis of milk component, let down reflex, role of	15

	hormones. Locational amenorrhea, effect of breast feeding on maternal health. Human milk composition and factors affecting breast feeding. Human milk banking. Management of lactation: Prenatal breast feeding, skill education. Rooming in problems – Sore nipples, engorged breast, inverted breast. Exclusive breast feeding.	
IV	Infant physiology: Preterm and low birth weight infant- Implication for feeding and management. Growth and development during infancy, childhood and adolescents. Feeding of infants and children and dietary management. Malnutrition- Etiology and management.	15

PART – C Learning Resources: Textbooks, Reference Books & Others

- L.K. & Ecott Stump, S.(2000), Krause's Food Nutrition and Diet Whitney, E.N. & rolfes, S.R. (1999);
- Understanding Nutrition, Sizer, F & Whitney , E. (2000);
- Nutrition Concepts & Controversies. 8th Edition.
- Human Nutrition – Geissler & Powers, 11th edition, Elsevier Publications

PART – D Assessment and Evaluation

Suggested Continuous Evaluation Methods:
Maximum Marks: 100 Marks
Continuous Internal Assessment (CIA):30 Marks
End Semester Examination (ESE): 70 Marks

Continuous Internal Assessment (CIA): (By Course Teacher)	Internal Test / Quiz (02): 20 & 20 Assessment / Seminar: 10 Total Marks: 30	Better marks of the two Test / Quiz + obtained marks in Assignment shell be considered against 30 Marks
End Semester Examination (ESE)	**Two section – A & B** **Section A:** Q1. Objective – 10 x 01 = 10 Marks Q2. Short answer type – 05 x 04 = 20 Marks **Section B:** Descriptive answer type questions 01 out of 02 from each unit – 04 x 10 = 40 Marks	

TWO YEAR POSTGRADUATE PROGRAM (2025-26)

DEPARTMENT OF HOME SCIENCE

COURSE CURRICULUM

PART – A	**Introduction**		
PROGRAM: M.Sc. Food & Nutrition *(Post Graduation)*		**Semester – III**	**Session – 2025-26**
1.	**Course Code**	**MFNE-10T**	
2.	**Course Title**	**NUTRIENT DEFICIENCIES, ASSESSMENT AND PREVENTION**	
3.	**Course Type**	Post-graduation	
4.	**Pre – requisite (if, any)**	*As per Program*	
5.	**Course Learning Outcome (CLO)**	• **Understand and Recognize Clinical Signs and Symptoms** o Detect and describe physical and clinical manifestations of common nutrient deficiencies. • **Assess Nutritional Status Using Standard Methods** • Apply anthropometric, biochemical, clinical, and dietary methods. • **Interpret Public Health Nutrition Data** • Analyse national and international data on • **Design and Conduct Dietary Surveys** • **Recommend Preventive and Corrective strategies** • **Develop Community-Based Nutritional Plans**	
6.	**Credit Value**	04 CREDIT	Credit = 15 Hours – Learning & Observation
7.	**Total Marks**	Maximum Mark: 100	Minimum Passing Marks: 40

PART – B	**Content of the Course**	
Module/Unit	**Topics (Course Contents)**	15
I	**Introduction to Nutrient Deficiencies** • Definition and classification of nutrient deficiencies: primary vs secondary.. • Global and national prevalence of nutrient deficiencies (data from WHO, NFHS, UNICEF, etc.). • **Micronutrient Deficiencies** **Iron Deficiency Anaemia:** Causes, symptoms, stages, assessment (clinical, biochemical, dietary), prevention, and control. **Vitamin A Deficiency (VAD):** Xerophthalmia stages, assessment (Bitot's spot, serum retinol), and prevention strategies. **Iodine Deficiency Disorders (IDD):**Goiter, cretinism, sources of iodine, and impact of deficiency on growth and development. **Zinc, Vitamin D, Calcium, B-complex Vitamins Deficiency** Clinical manifestations, high-risk groups, assessment, and management. •	15
II	**Macronutrient Deficiencies** • **Protein-Energy Malnutrition (PEM):** o Types: Marasmus, Kwashiorkor, and Mixed forms. o Clinical features, biochemical changes, and management. • **Energy deficiency in adults:** Chronic Energy Deficiency (CED), its assessment and consequences. • Public health implications and dietary interventions.	15

III	**Assessment of Nutritional Status** • **Anthropometric Methods:** • Techniques: height, weight, MUAC, BMI, skinfold thickness. • WHO child growth standards, interpretation, and classification. • **Biochemical Assessments:** • Blood, urine, and other sample analysis for nutrients (iron, vitamin A, iodine, etc.). • **Clinical Assessment:** • Identification of physical signs and symptoms of nutrient deficiencies. • **Dietary Assessment Methods:** • 24-hour recall, food frequency questionnaire (FFQ), diet history, and food diary. • Strengths and limitations of each method.	15
IV	**Strategies for Prevention and Control** • Food-based approaches: dietary diversification, fortification, supplementation. • Government programs and interventions: • ICDS, Mid-Day Meal Scheme, Anaemia Mukt Bharat, Vitamin A prophylaxis, Salt iodization program, POSHAN Abhiyaan. • Community-based assessment and intervention planning.	

PART – C Learning Resources: Textbooks, Reference Books & Others

- WHO/UNICEF/FAO Reports on Micronutrient Deficiencies
- Indian Council of Medical Research (ICMR) Guidelines
- Swaminathan M – *Advanced Textbook on Food and Nutrition*
- Gopalan et al. – *Nutritive Value of Indian Foods*
- Shils ME, Shike M – *Modern Nutrition in Health and Disease*
- Textbooks of Clinical Nutrition and Community Nutrition
- Hawk, P.B., Oser, B.K. and Summerson, W.H. Practical Psysiological Chemistry. Tata McGraw Hill.
- Varley, H. Practical Clinical Biochemistry. The English language Book Society.
- Manual of Laboratory Techniques. National Institute of Nutrition, Hyderabad.

PART – D Assessment and Evaluation

Suggested Continuous Evaluation Methods:
Maximum Marks: 100 Marks
Continuous Internal Assessment (CIA):30 Marks
End Semester Examination (ESE): 70 Marks

Continuous Internal Assessment (CIA): (By Course Teacher)	Internal Test / Quiz (02): 20 & 20 Assessment / Seminar: 10 Total Marks: 30	Better marks of the two Test / Quiz + obtained marks in Assignment shell be considered against 30 Marks
End Semester Examination (ESE)	**Two section – A & B** **Section A:** Q1. Objective – 10 x 01 = 10 Marks Q2. Short answer type – 05 x 04 = 20 Marks **Section B:** Descriptive answer type questions 01 out of 02 from each unit – 04 x 10 = 40 Marks	

TWO YEAR POSTGRADUATE PROGRAM (2025-26)

DEPARTMENT OF HOME SCIENCE

Fourth Semester

PART – A	**Introduction**		
PROGRAM: M.Sc. Food & Nutrition *(Post Graduation)*		**Semester – IV**	**Session – 2025-26**
1.	**Course Code**	**MFNC-04 P**	
2.	**Course Title**	**RESEARCH WORK AND DISSERTATION**	
3.	**Course Type**	Post graduation	
4.	**Pre – requisite (if, any)**	*As per Program*	
5.	**Course Learning Outcome (CLO)**	Define a relevant research question based on current issues, gaps, or innovations in Food and Nutrition. • Identify knowledge gaps and justify the significance of the proposed study. • Design experiments using appropriate **sampling**, **tools**, and **statistical techniques**. • Apply data collection methods (e.g., surveys, anthropometry, biochemical tests) accurately. • Write a structured research dissertation including introduction, methodology, results, discussion, and references. • Use proper citation and referencing styles to avoid plagiarism. • Develop **tables, charts, and visual data representations** effectively. • Prepare and deliver **oral presentations**, defend research methodology, and answer questions in a viva voce. • Translate findings into scientific posters, reports, or **publication-ready manuscripts**	
6.	**Credit Value**	20 Credit	Credit = 15 Hours – Learning & Observation
7.	**Total Marks**	Maximum Mark: 500	Minimum Passing Marks: 200

PART – B	**Content of the Course**	
Total No. of Teaching – Learning Periods (01 Hour Per Period) – 90 Periods (90Hours)		
Module/Unit	**Topics (Course Contents)**	**No. of Period**
I	**Introduction to Research** • Meaning, objectives, and significance of research • Research methods versus research methodology • Types of research: exploratory, descriptive, analytical, experimental • Selection of research problem. • Overview of the research process and formulation of a research problem . **Research Design & Hypothesis Development** • Features of a sound research design and its types (experimental, cross-sectional, clinical trials, pilot studies). • Justification, assumptions, limitations, delimitations • Hypothesis formation and testing framework.	

II	**Sampling Techniques and Data collection**
	• sample survey
	  • Probability (e.g. stratified, random) and non-probability sampling methods
	  • Sample size determination and power analysis
	  • Sampling errors and their reduction strategies
	  • Tools: questionnaires, interviews, case studies, schedules, scaling techniques
	  • Handling and cleaning data: editing, coding, validity & reliability of instruments
	  • Sources and precautions with primary and secondary data
	  • Tools: questionnaires, interviews, case studies, schedules, scaling techniques
	  • Handling and cleaning data: editing, coding, validity & reliability of instruments
	  • Sources and precautions with primary and secondary data	

III	**Review of literature and** Report Writing • Layout and formatting of research reports/theses, including bibliography, citation style • Mechanisms of writing, foot-notes, appendices • Ethics and guidelines **Probability & Statistical Testing** • Probability principles • Key distributions: normal, binomial, Poisson • Tests of significance: t-test, Chi-square, F-test, ANOVA (one-way/two-way)	
IV	**DESERTATION, CONCLUSION AND VIVA VOICE**	

PART – D Assessment and Evaluation

Suggested Continuous Evaluation Methods:
Maximum Marks: 500 Marks
Continuous Internal Assessment (CIA): 150 Marks
End Semester Examination (ESE): 350 Marks