SYLLABUS FOR M.Sc. HOME SCIENCE (FOOD AND NUTRITION)

1. HUMAN PHYSIOLOGY- Blood and circulatory system, digestive system, Respiratory system, Excretory system, endocrine system, nervous system, Sense organs, Reproductive system, Immunology, Skeletal and muscular system

2. MEDICAL NUTRITION THERAPY

Diet during fevers, Diseases of GIT, Kidney and Liver diseases, Metabolic disorders, NCDs, Genetics conditions, Cancers, In allergies, HIV/AIDS

3. FOOD MICROBIOLOGY AND SANITATION

Fundamentals Of Microbiology - Bacteria, Yeasts, Moulds-morphology, reproduction physiology , significance in foods, microbial contamination of foods, uses in the food industry, prebiotics, probiotics, Quality control of foods, GMP

3. RESEARCH METHODOLOGY & STATISTICAL TOOLS

Significance of research. Types of research, criteria of good research, Selection of research problem, Development of hypothesis and its significance, hypothesis testing, Variables – types and characteristics, review of Literature, Research Design, Methods and tools of Data Collection –Interview, Case study, Survey, Scaling methods, Schedules and questionnaires, Reliability and validity of measuring instruments, Sampling Design-Population and sample, Steps in Sample Design, Criteria for selecting a sampling procedure, Different types of sampling techniques – probability sampling and non-probability sampling. Merits and demerits of sampling, Organisation, Analysis and interpretation of Data, Ethics in Research in Home Science, Academic scientific writing, Measures of central tendency and dispersion, Parametric and non-parametric tests, Normal Distribution and its Properties, Large and Small Sample tests and interpretation, Z-test, 't' test, paired 't' test, 'F' Test, Chi square test, Correlation and Regression, Analysis of Variance and its interpretation

4. FOOD SCIENCE

Physiochemical Changes in foods- changes in carbohydrates, proteins, fats during cooking

Processing methods in Milk and milk products- homogenization, pasteurization. cheese making –Pulses and legumes processing- germination, fermentation. Vegetable and fruits cookery, Food preservation, Sensory Evaluation of foods

5. NUTRITION THROUGH LIFE CYCLE

Indian RDA, compared to WHO/FAO/US/UK standards, nutritional needs during infancy, for preschool children, for school going child, during adolescence, adulthood, old age, pregnancy and lactation

6. FOOD TECHNOLOGY

Processing Technology related to Cereals, millets, Pulses, Meat, Fish and Poultry, Dairy products, oil seeds, beverages, Nutrigenomics, Nutraceuticals, Xenobiotics, Nano Technology

in Foods, Single cell protein, Novel proteins, Post-harvest technology Packaging Technology

7. FOOD SAFETY AND QUALITY ASSURANCE

Food Laws and Regulations, FSSAI, BIS,PFA, AGMARK, ISI, ISO, CODEX, HACCP, GAP,TQM, GHP, Toxins in food- Naturally present, environmental contaminants, processing contaminants

8. PUBLIC HEALTH NUTRITION

Public Health Problems -Grade of malnutrition, PEM, SAM, MAM, micronutrient deficiencies NCDs,

Incidence and prevalence of Communicable diseases – Tuberculosis, Cholera, Diarrhoea and AIDS, Economics of Nutrition, Assessment of nutritional status in Community settings, Food and nutrition security – Green, White and Blue revolution, Nutrition education, food fortification, food enrichment, Public Distribution System, Nutrition Intervention programmes - organised by the governmental and non- governmental agencies for the vulnerable sections of the population, ,Role of national and International Organizations to combat malnutrition

9. SPORTS NUTRITION

Energy pathways during exercise of various duration and intensity- aerobic, anaerobic, very short duration, long duration, endurance, fatigue, onset of fatigue, nutrition and fatigue

Endurance training and fatigue, Nutrient requirements during various sports, Ergogenic Aids Water requirements, loss of water and electrolytes during exercise, sports drinks, commonly seen nutritional problems in sports person, Sports anaemia, female athlete triad, RED S

10. NUTRITIONAL BIOCHEMISTRY

Carbohydrates– Structure, classification, properties and metabolism of CHO, Lipids- Structure classification, properties and metabolism, Proteins- Structure, classification, properties and metabolism of, Nucleic acids -Composition, functions and classification Isolation, structure and properties of DNA and RNA, Commonly used Techniques in biochemistry, role of macro and micronutrients in human health, energy measurement.