Objectives
This course will enable students

1. To understand the integrated functions of all systems in the science of physiology.
2. To understand the structure and functions in various organs and systems in relation to the disease conditions.
3. To understand the advance issues to the relevant topics of human physiology.

UNIT-I

   Tissues - Formation of tissues, organ and system, elementary tissues in Human body.

2. Musculoskeletal System: Types of muscles (Skeletal, smooth, and cardiac muscles) their properties, characteristics, structure and functions Fatigue, exercise mechanism of contraction.
   Structural and function of Bone, cartilage and connective tissue. Disorders of skeletal muscle.
UNIT-III

1. Circulatory system: Structure and functions of heart and blood vessels, cardiac output and blood pressure, cardiac cycle, Heart rate and heart sound conditions affecting the heart rate, Heart failure, Hypertension, Mechanism of cardiovascular system.


UNIT-IV


UNIT V

1. Endocrine glands: Structure, function, and classification according to chemical signals. Hormones, role of hormone, regulation of hormonal secretions, and its control, Disorders of endocrine glands.


References


Department of Higher Education, Govt. of M.P.
Semester wise syllabus for Postgraduates

As recommended by Central board of Studies and
Approved by HH the Governor of M.P.

M. Sc. (Home Science)
Food and Nutrition

SEMESTER-I
PAPER-II
Advanced Nutritional Biochemistry

Objectives:
1. Augment the Biochemistry knowledge acquired at the undergraduate level.
2. Understand the mechanisms adopted by the human body for regulation of
   metabolic pathways.
3. Get an insight into the interrelationship between various metabolic pathways.
4. Understand the relationship in a specialization in nutrition.
5. Understand integration of cellular level metabolic events to nutritional disease and
   imbalances.

UNIT-I
Protein: nature, properties and Synthesis, function and catabolism, synthesis and breakdown.

UNIT-II
Cellular metabolism as an overview and its regulation, equilibrium and Non-
equilibrium reactions, coenzyme systems, allosteric modification, covalent
modification, hormonal induction and repression, cross over theorems, enzyme feed
loop, coenzymes and vitamins

UNIT-III
1. Carbohydrates: glycolysis, gluconeogenesis, citric acid cycle, hexose
   monophosphate pathways and gluconeogenesis.

2. Lipids: Biosynthesis, de novo synthesis of fatty acids, Synthesis and
   breakdown of unsaturated fatty acids. Cholesterol, phospholipids and
   triacylglycerols significance.
UNIT-IV

Major alterations in protein, carbohydrates and fat metabolism and chronic nutritional related degenerative diseases e.g. diabetes and hypertension.


UNIT-V

Hormones: Mechanism of action. Negative feedback, hormone receptor, intracellular messenger.

Conversion of amino acids to specialized.
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M.Sc. (Home Science)
Food and Nutrition

SEMESTER-I

PAPER-III- Public Nutrition

Objectives

1. Develop a holistic knowledge base and understanding of public nutrition concept.
2. Understand the health economic, food situations and determinations of nutritional status.
3. Be familiar with various approaches to nutrition and health interventions, programmes and policies.

UNIT-I

1. Concept of Public Nutrition
2. Definition and concepts of health, Determinants of Health
3. Relationship with health and nutrition.
4. Role public nutritionists the health care delivery.

UNIT-II

1. Food and Nutrition security
   (a) Food production, Access, Distribution, Losses and consumption

7. Nutritional Status
   (a) Determinants of nutritional status
   (b) (i) Nutrition Indicators - Functional indicators such as grip strength, respiratory fitness, Harvard step test, squatting test
        (ii) Non- nutritional indicators of nutritional status (Sociocultural, Ethnologic, environmental and economic)
   (c) Monitoring & Evaluation

3. Health Economics and Economics of Malnutrition: its impact on productivity and national development
UNIT III

National Food and Nutrition Policy, Plan of Action
(a) Recent trend public relevant to nutrition - national and international organization of nutrition. Specific community nutrition programmes in India. Case studies of selected strategies and programmes.

UNIT IV

1. Approaches and strategies for improving nutritional status.
   (a) Programmable option: Health and nutrition based interventions, supplementary feeding, fortification and genetic improvement of foods.
   (b) Merits and demerits of these options.
   (c) Focus on feasibility of these programme i.e. political support. Available resources (human infrastructural, financial).

2. Programme Planning, implementation, operation, monitoring, surveillance and evaluation.

3. Nutrition Education
   (a) Definition, purpose, importance
   (b) Methods and tools
   (c) Channels of nutrition education
   (d) Evaluation of nutrition education

UNIT V

1. Public Health Administration
   (a) Central and state health organizations
   (b) Primary Health Care in India
      (i) Elements of Primary Health Care
      (ii) Principles of Primary Health Care
      (iii) Primary Health Care of village level sub centre level and primary health centre level, community health centres.
   (c) Health Care Systems.
References


3. SCN News; UNACC/SCN Subcommittee on Nutrition.

4. State of the World's Children. UNICEF.

5. Census Reports.


UNIT III

Sampling methods
- Population and sample
- Probability & semi probability sampling: simple random, systematic random sampling, two stages and multi stage sampling, cluster sampling.
- Non-Probability sampling: purposive, quota and volunteer sampling.
- Merits & Demerits Sampling.

UNIT - IV

Research Design
- Meaning, features concept & purpose of research design.

Qualitative research Methods
- Definition Theory design types reliability & validity of :
  (i) Case study
  (ii) Interview
  (iii) Observation

UNIT - V

Quantitative research method
- Definition theory design types reliability & validity of
  (i) Socio metric scale
  (ii) Questionnaire
  (iii) Schedule
- Writing a research report
Department of Higher Education
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Semester Wise Syllabus for Undergraduates
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FOOD & NUTRITION
M.Sc. - 1ST SEMESTER
COURSE-IV
RESEARCH METHODOLOGY

Objectives:
To understand the significance of statistics and research methodology in Home Science research.
To understand and apply the appropriate statistical techniques for the measurement and design.

Contents:

UNIT-1
- Research: Meaning, objectives and significance of research.
- Scientific methods, scientific approaches.
- Role of statistics and research in Home Science discipline.
- Types of Research: Historical, descriptive, experimental, case study, social research, observation research.

UNIT-II
- Definition and differentiation of Research Topic:
- Selection, justification, & limitation of research problem.
- Hypothesis - meaning, ideas, characteristics, types & functions of hypothesis.
- Variables: Meaning, nature, type & selection of variables.