

**Maulana Abul Kalam Azad University of Technology, West Bengal**  
*(Formerly West Bengal University of Technology)*  
**Syllabus for M. Sc. Dietetics & Nutrition**  
**(Effective for Academic Session 2018-2019)**

**Semester-III**

**MDN 301: DIETARY MANAGEMENT –II**

Renal disease-

- Nephritis  
Epidemiology, Pathophysiology, Cause and dietary management and critical care
- Glomerulitis  
Epidemiology, Pathophysiology, Cause and dietary management and critical care
- Renal failure  
Epidemiology, Pathophysiology, Cause and dietary management and critical care
- Kidney stone  
Epidemiology, Pathophysiology, Cause and dietary management and critical care
- Nephrolithiasis  
Epidemiology, Pathophysiology, Cause and dietary management and critical care
- Inborn error of metabolism-
  - Epidemiology, Pathophysiology, Cause and dietary management and critical care
  - Phenylketonuria  
Epidemiology, Pathophysiology, Cause and dietary management and critical care
  - Galactosemia  
Epidemiology, Pathophysiology, Cause and dietary management and critical care
- Glycogen storage disease  
Epidemiology, Pathophysiology, Cause and dietary management and critical care
  - Maple syrup urine disease  
Epidemiology, Pathophysiology, Cause & dietary management and critical care.
  - HIV  
Epidemiology, Pathophysiology, Cause and dietary management and critical care
  - Sepsis-  
Epidemiology, Pathophysiology, Cause and dietary management and critical care
  - Trauma-  
Epidemiology, Pathophysiology, Cause and dietary management and critical care
  - Burns-

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Epidemiology, Pathophysiology, Cause and dietary management and critical care

***Neural diseases***

- Parkinson disease  
Epidemiology, Pathophysiology, Cause & dietary management and critical care
- Alzheimer's disease  
Epidemiology, Pathophysiology, Cause & dietary management and critical care
- Angelman disease  
Epidemiology, Pathophysiology, Cause & dietary management and critical care
- Corea athotosis disease  
Epidemiology, Pathophysiology, Cause & dietary management and critical care
- Lafora disease  
Epidemiology, Pathophysiology, Cause & dietary management and critical care
- Huntington Core disease  
Epidemiology, Pathophysiology, Cause & dietary management and critical care
  
- Respiratory disease-  
Asthma-Epidemiology, Pathophysiology, Cause and dietary management and critical care
  
- Chronic obstructive pulmonary disease  
Epidemiology, Pathophysiology, Cause and dietary management and critical care
  
- Respiratory failure-Epidemiology, Pathophysiology, Cause & dietary management and critical care
- Tuberculosis-Epidemiology, Pathophysiology, Cause & dietary management and critical care

**References:**

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- Gibson SR. (2005). *Principles of Nutritional Assessment*. 2nd Edition. Oxford University press
- Joshi YK. *Basics of Clinical Nutrition*. 2nd Edition. Jaypee Brothers Medical Publishers.
- Lee RD & Neiman DC. (2009). *Nutritional Assessment*. 5th Edition. Brown & Benchmark.
- Mahan, L. K. and Escott Stump. S. (2016) *Krause's Food & Nutrition Therapy* 14th ed. Saunders-Elsevier
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**MDN 302 :RESEARCH METHODOLOGY**

**Course Learning Outcomes:**

Student will be able to -

1. Impart knowledge of scientific method, purpose and approaches to different research
2. Study the comparison and contrast quantitative and qualitative research
3. Demonstrate different research design and the research cycle
4. Gather knowledge on ethical principles, issues and procedures

**Content:**

**1. Types of research**

Historical

Descriptive, Experimental

Case study

Social research

Participatory research

**2. Definition & Identification of Research Problem**

Selection of research problem

Justification

Theory

Hypothesis

Basic assumption

Limitation & delimitation of the problems

Types of variables

**3. Theory of Probability**

Probability

Sampling

Simple Random Systematic, Random Sampling

Two stages & multistage sampling

Non-probability sampling : purpose

Quota & Volunteer Sampling/Screwball sampling

**4. Basic principle of research design**

Purpose of research design/fundamental

Applied & Action

Explanatory & descriptive

Experimental survey & case study

Longitudinal & Cross Sectional study

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Co-relational study

**5. Qualitative research in food and nutrition**

Type of quality of research  
Tools  
Techniques and methodology  
Rapid assessment procedure  
Project reorientation and  
evaluation

**6. Quantitative research method**

Theory and design in quantitative research  
Definition and quantitative research  
Methods and techniques of data collection  
Group discussion  
Interviews: key information, in depth interview  
Critical analysis of research  
Writing a research proposal  
Analysis of data and research report

**8. Ethics in research**

**MDN 303 : PAEDIATRIC ,GERIATRIC AND SPORTS NUTRITION**

**Course Learning Outcomes:**

Student will be able to -

1. Impart knowledge of physiological changes, nutritional requirements Socio-psychological aspects of ageing etc
2. Gather knowledge on sports nutrition

**Contents:**

**Paediatric Nutrition**

Pediatric nutrition assessment-Anthropometric measurements, Measuring ,recording and plotting growth,Normal nutrition for infants – requirements , importance of breast feeding ,bottle feeding , commercial formulas,weaning foods ,other family foods ,physiology and care of the preterm infant.Nutritional considerations for LBW children and children with development disabilities.Nutrition in childhood; Growth and development; nutrient needs,Assessment of nutritional status of children,Providing an adequate diet - Factors affecting food intake.Feeding the preschool child, the school- aged child.Childhood obesity; Underweight and Undernutrition- short term and long term consequences in brief, Failure to thrive;Growth faltering and detection Mineral and vitamin deficiencies,Dental caries,Allergies,Attention-deficit hyperactivity disorder

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**Geriatric Nutrition**

The ageing process-physiological, metabolic, body consumption changes and impact on health and nutritional status, Socio-psychological aspects of ageing-special problems of elderly women, Nutritional and health status of elderly. Factors influencing food and nutrient intake, health status including lifestyle pattern, medication, psychosocial aspect etc.

**Sports Nutrition:**

Sports Specific Nutrition & Clinical Sports Nutrition, Holistic approach to the management of fitness and health ,Muscle building, Micronutrient requirement, Fat burnners, Dehydration, Review of different energy system for endurance and power activity, nutrition in sports, Dietary supplements & Ergogenic Aids, Sports anaemia, Carbohydrates load etc.

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**Paper code: MDN 304**

**HEALTH INFORMATION MANAGEMENT AND DECISION MAKING**

**Course Learning Outcomes:**

Student will be able to -

1. Gather knowledge of scientific method, purpose and approaches to different research
2. Observe the comparison and contrast quantitative and qualitative research
3. Present different research design and the research cycle

**Contents:**

Unit 1

- Introduction to Health Information System: Objectives, Concept of Data & Information, Source of Health Information, Importance in Research.
- Electronic Medical Records and its Importance, Data Standards in Public Health
- System Concept, Components of a system, Components of a data Communication system Interfaces & boundaries, Environment of a system, Types of Systems, System Software & Application Software
- Data communication & Networking , Need for Computer Networking, Types of networks: LAN, MAN , WAN; Application of networking in public health

Unit 2:

- Decision Support System (DSS ), Definition, Relationship with MIS , Evolution of DSS, Characteristics, Classification, Objectives, Components, Applications of DSS.

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- Database Management System (DBMS): Need for using DBMS, Concept of tables, records, attributes.
- SQL, Outsourcing: Concept of BPO, KPO

Unit 3:

- Data Warehousing and Data Mining: Concepts of Data warehousing, data mart, meta data, multi-dimensional modelling
  - Online Analytical Processing (OLAP), Online Transaction Processing (OLTP)
- Basics of Computer: Components of computer, Knowledge about computer softwares & programmes commonly used in health care sector
- Emerging communications technology in Public Health practice

**References:**

Data Management Soft Ware's – Galgotia  
Bharat, Bhaskar : Electronic Commerce – Technologies & Applications. TMH  
Forouzan : Data Communication & Networking, TMH  
Joseph, P.T.: E-Commerce An Indian Perspective  
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Management Information Systems, O'Brien, TMH  
Management Information Systems, Arora & Bhatia, EXCEL BOOKS

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**MDN 305**  
**FOOD TECHNOLOGY AND QUALITY**  
**CONTROL**

**Course Learning Outcomes:**

1. The course intends to provide knowledge of cereals and animal food processing.
2. Students will learn the processes and ingredients involved in breads, cakes and biscuit processing industry.
3. The course will train students to analyse all quality aspects of cereals and animal foods.
4. Students will gain knowledge of methods of preservation of meat, fish and poultry along with value added products from meat industry.

**Contents:**

**Cereal and cereal products technology**

**Cereals:** Wheat, rice, maize, barely, oat, rye- Structure, cultivation, harvesting, properties, composition and commercial value.

**Milling process:** Complete milling process, break rolls, reduction rolls, milled products and their nutritive value and applications.

**Baking technology:** Bread, biscuits/ Cookies and cake, Principles of baking, Ingredients and their functions, methods of preparation, in- process control, faults, causes and remedies, methods of leavening: physical, biological and chemical, scoring of quality parameters.

**Meat, fish, poultry, egg and its products technology**

**Meat:** Composition, variety, slaughtering and related practices, pre- slaughter handling, grading, ageing, curing, smoking and tenderizing of meat, meat pigments and colour changes, cooking, storage, methods of preservation for value addition and spoilage.

**Poultry:** Production considerations, Processing plant operations (slaughter and bleeding, scalding, defeathering, eviscerating, chilling and packaging), cooking, tenderness, flavour and colour changes.

**Eggs:** Composition, quality factors, storage, bacterial infection and pasteurization, freezing, drying and egg substitutes.

**Fish:** Composition, onboard handling & preservation, drying and dehydration, salt curing, smoking, marinades, fermented products, canning, Modified Atmosphere Packaging, and quality factors.

Public health hazards due to microbial contamination of foods: Important food borne infections and intoxications due to bacteria, moulds, viruses (*Salmonella typhi*, *Helicobacter pylori*, *Campylobacter jejuni*, *Yersinia enterocolitica*, *Bacillus cereus*,



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*Staphylococcus aureus, Clostridium botulinum, Escherichia coli, Mycotoxins, Hepatitis A virus & Rota virus*)- Symptoms, mode of transmission and methods of prevention. Risk management; Quality Control; TQM, GMP, HACCP.

**Practical:**

**MDN 391: THERAPEUTIC DIET**

**CHART PREPARATION**

**1. Renal disease**

Therapeutic diet chart preparation for Nephritis, case specific

1.2 Therapeutic diet chart preparation for Glomerulitis, case specific

1.3 Therapeutic diet chart preparation for Renal failure, case specific

1.4 Therapeutic diet chart preparation for Kidney stone, case

specific 1.5 Therapeutic diet chart preparation for

Nephrolithiasis, case specific

**2. Respiratory disease**

Therapeutic diet chart preparation for Asthma, case specific

Therapeutic diet chart preparation for Chronic obstructive pulmonary disease, case specific

Therapeutic diet chart preparation for Respiratory failure, case specific

Therapeutic diet chart preparation for Tuberculosis, case specific 3.0

Therapeutic diet chart preparation for Inborn error of metabolism, case specific

Therapeutic diet chart preparation for HIV, case specific

Therapeutic diet chart preparation for Sepsis, case specific

Therapeutic diet chart preparation for Trauma, case specific

Therapeutic diet chart preparation for Burns, case specific

Therapeutic diet chart preparation for Phenyl ketonuria, case specific

Therapeutic diet chart preparation for Galactosemia, case specific

Therapeutic diet chart preparation for Glycogen storage disease, case specific

Therapeutic diet chart preparation for Maple syrup urine disease, case specific

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**MDN 381: RESEARCH PROJECT**

Each student will undertake a research project 6 Hrs per week. The students will be guided and supervised by a member of the teaching faculty of the concerned department.