



AMRITA
VISHWA VIDYAPEETHAM

CURRICULUM

B.Sc. Nutrition (with Clinical Dietetics and Public Health Nutrition)

Under

AMRITA SCHOOL OF MEDICINE

Amrita Centre for Allied Health Sciences

FACULTY

CHARU DUA

Charu Dua
Head Clinical nutrition
& dietetics

1 Bachelor of Science in Nutrition

2 (with clinical Dietetics and Public Health Nutrition)

Program: B.Sc. in Nutrition, Clinical Dietetics, and Public Health Nutrition

Introduction

The integrated B.Sc. program in Nutrition, Clinical Dietetics, and Public Health Nutrition is designed to equip students with a comprehensive understanding of nutrition science, clinical dietetics, and public health strategies. This four-year program combines the principles and practices from the fields of, Nutrition, Dietetics, and Public Health to develop professionals who can contribute effectively to community health, clinical settings. This comprehensive course includes an internship and directly qualifies graduates to practice as dietitians without the need for further admissions.

Program Objectives

The primary goal of this program is to develop a cadre of professionals equipped to serve as dietitians, nutrition consultants, and public health nutritionists. The curriculum is designed to provide an in-depth understanding of diet, nutrition, and food nutrients, alongside insights into the microbiology of food essential for maintaining a healthy lifestyle.

- To provide an in-depth understanding of nutrition science and its application in clinical and public health settings.
- To develop skills in diet therapy, food service management, and nutrition education.
- To train students to engage in community outreach and health promotion activities.
- To prepare students for leadership roles in public health nutrition programs and clinical dietetic practices.
- To enhance students' research capabilities and critical thinking skills.


Infrastructure

Our institution features state-of-the-art facilities, including modern classrooms, fully-equipped nutrition labs, a simulation center, and a well-stocked library. Students also have access to computer labs with specialized software, collaborative spaces, and areas for seminars and workshops.

Uniqueness of the Course

This program uniquely integrates clinical nutrition, dietetics, and public health, offering a holistic education. Unlike other universities, our course begins hands-on internship experience from day one, allowing students to apply theoretical knowledge in real-world settings immediately. This dual approach of simultaneous theory and practice ensures comprehensive learning.

Being part of a medical college, students gain the added advantage of a clinical environment, enhancing their practical skills. The course structure ensures students meet the minimum four-year study and internship re-


Chasmi Dha
HOD - Clinical nutrition
& Dietetics

quirement to practice as dietitians in healthcare, unlike standard B.Sc. Nutrition programs that lack this provision. Our program is a complete package, enabling graduates to start their careers as dietitians or pursue post-graduate studies.

Program Structure

The program is structured into eight semesters over four years, combining core courses, elective courses, and practical experiences. The curriculum includes a mix of theoretical knowledge, laboratory work, field studies, internships, and community projects.

- Duration: 4 years
- Internship: Included in the program, mandatory for hands-on experience
- Eligibility for Practice: Graduates are immediately eligible to practice as dietitians

Learning Outcomes

- Graduates of this program will be able to:
- Comprehend the principles of human physiology and biochemistry for understanding human diseases and their management.
- Demonstrate comprehensive knowledge in nutrition science, dietetics, and public health.
- Apply medical nutrition therapy principles in clinical settings.
- Acquire knowledge on nutritional programs and policies of the government.
- Acquire knowledge on nutrition programs in the country.
- Learn to design and implement public health nutrition programs and policies.
- Develop entrepreneurial skills in food and nutrition-related industries.
- Take roles in community and clinical nutrition settings.
- Acquire skills for the development of diet therapy and the establishment of food service units.
- Work as nutrition consultants and dietitians in hospitals and wellness centers.
- Acquire skills for development of diet therapy and establishment of food service units. Work as nutrition consultants and dieticians in hospitals and wellness centers.
- Graduates will be able to pursue higher education and research in clinical Nutrition.



Charice Dula
Head Clinical Nutrition
& Dietetics

A handwritten signature in black ink, consisting of several loops and a final flourish.

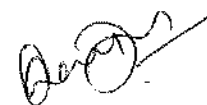
Charu Dna

HoD - Clinical nutrition
& Dietetics

Semester I & II

Thirteen subjects (common subjects) will be taught to all the students in 1st year irrespective of their course as given below. However one day in a week subject specialty courses will be taught by the department.

1	Anatomy
2	Physiology
3	Biochemistry
4	Microbiology
5	Pathology
6	Introduction of computer application
7	BMW management & environmental safety
8	English & communication soft skills
9	Quality Assurance & Accreditation
10	Health care delivery system
11	Medical Law and Ethics
12	Research and Biostatistics
13	Seminar/Symposium
14	SUBJECT Specific TOPIC : Fundamentals of Food and Nutrition Theory + Practical



Charue Dua

Head clinical nutrition
& Dietetics



Chaitin Dura

HOD - Clinical Nutrition
& Dietetics

SEMESTER III		SEMESTER IV	
1	Advance Nutrition	1	Community Health and Nutrition
	Advance Nutrition (Practical)		Community Health and Nutrition (Practical)
2	Nutrition Through Life Cycle	2	Basic Therapeutic Clinical Nutrition
	Nutrition Through Life Cycle - (Practical)		Basic Therapeutic Clinical Nutrition (Practical)
3	Fundamentals of Food Science	3	Research and Innovation catalyst - III
	Fundamentals of Food Science (Practical)		
SEMESTER V		SEMESTER VI	
1	Health Fitness and Sport	1	Advance Therapeutic Clinical Nutrition
	Health Fitness and Sport (Practical)		Advance Therapeutic Clinical Nutrition (Practical)
2	Food Service Management	2	Nutrition In Intensive Care (Theory)
	Food Service Management (Practical)		Nutrition In Intensive Care (Practical)
3	Instrumentation of food analysis	3	Management of Nutrition Related Disorders
	Instrumentation of food analysis (Practical)		Management of Nutrition Related Disorders (Practical)
SEMESTER VII		SEMESTER VIII	
1	Nutrition Communication and Counselling	1	Seminar and Scientific Writing
	Nutrition Communication and Counselling (Practical)		2 Internship
2	Institutional and Hospital Food Management		
	Institutional and Hospital Food Management (Practical)		
3	Policies and Programs in Public Health Nutrition (LIC)		
	Policies and Programs in Public Health Nutrition (Practical) (LIC)		




Charu Dua
Head Clinical nutrition
& Dietetics

A handwritten signature in black ink, consisting of several loops and a long horizontal stroke extending to the right.

Charu Dha
HCD - Clinical Nutrition
& Dietetics

Syllabus- Semester 1


Chairu Dua
Head clinical nutrition &
Dietetics

1. Fundamentals of Food and Nutrition (Theory)

Objectives:

- To recognize the functions of food for healthy life.
- To Understand different aspects of nutrients
- To formulate a balanced diet using different food groups and food pyramid
- Utilize the latest trends of nutrition in development of nutritional product.

2.1 PART – A

UNIT 1:

- 1.1 Basic definitions used in the study of nutrition- food, nutrition, adequate nutrition, nutritional status, malnutrition, health, dietetics, immunity and infection, RDA, RDI, BMR
- 1.2 Functions of foods- Physiological, social, and psychological.

UNIT 2:

- 2.1 Concept of food groups, food pyramid.
- 2.2 Concept of Balance Diet
- 2.3 Classification of foods

UNIT 3:

- 3.1 Classification, Functions, RDA and Dietary Sources of carbohydrates
- 3.2 Classification, Functions, RDA and Dietary Sources of protein
- 3.3 Classification, Functions, RDA and Dietary Sources of fat

2.2 PART - B

UNIT 4:


- 4.1 Classification, Functions, RDA and Dietary Sources of vitamins
- 4.2 Classification, Functions, RDA and Dietary Sources of Minerals
- 4.3 Functions of water in the body.

UNIT 5:

- 5.1 Objectives of Cooking and Principles of cooking
- 5.2 Methods of cooking
- 5.3 Cooking losses and their conservation

UNIT 6:

- 6.1 Functional Foods-Antioxidants, Phytochemicals, Probiotics.
- 6.2 Organic foods
- 6.3 Convenience foods
- 6.4 Genetically modified foods
- 6.5 Textured foods
- 6.6 Nano foods


Charu Dua
HOD- Clinical nutrition
& Dietetics

2.2.1 Text Books/Reference Books:

1. Buckingham L. Molecular diagnostics: fundamentals, methods and clinical applications. 2nd ed. Philadelphia: F.A. Davis; c2012.
2. Bamji, M.S., Rao, N.P., Reddy, V. (1996). Textbook of Human Nutrition. (11th ed.). New Delhi (India): Oxford and IBH Publishing Co Pvt Ltd.
3. Swaminathan, M. (1974). Essentials of Foods and Nutrition. (1st ed.) Madras (India): Ganesh and co.
4. Longvah, T., Ananthan, R., Bhaskarachary , K. and Venkaiah, K. (2017). Indian Food Composition Tables. Telangana, India: National Institute of Nutrition.
5. Srilakshmi, B. (2010). Food Science. (5th ed.). New Delhi: Age International Pvt Ltd.

Instructions for paper setting: Seven questions are to be set in total. First question will be conceptual covering entire syllabus and will be compulsory to attempt. Three questions will be set from each Part A and Part B (one from each unit). Student needs to attempt two questions out of three from each part. Each question will be of 20 marks.

Assessment Tools:

Assignment/Tutorial

Sessional tests

Surprise questions during lectures/Class

Performance Term end examination

2. Fundamentals of Food and Nutrition (Practical)

Objectives

- To recall the working instruction in foods laboratory.
- To understand the importance of weights and measures in nutritional cookery.
- To calculate the nutritional value of basic recipes of each categories
- To analyze the recipe on the basis of food groups and methods of cooking.

1. Use and care of Kitchen Equipment's and aids
2. Cooking methods
3. Culinary Terms
4. Common Indian names of some food stuff
5. Indian masala mixes
6. Working instructions, weights and measures and table setting.
7. Recipe writing with Nutritive Values

2.2.2 Text Books/Reference Books:

1. Bamji, M.S., Rao, N.P., Reddy, V. (1996). Textbook of Human Nutrition. (11th ed.). New Delhi (India): Oxford and IBH Publishing Co Pvt Ltd.
2. Longvah, T., Ananthan, R., Bhaskarachary , K. and Venkaiah, K. (2017). Indian Food Composition Tables. Telangana, India: National Institute of Nutrition.
3. Raina Usha, Kashap Sushma , Thomas Salila, Narula Vinita, Suvira (2019). Basic Food preparation a complete manual , Fourth edition : orient black swan private ltd.

2.2.3 Assessment Tools:

- Practical Record
- Sessional tests
- Surprise questions during lectures/Class
- Performance Term end examination

3. Fundamentals of Nutritional Biochemistry – Theory

Objectives

- To understand the biochemical aspects of nutrition and health.
- To summarize the importance of macronutrients and micronutrients.
- To identify the fundamental biochemical principles and reactions in biochemical processes.
- To analyze delivery of nutrients and their utilization in human body.

2.3 PART – A

2.3.1 UNIT 1: Introduction to Biochemistry

- 1.1 Definitions, objectives and scope of biochemistry
- 1.2 Chemical constituents of life – Biomolecules and the cell
- 1.3 Inter-relationship between biochemistry and other biological sciences.

2.3.2 UNIT 2: Carbohydrates

- 2.1 Definition, introduction and classification of carbohydrates.
- 2.2 Structure, properties and reactions of Monosaccharides- glucose, fructose, galactose.
- 2.3 Mutarotation, osazone formation, glycosides
- 2.4 Structure and properties of Disaccharides- maltose, lactose, sucrose.
- 2.5 Structure and properties of Polysaccharides- dextrin, starch, glycogen.
- 2.6 Biochemical role of carbohydrates in the body.

2.3.3 UNIT 3: Lipid

- 3.1 Definitions, classification and properties of Lipids
- 3.2 Definition, classification, and nomenclature of fatty acids.
- 3.3 Essential and non-essential fatty acids.
- 3.4 Biochemical role of lipids in the body.

2.4 PART - B

2.5.1 UNIT 4: Proteins

- 4.1 Definition, classification, structure and properties of amino acids.
- 4.2 Essential and non-essential amino acids.
- 4.3 Classification of protein based on solubility, shape, composition and Function
- 4.3 Structural organization of proteins.
- 4.4 Biochemical role of proteins in the body.

2.5.2 UNIT 5: Vitamins

- 5.1 Definition, classification and properties of vitamins.
- 5.2 Structure, dietary sources, RDA and biochemical role of Water soluble and fat soluble vitamins.

2.5.3 UNIT 6: Minerals

- 6.1 Definition, classification and properties of minerals.
- 6.2 Dietary sources, RDA and biochemical role of macro and micro minerals.
- 6.3 Biochemical role of Vitamins and minerals in the body.



2.5.4 Text Books/Reference Books:

1. Murray, R., Rodwell, V., Bender, D., Botham, K., Anthony, P. Weil and Kennelly, P. (2009). Harper's Illustrated Biochemistry, 28th Edition. McGraw Hill Company
2. Lehninger, A.L., Nelson, D.L. and Cox, M. M. (2009). Principles of Biochemistry. (6th ed.). CBS Publisher and Distributors.
3. Sundararaj, P. and Siddhu, A. (2002). Qualitative tests and Quantitative Procedures in Biochemistry.(2nd ed.). New Delhi: A H Wheeler and Co Ltd.

Instructions for paper setting: Seven questions are to be set in total. First question will be conceptual covering entire syllabus and will be compulsory to attempt. Three questions will be set from each Part A and Part B (one from each unit). Student needs to attempt two questions out of three from each part. Each question will be of 20 marks

Assessment Tools:

Assignment/Tutorial

Sessional tests

Surprise questions during lectures/Class

Performance Term end examination

4. Fundamentals of Nutritional Biochemistry – Practical Theory

Objective:

- To understand the proper handling of apparatus and chemicals.
- To summarize the importance of biochemical analysis in the field of nutritional sciences
- To acquire problem-solving skills and nurture professional attitudes.
- To analyze delivery of nutrients and their utilization in human body.

2.5.5 Practical's

1. Safe and systematic working in the Laboratory.
2. Preparation of routine and standard laboratory reagents.
3. Determination of strength of acid and alkali solution by Titration Method.
4. Principle, working use, care and maintenance of various instruments used in laboratory investigations.
5. Preparation of buffers and determination of their pH by use of laboratory indicators and pH meters.
6. Collection and storage of biological specimens- blood, urine feces, etc.
7. Qualitative Analysis of Carbohydrates.
8. Qualitative Analysis of Proteins.
9. Qualitative analysis of normal and abnormal constituents of urine.

2.5.6 Text Books/Reference Books:

- 1) West and Todd. (1966). Textbook of biochemistry (4th ed.). Macmillan Publishing Company
- 2) Satyanarayana, U. and Chakrapani, U. (2009). Biochemistry. (4th ed.). Elsevier.
- 3) Singh, S.P. (2008). Viva in Biochemistry. (4th ed.) CBS Publishers.
- 4) Sawhney, S.K. and Singh, R. (2014). Introductory Practical Biochemistry. (2nd ed.). Narsoha publishing house.
- 5) Sundararaj, P. and Siddhu, A. (2002). Qualitative tests and Quantitative Procedures in Biochemistry. (2nd ed.). New Delhi: A H Wheeler and Co Ltd.

2.5.7 Assessment Tools:

Practical Record

Sessional tests

Surprise questions during lectures/Class

Performance Term end examination

- To recall the working instruction in foods laboratory.
- To understand the importance of weights and measures in nutritional cookery.
- To calculate the nutritional value of basic recipes of each categories
- To analyze the recipe on the basis of food groups and methods of cooking.

5. Human Anatomy and Physiology – I – Theory

Objectives

- To describe the structural anatomy of various human body organs.
- To associate the structural anatomy with functions of body organs
- To analyze the reason behind the grounding of nutrition science in physiology.
- To evaluate the effect of alterations in structure on the functions of organs

2.6 PART – A

2.6.1 UNIT 1: Introduction to Anatomy and Physiology

1.1 Introduction to Anatomical Terms and Organization of the Human Body

1.2 Cell: Structure and functions, movement of materials across plasma membrane.

1.3 Tissues definition, types, characteristics, classification, location, functions, and formation

2.6.2 UNIT 2: Digestive System

2.1 Structure of Alimentary tract and accessory organs of digestion.

2.2 Secretions and functions of salivary glands, stomach, liver, pancreas, gall bladder, small intestine, large intestine

2.3 Carbohydrate, lipid and protein- Digestion and absorption

2.4 Disorders of digestive system

2.6.3 UNIT 3: Blood & Blood Components

3.1 The Blood-microscopic structure, composition and functions

3.2 Structure, function & normal count: RBCs, WBCs and platelets.

3.3 Haemopoiesis

3.4 Blood grouping- ABO system and RH system

3.5 Mechanism of Clotting

3.6 Disorders of blood

2.7 PART - B

2.7.1 UNIT 4: Cardiovascular system

4.1 Heart Anatomy

4.2 Cardiac Muscle and Electrical Activity

4.3 Cardiac Cycle, cardiac output and heart sounds

4.4 Structure and Function of Blood Vessels

4.5 Circulation: pulmonary coronary, systemic and portal

4.6 ECG

4.7 Blood pressure (Maintenance and regulation, factors affecting BP)

4.8 Disorders of cardiovascular system

2.7.2 UNIT 5: Lymphatic system

- 5.1 Lymph (Formation, composition, functions, circulation),
- 5.2 Lymph node (structure and functions)
- 5.3 Spleen and its functions

2.7.3 Unit 6: Respiratory System

- 6.1 Anatomy of respiratory organs, muscles and their functions
- 6.2 Mechanism, physiology and regulation of respiration
- 6.3 Transport of gases
- 6.4 Respiratory volumes
- 6.5 Disorders of respiratory system

2.7.4 Text Books/Reference Books:

1. Chaudhari, S. K. (1998). Concise Medical Physiology. (3rd ed.). Calcutta: New Central Book Agency (P) Ltd.
2. Ganong, W.F. (1999). Review of Medical Physiology. (10th ed.). London: Prentice-Hall International.
3. Guyton, A.C. (1996). Textbook of Medical Physiology. Philadelphia (USA): W. B. Saunders Co., Philadelphia, USA.
4. Jain, A.K. (2001) Textbook of Physiology. New Delhi: Avichal Publishing Co.
5. Singh, I., Chaurasia, .BD. (1998). Human Anatomy. New Delhi: CBS Publisher and Distributors.
6. Tortora, G.J. and Grabowski, S.R. (2005). Principals of Anatomy and Physiology.(8th Ed). New York :Harper Collins College Publishers.

Instructions for paper setting: Seven questions are to be set in total. First question will be conceptual covering entire syllabus and will be compulsory to attempt. Three questions will be set from each Part A and Part B (one from each unit). Student needs to attempt two questions out of three from each part. Each question will be of 20 marks.

Assessment Tools:

Assignment/Tutorial

Sessional tests

Surprise questions during lectures/Class

Performance Term end examination

6. Human Anatomy and Physiology – I – Practical

Objectives:

- To describe the principles of various physical parameters of human body.
- To understand the working of equipments and instruments used in physiology lab.
- To apply various parameters for diagnosis of illness.
- To analyze the results of lab investigations with nutritional deficiencies.

2.7.5 Practical:

1. Introduction to Microscope and Laboratory
2. Estimation of hemoglobin by Sahli's Method
3. Determination of total erythrocyte count (TRBC)
4. Determination of RBC indices (Blood standards)- MCV, MCH and MCHC
5. Determination of bleeding time (BT) and clotting time (CT)
6. Determination of blood groups (A,B,O and Rh system)
7. Study of anatomy of digestive system, heart and respiratory system through charts and models

2.7.6 Text Books/Reference Books:

1. Chaudhari, A.R. Textbook of Practical Physiology. Paras Publishers, New Delhi.
2. Garg, K., Bahel, I. and Kaul, M., A Textbook of Histology. CBS Publishers and Distributors, New Delhi.
3. Goyal, R.K., Patel, N.M. and Shah, S.A., Practical Anatomy, Physiology and Biochemistry. B. S. Shah Prakashan, Ahmedabad.


2.7.7 Assessment Tools:

Practical Record
Sessional tests
Surprise questions during lectures/Class
Performance Term end examination



Charu Dua
HOD - Clinical nutrition &
Dietetics

Syllabus- Semester 2


Charu Dua
Head Clinical Nutrition
& Dietetics

1. Nutritional Biochemistry and Metabolism – Theory

2.7.8 Objectives:

- To recall various metabolic reactions occurring in the body.
- To understand mechanisms adopted by the human body for regulation of metabolic pathways.
- To critically relate to the field of Nutrition.
- To utilize the knowledge for the betterment of human health.

2.8 PART – A

2.8.1 UNIT 1 Enzymes

- 1.1 Definition Nomenclature and Classification
- 1.2 Chemical nature of enzymes and coenzymes
- 1.3 Mode of action of enzymes
- 1.4 Factors affecting enzyme activity
- 1.5 Enzyme inhibition

2.8.2 UNIT 2: Metabolism of Carbohydrates

- 2.1 Glycolysis
- 2.2 Citric Acid Cycle
- 2.3 Metabolism of glycogen-Glycogenesis and Glycogenolysis
- 2.4 Gluconeogenesis

2.8.3 UNIT 3: Metabolism of Proteins

- 1.1 Transamination
- 1.2 Deamination
- 1.3 Urea cycle and its significance

2.9 PART - B

2.9.1 UNIT 4: Metabolism of Lipids

- 4.1 β - oxidation of fatty acids
- 4.2 Ketone bodies and ketogenesis
- 4.3 Cholesterol & its biochemical importance

2.9.2 UNIT 5: Nucleic acids and genetic code of metabolism

- 5.1 Purines and Pyrimidines
- 5.2 DNA and RNA-Structure and functions
- 5.3 Genetic Code and Protein biosynthesis.



Charvi Dna

HOD - Clinical nutrition
& Dietetics

2.9.3 UNIT 6:

6.1 Fundamentals of epigenetics

6.2 Fundamentals of nutrigenomics'

2.9.4 Reference Readings:

1. Harper's Illustrated Biochemistry (2014), 28th Edition, McGraw-Hill
2. Lehninger, A.L., Nelson, D.L., and Cox, M.M. (2009). Principles of Biochemistry, 6th Edition, CBS Publisher and Distributors.
3. Sundararajan, P., and Sidhu, A. (2002). Qualitative tests and Quantitative Procedures in Biochemistry, A H Wheeler and Co Ltd. Second Edition, Wheeler, New Delhi.

Instructions for paper setting: Seven questions are to be set in total. First question will be conceptual covering entire syllabus and will be compulsory to attempt. Three questions will be set from each Part A and Part B (one from each unit). Student needs to attempt two questions out of three from each part. Each question will be of 20 marks.

Assessment Tools:

Assignment/Tutorial

Sessional tests

Surprise questions during lectures/Class Performance Term end examination

2. Nutritional Biochemistry and Metabolism– Practical

2.9.5 Objectives:

- To understand biochemical methods used for the analysis of food and biological samples.
- To perform biochemical analysis with accuracy and reproducibility.
- To demonstrate skills to be used in various diagnostic labs.
- To utilize the practical information in research related to biochemical analysis.

2.9.6 Practical:

1. Quantitative Analysis of Blood Glucose
2. Quantitative analysis of normal and abnormal constituents of urine.
3. Complete analysis of Lipid Profile.
4. Liver function tests.
5. Kidney function tests.

2.9.7 Reference Readings:

1. Harper's Illustrated Biochemistry (2014), 28th Edition, McGraw-Hill
2. Lehninger A.L, Nelson, D.L., and Cox, M.M. (2009). Principles of Biochemistry, 6th Edition, CBS Publisher and Distributors.
3. Sundararajan, P., and Sidhu, A. (2002). Qualitative tests and Quantitative Procedures in Biochemistry, an H Wheeler and Co Ltd. Second Edition, Wheeler, New Delhi.

2.9.8 Assessment Tools:

- Practical Record Sessional Tests
- Surprise questions during lectures/Class Performance Term end examination

3. Human Anatomy and Physiology – II – Theory

2.9.9 Objectives:

- To understand the structural anatomy of various human body organs.
- To relate the structural anatomy with functions of body organs
- To analyze the reason behind the grounding of nutrition science in physiology.
- To evaluate the effect of alterations in structure on the functions of organs

2.10 PART – A

2.10.1 UNIT 1: Nervous System

- 1.1. Anatomy and physiology of various parts of brain(cerebellum, pons, medulla oblongata, thalamus, hypothalamus and functional area of cerebrum)
- 1.2. Spinal cord (structure and reflexes), cranial nerves (Names and functions)
- 1.3. Classification of nervous system
- 1.4. Autonomous nervous system (sympathetic and parasympathetic)
- 1.5. Neurotransmission
- 1.6. Sense Organs-eye and ear

2.10.2 UNIT 2: Muscular & Skeletal System

- 2.1 Bone Classification and Structure, Axial & Appendicular skeleton
- 2.2 Bone Formation and Development
- 2.3 Exercise, Nutrition and Bone Tissue
- 2.4 Types, structure of muscles
- 2.5 Joints-classification and structure

2.10.3 UNIT 3: Endocrine System

- 3.1 Anatomy and physiology of hormones of Pituitary, Pancreas, Thyroid, Parathyroid, thymus, Adrenal glands, gonads (testis and ovary)
- 3.2 Disorders of endocrine system

2.11 PART - B

2.11.1 UNIT 4: Urinary System

- 4.1 Structure and physiology of the organs of urinary system: Kidney, Ureter, Urinary bladder, Urethra
- 4.2 Structure of nephrons
- 4.3 Formation of urine
- 4.4 Body Fluids and Fluid Compartments, Acid base balance, electrolyte and water balance, Renin- angiotensin system,
- 4.5 Physiology of micturation
- 4.6 Disorders of urinary system



2.11.2 UNIT 5: Reproductive System

- 5.1 Anatomy and Physiology of various parts of males and female reproductive system
- 5.2 Spermatogenesis and oogenesis
- 5.3 Physiology of menstruation
- 5.4 Disorders of reproductive system

2.11.3 UNIT 6 Sports Physiology

- 6.1 Muscles in exercise
- 6.2 Respiration in exercise
- 6.3 CVS in exercise
- 6.4 Body heat in exercise
- 6.5 Body fluid and salts in exercise


2.11.4 Reference Readings:

1. Chaudhari S K. (1998) Concise Medical Physiology. 3rd Ed. New Central Book Agency (P) Ltd., Calcutta.
2. Ganong, W.F.(1999) Review of Medical Physiology. 10th Ed. Prentice-Hall International, London.
3. Guyton A.C. (1996) Textbook of Medical Physiology. W. B. Saunders Co., Philadelphia, USA.
4. Jain A.K. (2001) Textbook of Physiology. Avichal Publishing Co., New Delhi.
5. Singh I., Chaurasia BD (1998) Human Anatomy. CBS Publisher and Distributors, New Delhi.
6. Tortora G.J. and Grabowski S.R. (2005) Principals of Anatomy and Physiology. 8th Ed. Harper Collins College Publishers, New York.

Instructions for paper setting: Seven questions are to be set in total. First question will be conceptual covering entire syllabus and will be compulsory to attempt. Three questions will be set from each Part A and Part B (one from each unit). Student needs to attempt two questions out of three from each part. Each question will be of 20 marks.

Assessment Tools:

Assignment/Tutorial
Sessional tests
Surprise questions during lectures/Class
Performance Term end examination


Cheruvu Dura
HOD - Clinical nutrition
& Dietetics

4. Human Anatomy and Physiology – II – Practical

2.11.5 Objectives

- To recall the cells of human body microscopically.
- To Identify different bones of human skeletal system in terms of their location in human body.
- To Understand the role of human joints in body movements.
- To Relate characteristics, components and functions of various systems of the body and the effect of nutrition and disease on them

2.11.6 Practical:

1. Histology- Study of permanent slides of organs and tissues
2. Osteology- Study of appendicular skeleton
3. Osteology- study of axial skeleton
4. Study of joints
5. Study of following systems with the help of models and charts (Digestive system, Cardio-vascular system, Lymphatic system, Respiratory system, Urinary system, Endocrine system, Reproductive system, Nervous system, Sense organs)

2.11.7 Reference Readings:

1. Chaudhari S K. (1998) Concise Medical Physiology. 3rd Ed. New Central Book Agency (P) Ltd., Calcutta.
2. Ganong, W.F.(1999) Review of Medical Physiology. 10th Ed. Prentice-Hall International, London.
3. Guyton A.C. (1996) Textbook of Medical Physiology. W. B. Saunders Co., Philadelphia, USA.
4. Jain A.K. (2001) Textbook of Physiology. Avichal Publishing Co., New Delhi.
5. Singh I., Chaurasia BD (1998) Human Anatomy. CBS Publisher and Distributors, New Delhi.


2.11.8 Assessment Tools:

Practical Record
Sessional Tests
Surprise questions during lectures/Class
Performance Term end examination

5. Fundamentals of Food Microbiology – Theory

2.11.9 Objectives:

- To describe the morphological structure of microorganisms.
- To explain various microbes responsible for the welfare and spoilage of food.
- To understand the basic mechanisms of cell degeneration, cell death and repair and be able to correlate structural and functional alterations.
- To familiarize with the recent advances and researches in the field.


Chouh Dha
MOD - Clinical nutrition &
Dietetics

2.12 PART - A

2.12.1 Unit 1- Introduction to Microbiology and Microbial Diversity

- 1.1 Microbial taxonomy
- 1.2 Prokaryotic and Eukaryotic cells
- 1.3 Morphology and Cell Structure of major Groups of Microorganisms; e.g. Bacteria; Fungi; Algae.

2.12.2 Unit 2 - Microbial Growth and Metabolism

- 2.1 Bacterial Growth curve and Generation time
- 2.2 Growth- Measurement of growth and Factors affecting growth
- 2.3 Synchronous batch and continuous culture
- 2.4 Intrinsic And Extrinsic Parameters of Foods That Affect Microbial Growth

2.12.3 Unit 3: Microorganisms in Human Welfare

- 3.1 Importance of microbes in Food Preservation
- 3.2 Single cell proteins.
- 3.3 Probiotics, prebiotics and symbiotic

2.13 PART - B

2.13.1 Unit 4 - Food Spoilage

- 4.1 Food spoilage- definition and concept
- 4.2 Sources of contamination and microorganisms involved in spoilages of various foods: Milk, Bread, Canned food, Vegetables and fruits, Fruit juices, Meat, Eggs and Fish.

2.13.2 Unit 5 - Food Preservation

- 5.1 Concept of preservation
- 5.2 Techniques of preservation - Chemical preservation, Irradiation preservation, Freezing, Drying and High temperature food preservation

2.13.3 Unit 6 - Fermented Foods and Related Products of Fermentation

- 6.1 Fermentation- Definitions and types
- 6.2 Microbes helpful in fermentation in food industry
- 6.3 Dairy products (cheese and yoghurt)- LAB and its uses,
- 6.4 Traditional Indian fermented foods (including bread, beer, wine, etc.)And their health benefits.

2.13.4 Reference Reading:

1. Banwart GJ.(1987) Basic Food Microbiology . CBS Publishers and Distributors.
2. Frazier WC, Westoff DC.(1998)Food Microbiology. 4th ed. Tata McGraw-Hill. Publishing Co. Ltd.
3. Garbutt John (1997) Essentials of Food Microbiology. Arnold London..
4. Jay JM, Loessner DA, Martin J.(2005) Modern Food Microbiology. 7th ed. Springer
5. Pelczar MJ, Chan ECS, Krieg N. (1993) Microbiology. 5th ed. Tata. McGraw-Hill Publishing Co. Ltd.
6. Prescott LM, Harley JP, Klein DA.(2008) Microbiology. 6th ed. WMC Brown. Publishers.

Instructions for external evaluation: Seven questions are to be set in total. First question will be a conceptual question covering entire syllabus and will be compulsory to attempt. Three questions will be set from part A and B (one from each unit). Students need to attempt two questions from each part.

Each question will be of 20 marks.

Instructions for paper setting: Seven questions are to be set in total. First question will be conceptual covering entire syllabus and will be compulsory to attempt. Three questions will be set from each Part A and Part B (one from each unit). Student needs to attempt two questions out of three from each part. Each question will be of 20 marks.

Assessment Tools:

Assignment/Tutorial

Sessional tests

Surprise questions during lectures/Class

Performance Term end examination

6. Fundamentals of Food Microbiology – Practical

Objectives:

- To identify the equipment's and basic labs practices to be followed in microbiology lab.
- To understand the latest procedures adopted in various food operations.
- To microbiologically analyze the various food stuffs for quality and safety.
- To learn the procedures used in microbiological analysis of food samples.

2.13.5 Practical

1. Introduction to basic laboratory practices and equipment – compound Microscope, autoclave, Laminar air flow, incubator and colony counter
2. Identification of common bacteria and fungi through permanent slides.
3. Preparation and sterilization of broth and nutrient agar media, autoclaving, pour plating, streaking, swab method.
4. Staining of bacteria: Gram's staining and Zeihl Nelson Staining.
5. Demonstration of IMViC Tests.
6. Microbiological analysis of milk- raw, boiled and pasteurized- MBRT Test.

2.13.6 Reference Readings:

1. Banwart GJ.(1987) Basic Food Microbiology. CBS Publishers and Distributors.
2. Frazier WC, Westoff DC.(1998) Food Microbiology. 4th ed. Tata McGraw-Hill. Publishing Co. Ltd.
3. Garbutt John (1997) Essentials of Food Microbiology. Arnold London..
4. Jay JM, Loessner DA, Martin J.(2005) Modern Food Microbiology. 7th ed. Springer

Instructions for paper setting: Seven questions are to be set in total. First question will be conceptual covering entire syllabus and will be compulsory to attempt. Three questions will be set from each Part A and Part B (one from each unit). Student needs to attempt two questions out of three from each part. Each question will be of 20 marks.


Assessment Tools:

Assignment/Tutorial

Sessional tests

Surprise questions during lectures/Class

Performance Term end examination


Charu Datta
HOD- Clinical Nutrition &
Dietetics

Syllabus- Semester 3



Chocru Dha

HOD- Clinical nutrition
& Dietetics

1. ADVANCED NUTRITION THEORY

2.14 Objectives:

- Understand the biological role of and sensitive methods for deriving the requirements for specific nutrients
- Understand critical periods in growth and development and impact of malnutrition
- Appreciate implications of poor dietary and lifestyle practices
- Appreciate importance of nutrition immunity interactions and their operational implications
- Comprehend the methods by which diet quality can be improved

2.15 Part A

UNIT I: Human Nutrient Requirements

1.1 Historical perspective of nutrient requirements, terms used

1.2 Methods of assessment of nutrient needs – a critical review

1.3 Biological role, sensitive methods for derivations of requirements and recommended dietary allowances of specific nutrients

- Energy
- Carbohydrates and dietary fiber
- Proteins and amino acids
- Lipids and fatty acids
- Water
- Fat and water soluble vitamins
- Minerals

1.4 Critical evaluation of national and international nutrient allowances; factors affecting their requirements.

2.16 UNIT II: Growth and Development through the Life Cycle

10

2.1 Determinants of growth and development

2.2 Changes in body composition throughout the life cycle

2.3 Impact of altered nutrition on growth and development

2.4 Maternal malnutrition and pregnancy outcome

2.5 Malnutrition and cognitive development

2.6 Changing trends in life style and dietary patterns in population groups and their implications on nutritional status and disease

2.17 UNIT III: Interactions of Nutrition, Immunity and Infection

8

3.1 Host defense mechanisms and nutrients essential in the development of immune system

3.2 Effect of infections on the nutritional status of an individual

3.3 Nutrient deficiencies and excesses affecting the immuno-competence and susceptibility to infections

3.4 Operational implications

2.18 UNIT IV: Improving Diet Quality

10

4.1 Measurement of diet quality

4.2 Methods of improving nutrient content and bioavailability -fortification, GM foods, dietary diversity, home based solutions

4.3 Measurement of protein quality, factors affecting and methods of improving protein quality

4.4 Critical evaluation of national and international dietary guidelines

4.5 Functional foods and bioactive substances, Nutraceuticals, Nutrigenomics

2.19 Suggested Readings:

1. Bamji, M.S., Krishnaswamy K. Brahmam G.N.V. Eds. (2017) *Textbook of Human Nutrition*. 4th Edition. New Delhi :Oxford and IBH Publishing Co. Pvt. Ltd.
2. Cameron N. (2002) *Human Growth and Development*. USA: Academic Press, Elsevier Science.
3. Chadha R., Mathur P. Eds. (2015) *Nutrition: A Lifecycle Approach*. New Delhi: Orient Blackswan.
4. FAO/WHO. (2004) *Vitamin and Mineral Requirements in Human Nutrition*. Report of a Joint Expert Consultation.
5. FAO/WHO/UNU (2004) *Human Energy Requirements*. Report of a Joint Expert Consultation. Rome.
6. FAO/WHO/UNU (2007) *Protein and Amino acid Requirements in Human Nutrition*. Report of a joint WHO/FAO/UNU expert consultation WHO Technical Report Series 935. Geneva:WHO.
7. ICMR (2024) *Nutrient Requirements and Recommended Dietary Allowances for Indians* and its revised documents. New Delhi. ICMR.
- 8.

2. Advance Nutrition – Practical

Objectives


- To recall the working instruction in foods laboratory.
 - To understand the importance of weights and measures in nutritional cookery.
 - To calculate the nutritional value of basic recipes of each categories
 - To analyze the recipe on the basis of food groups and methods of cooking.
1. Basic food preparation, understanding the principal's involved, nutritional quality and portion size- based different food groups based on different methods of cooking.
 - Beverages
 - Soups
 - Snacks
 - Main Meal Dishes
 - Salads
 - Desserts
 - Bakery Products
 - Preserves
 - Eggs Meat , Fish Poultry

2.19.1 Text Books/Reference Books:

1. Bamji, M.S., Rao, N.P., Reddy, V. (1996). *Textbook of Human Nutrition*. (11th ed.). New Delhi (India): Oxford and IBH Publishing Co Pvt Ltd.
2. Longvah, T., Ananthan, R., Bhaskarachary , K. and Venkaiah, K. (2017). *Indian Food Composition Tables*. Telangana, India: National Institute of Nutrition.
3. Raina Usha, Kashap Sushma , Thomas Salila, Narula Vinita, Suvira (2019). *Basic Food preparation a complete manual*, Fourth edition: orient black swan private ltd.

2.19.2 Assessment Tools:

Practical Record
Sessional tests
Surprise questions during lectures/Class
Performance Term end examination


Charu Dha
HOD - Clinical Nutrition & Dietetics

3. Nutrition: Through Life cycle approach (Theory)

Objectives:

- To understand the physiological changes occurring at different stages of life
- To analyze different nutritional needs of an individual throughout the lifecycle
- To illustrate the dietary modification according to person's nutritional requirement and income group.
- To develop a suitable diet/meal plan for individuals.

2.20 PART – A

2.20.1 Unit 1- Nutritional and food requirements for Infants:

- 1.1 Growth and development during Infancy
- 1.2 Nutritional Requirements.
- 1.3 Food Pattern
- 1.4 Weaning Foods
- 1.5 BFHI, BPNI

2.20.2 Unit 2- Nutritional and food requirements in childhood (Pre-school, school going children) and adolescents:

- 2.1 Growth and development pattern
- 2.2 Nutritional Requirements.
- 2.3 Meal Pattern
- 2.4 Food Habits
- 2.5 Packed Lunches

2.20.3 Unit 3- Nutritional Requirements for Adults:

- 3.1 Nutritional Requirements of reference Indian man and woman.
- 3.2 Low cost balanced diets.

2.21 PART – B

2.21.1 Unit 4-Nutrition in Pregnancy:

- 4.1 Physiological Changes
- 4.2 Complications of pregnancy and management and importance of antenatal care.
- 4.3 Nutritional Requirements.
- 4.4 Meal Pattern

2.21.2 Unit 5- Nutrition in Lactation

- 5.1 Physiological Change
- 5.2 Human milk composition and factors affecting breastfeeding.
- 5.3 Nutritional Requirements.
- 5.4 Meal Pattern
- 5.5 Exclusive Breastfeeding

2.21.3 Unit 6-Nutrition for Elderly:

- 1.1 Process of Aging.
- 1.2 Nutritional Requirements.
- 1.3 Meal Pattern
- 1.4 Nutrition related problems of Old Age.

2.21.4 Reference Readings:

- 1) Bamji M.S., Rao N.P. and Reddy V. (1996): Textbook of Human Nutrition. 11th Ed. Oxford and IBH Publishing Co. Pvt. Ltd., New Delhi.
- 2) Swami Nathan M (1974) Essentials of Foods and Nutrition. 1st Ed. Ganesh and co.
- 3) Wadlow and Ingel's (2012) Perspectives of Nutrition. 9th Ed. McGraw-Hill Education
- 4) Nutritive Value of Indian Foods, NIN, ICMR

Instructions for paper setting: Seven questions are to be set in total. First question will be conceptual covering entire syllabus and will be compulsory to attempt. Three questions will be set from each Part A and Part B (one from each unit). Student needs to attempt two questions out of three from each part. Each question will be of 20 marks.

Assessment Tools:

Assignment/Tutorial

Sessional tests

Surprise questions during lectures/Class

Performance Term end examination

4. Nutrition: Through Life cycle approach (Practical)

Objectives:

- To memorize the practical aspects of meal planning
- To understand the seasonal variation of food items.
- To develop nutritionally adequate balance diets for various age groups.
- To calculate the cost of different diets.

2.21.5 Practicals

1. Fundamentals of meal planning.
2. Food Survey for understanding the seasonal availability, price and study of nutrition labeling on selected foods.
3. Planning and preparation of adequate diets using the Food Exchange System to suit different Socio economic groups and regions for:
 - Adults
 - Pregnant and Nursing mothers.
 - Infant
 - Preschool children
 - School children
 - Adolescents
 - Elderly

Chandana Das

HOD - Clinical nutrition
& Dietetics

Reference Readings:

1. Bamji M.S., Rao N.P. and Reddy V. (1996): Textbook of Human Nutrition. 11th Ed. Oxford and IBH Publishing Co. Pvt. Ltd., New Delhi.
2. Swami Nathan M (1974) Essentials of Foods and Nutrition. 1st Ed. Ganesh and co.
3. Wadlow and Ingel's (2012) Perspectives of Nutrition. 9th Ed. McGraw-Hill Education Nutritive Value of Indian Foods, NIN, ICMR.

2.21.6 Assessment Tools:

Practica
I Record
Session
al Tests
Surprise questions during lectures/Class
Performance Term end examination

5. Fundamentals of Food Science (Theory)

Objectives:

- To understand the chemical reactions and physical changes that occurs during the production, processing, storage and handling of foods and their applications.
- To know the physical and chemical properties of food constituents.
- To understand the recent advances and researches in the field.
- To analyze the effects of reactions on the quality and safety of food.

2.22 PART A

2.22.1 Unit 1 Cereal & Pulse Products

- 1.1 Definition, scope of food science
- 1.1 Cereal grains: structure of cereal grains.
- 1.2 Composition and nutritive value of cereals and pulses.
- 1.3 Coarse Cereal/nutria cereals and pulse: products and by products.
- 1.4 Browning and its type.
- 1.5 Cereal chemistry: amylose, amylopectin, sols, gels and foams.
- 1.6 Effect of heat: dextrinization, gelatinization, retro gradation of starch,, germination, malting.

2.22.2 Unit 2 Vegetable and Fruits

- 2.1 Definition, structure, classification, composition and nutritive value.
- 2.2 Plant pigments and effect of pH and temperature on them.
- 2.3 Post- Harvest changes in Fruits and vegetables
- 2.4 Prevention of enzymatic browning

2.22.3 Unit 3 Sugars and their products

- 1.1 Classification – Mono, di, and polysaccharides
- 1.2 Functional properties of sugar
- 3.2 Sugar related products and their characteristics.
- 3.3 Solubility and crystallization of sugars.

2.23 PART B

2.23.1 Unit 4 Milk and their products

- 4.1 Composition and nutritive value of milk.
- 4.2 Flow chart of milk processing.
- 4.3 Processing of milk: Types of pasteurization (HTST, LTLT AND UHT) and homogenization.
- 4.4 Types of market milk.

2.23.2 Unit 5 Meat, Fish and Poultry

- 5.1 Meat- Definition of carcass, concept of red meat and white meat, composition and nutritive value of Meat, and marbling.
- 5.2 Fish- Classification of fish (fresh water and marine), aquaculture, composition and nutritive value of fish, characteristics of fresh fish, spoilage of fish- microbiological, physiological, bio-chemical.
- 5.3 Poultry- Structure of hen's egg, composition and nutritive value, egg proteins, characteristics of fresh egg, deterioration of egg quality, difference between broiler and layers.

2.23.3 Unit 6 Fats and Oils

- 6.1 Introduction, classification, fats/oils- types, nutritive value, composition.
- 6.2 Hydrogenation, inter-esterification and Tran's fat.
- 6.3 Rancidity in fats and its prevention

2.23.4 Reference Reading:

1. Potter, N.M. (2007) Food Sciences, The A VI Publications,.
2. Srilakshmi, B. (2007) Food Science, 4th Edition. New Age International Ltd.
3. Bawa. A.S, O.P Chauhan etal. (2013) Food Science. New India Publishing agency,
4. Roday,S. (2011) Food Science, Oxford publication

Instructions for paper setting: Seven questions are to be set in total. First question will be conceptual covering entire syllabus and will be compulsory to attempt. Three questions will be set from each Part A and Part B (one from each unit). Student needs to attempt two questions out of three from each part. Each question will be of 20 marks.



Charu Drai

MOD - Clinical Nutrition
& Dietetics

Assessment Tools:

Assignment/Tutorial

Sessional tests

Surprise questions during lectures/Class

Performance Term end examination

6. Fundamentals of Food Science (Practical)**Objectives:**

- To understand the chemical reactions and physical changes that occurs during the production, processing, storage and handling of foods and their applications.
- To know the physical and chemical properties of food constituents.
- To understand the recent advances and researches in the field.
- To acquaint with the effects of reactions on the quality and safety of food.

2.24 PRACTICALS

1. Microscopic structure of cereal starches
2. Gelatinization properties of starches
3. Effect of varying the proportions of acid, sugar, temperature, pectin and cooking time on formation of guava jelly
4. Browning in fruits and vegetables
5. Effect of heat on sugar solutions and their behavior corresponding to cold water and thread tests
6. Crystallization of sugars through preparation of fondant and Shakapara.
7. Effect of heat and acid on milk proteins
8. Determination of smoking points of fat and oils

2.25 REFERENCE READINGS

1. Raina U, Kashyap S, Narula V, Thomas S, Suvira, Vir S, Chopra S (2010). Basic Food Preparation: A Complete Manual, Fourth Edition. Orient Black Swan Ltd.
2. Sethi Mohini and Rao E (2011). Food Science (Experiments and Applications), 2nd Edition. CBS Publishers & Distributers Pvt. Ltd.

Instructions for paper setting: Seven questions are to be set in total. First question will be conceptual covering entire syllabus and will be compulsory to attempt. Three questions will be set from each Part A and Part B (one from each unit). Student needs to attempt two questions out of three from each part. Each question will be of 20 marks.


Assessment Tools:

Assignment/Tutorial

Sessional tests

Surprise questions during lectures/Class

Performance Term end examination


Chetan Deka
HOD - Clinical Nutrition
& Dietetics

Syllabus- Semester 4



Chavva Dna
HOD- Clinical nutrition
& Dietetics

1. Community Health and Nutrition (Theory)

Objectives

- BND-DS-302.1.To understand the prevalence of nutritional problems in India.
- BND-DS-302.2.To develop the skills in planning, executing and evaluating nutrition projects in the community.
- BND-DS-302.3. To familiarize with various approaches to nutrition and health interventions, programs and policies.
- BND-DS-302.4. to understand the national and international contributor towards national improvement in alleviating nutrition problems.

2.26 PART-A

2.26.1 Unit 1: Concept of community nutrition

- 1.1 Community Nutrition: Definition and factors affecting
- 1.2 Human Development Index
- 1.3 Community organization,
- 1.4 Role of community nutritionist

2.26.2 Unit 2: Strategies for improving nutrition and health status of the community

- 2.1 Appropriate interventions involving different sectors: Food, Health and Education
- 2.2 Health care
- 2.3 Primary health care
- 2.4 The health system in India

2.26.3 Unit 3: Assessment of Nutritional Status of Individual and Community

- 3.1 Meaning and significance of nutritional status assessment
- 3.2 Methods of nutritional assessment
- 3.3 Errors in methods of assessing nutritional status
- 3.4 Rapid assessment procedures for community nutrition assessment

2.27 PART-B

2.27.1 Unit 4: Public Health aspect of Under Nutrition

Etiology, clinical features, public health implications, preventive strategies for:

- 4.1 Chronic Energy Deficiency/ Protein Energy Malnutrition and Severe Acute Malnutrition
- 4.2 Micronutrient deficiencies - Vitamin A deficiency, Nutritional Anemias, Iodine deficiency disorders, Vitamin D deficiency and Osteoporosis, Zinc Deficiency

2.27.2 Unit 5: Food and Nutrition Security

- 5.1 Concept, components, determinants and approaches
- 5.2 National Food Security Act, 2013

5.3 Role of National and International organizations: ICMR, ICAR, NIN, CFTRI, FAO/WHO, UNICEF, NNMB/NFHS

2.28 UNIT 6: Public Health Aspects of Lifestyle related disorders

8

6.1. Public Health implications and preventive strategies for: Obesity, Hypertension, Cardiovascular diseases, Diabetes

2.28.1

2.28.2 Reference Readings:

1. Gibson R S. (2005). Principles of Nutritional Assessment. 2nd ed. Oxford University Press.
2. WHO (2006). WHO Child growth standards: Length/height for age, weight for age, weight for length, weight for height and body mass index (2006). Available at <http://www.who.int>
3. Jelliffe DB. The Assessment of the Nutritional Status of the Community. WHO Monograph. World Health Organization, Geneva 1966; 53.
4. Park, K. (2017) Park's Textbook of Preventive and Social Medicine, 24th ed. Jabalpur M/s. Banarsidas Bhanot.
5. Nutrition Atlas of India, C Gopalan & K Raghavan, ICMR Publication.
5. Nutrition in the community, Arvind Wadhwa and Sushma Sharma (2003), Elite Publishing House Pvt . Ltd. New Delhi

Instructions for paper setting: Seven questions are to be set in total. First question will be conceptual covering entire syllabus and will be compulsory to attempt. Three questions will be set from each Part A and Part B (one from each unit). Student needs to attempt two questions out of three from each part. Each question will be of 20 marks.

Assessment Tools:

Assignment/Tutorial

Sessional tests

Surprise questions during lectures/Class

Performance Term end examination

4. Community Health and Nutrition (Practical)

Objectives:

- To undertake community based projects for assessment and enhancement of nutritional knowledge.
- To Critical appraise existing intervention and programs in the government and Voluntary sector and suggestion to improve the same.
- To develop new teaching aids in the field of nutrition education.
- To appreciate the National and International contributor towards national improvement in alleviating nutrition problems.

Charu Dha
HOD - Clinical nutrition
& Dietetics

2.28.3 Practical:

1. Development of ICT for nutrition education,
2. Planning, imparting and evaluation of nutrition education programme for a target group: Analyzing data & writing report.
3. Visit to the ongoing two National nutrition programme.

2.28.4 Reference Readings:

1. Gibson R S. (2005). Principles of Nutritional Assessment. 2nd ed. Oxford University Press.
2. WHO (2006). WHO Child growth standards: Length/height for age, weight for age, weight for length, weight for height and body mass index (2006). Available at <http://www.who.int>
3. Jelliffe DB. The Assessment of the Nutritional Status of the Community. WHO Monograph. World Health Organization, Geneva 1966; 53.
4. Park, K. (2017) Park's Textbook of Preventive and Social Medicine, 24th ed. Jabalpur M/s. Banarsidas Bhanot. 5. Nutrition Atlas of India, C Gopalan & K Raghavan, ICMR Publication.
5. Nutrition in the community, Arvind Wadhwa and Sushma Sharma (2003), Elite Publishing House Pvt . Ltd. New Delhi
6. *Community based Management of children with severe acute malnutrition, Operational & Technical guidelines* (2012) Ministry of health & Family Welfare, Nirman Bhawan, New Delhi
7. Indian Council of Medical Research: Dietary Guidelines for Indians. (2011) *Dietary Guidelines for Indians: A manual* (2nd ed.) second edition , NIN.
8. Gibney, M.J., Margetts, B.M., Kearney, J.M. Arab, I. (Eds.) (2004) *Public Health Nutrition*. NS Blackwell Publishing.
9. Longvah T, Ananthan R, Bhaskarachary K, Venkaiah K (2017) *Indian food composition tables*. National Institute of Nutrition.
10. Jelliffe, D. B., & Jelliffe, E.F.P. (1989) *Community Nutritional Assessment*. Oxford University Press.
11. *Management of SAM children through medical nutrition therapy* (2009) Vol I & II. National Consensus Workshop. Published by DBT. Ministry of Science & Technology. Government of India and ICMR, New Delhi
12. Owen, A.Y., & Frankle, R.T. (1986) *Nutrition in the Community: The Art of Delivering Services* (2nd ed.) Times Mirror/Mosby.
13. Park, K. (2017) *Park's Textbook of Preventive and Social Medicine*. 24th ed. Jabalpur M/s. Banarsidas Bhanot.
14. Ross, A.C. (2012) *Nutrition in health and disease*. (Eds) Lippincott Williams & Wilkins.
15. Shils, M.E. (1998) *Nutrition in health and disease*. (Eds) Lippincott Williams & Wilkins.
16. Vir, S. (2011) *Public health nutrition in developing countries Part-1 & 2*. Woodhead Publishing India limited.
17. Wadhwa, A. & Sharma, S. (2003) *Nutrition in the Community*. A text book.
18. SCN News, UN ACC/SCN Subcommittee on Nutrition.
19. WHO (2006) *WHO Child growth standards: Length/height for age, weight for age, weight for length, weight for height and body mass index* (2006). Available at <http://www.who.int>.

20. WHO (2007) *WHO Reference Data for Children and Adolescents (5-19 years)*. WHOreference. Available at <http://www.who.int/growthref/en/>
21. WHO (2009) *WHO Child growth standards: Growth velocity based on weight, length and head circumference* Available at <http://www.who.int>
22. *WHO child growth standards and identification of severe acute malnutrition in infants and children*, Joint statement - Child Growth Standards for SAM children (2009)
23. *WHO Guidelines for Inpatient treatment for SAM child* (2003) Available at <http://www.who.int/nutrition/publications/severemalnutrition/9241546093/en/>

Instructions for paper setting: Seven questions are to be set in total. First question will be conceptual covering entire syllabus and will be compulsory to attempt. Three questions will be set from each Part A and Part B (one from each unit). Student needs to attempt two questions out of three from each part. Each question will be of 20 marks.

Assessment Tools:

Assignment/Tutorial

Sessional tests

Surprise questions during lectures/Class

Performance Term end examination



Charmi Dasa
HOD - clinical nutrition⁴⁷
& Dietetics

5. Basic- Therapeutic and Clinical Nutrition (Theory)

Objectives:

- To understand the patho-physiology of various acute and chronic diseases and patient's needs.
- To apply the principle of dietary modifications.
- To execute the dietary and nutritional modifications according to the diseased condition.
- To create a suitable nutritional management/diet plan for patients of various diseases.

2.29 PART A

2.29.1 Unit 1 Principles of Nutrition Care

- 1.1 Nutrition Care Process
- 1.2 Therapeutic Adaptation of the normal diet.
- 1.3 Progressive Diets- Full Fluid, Clear fluid, Soft and regular diet
- 1.4 Methods of feeding patients: Enteral and parenteral
- 1.5 Importance of Therapeutic nutrition and the role of Dietitians in hospital and community.

2.29.2 Unit 2 Patho-physiology, etiology, clinical features and nutritional management of GI Tract Disorders

- 2.1 Diarrhea
- 2.2 Constipation
- 2.3 Peptic Ulcer
- 2.4 Lactose Intolerance
- 2.5 Celiac Disease
- 2.6 Hepatitis

2.29.3 Unit 3 Patho-physiology, etiology, clinical features and nutritional management of Infections and fever

- 1.1 Infections : HIV and others
- 1.2 Fibril Disorders: Typhoid, Tuberculosis

2.30 PART B

2.30.1 Unit4: Patho-physiology, etiology, clinical features and nutritional management of obesity/underweight and eating disorder

- 4.1 Obesity and underweight.
- 4.2 Eating Disorders:
 - a) Anorexia Nervosa
 - b) Bulimia

2.30.2 Unit 5 Patho-physiology, etiology, clinical features and nutritional management of Cardiovascular and metabolic disorder

- 5.1 Hypertension
- 5.2 Atherosclerosis
- 5.3 Diabetes Mellitus: Type I and II

2.30.3 Unit 6 Patho-physiology, etiology, clinical features and nutritional management of Kidney Diseases

- 6.1 Renal Calculi
- 6.2 Glomerulonephritis
- 6.3 Nephrotic Syndrome

2.30.4 Text Books/ Reference Books:

1. Khanna K, Gupta S, Seth R, Passi S J, Mahna R, Puri S (1997). Textbook of Nutrition and Di-eteics. Phoenix Publishing House Pvt Ltd
2. Mahan, L.K. and Escott Stump S. (2000): Krause"s Food Nutrition and Diet Therapy 11th edition, W.B Saunders Ltd.
3. Shils, M.E. Olson, J. and Shike, M. (2013) Modern Nutrition in Health and Diseases, KM Var-ghe Company, Bombay.
4. Williams, S.R. (2001) Basic Nutrition and Diet Therapy. 11th ed. Times Mirror Mosby College Publishing

Instructions for paper setting: Seven questions are to be set in total. First question will be conceptual covering entire syllabus and will be compulsory to attempt. Three questions will be set from each Part A and Part B (one from each unit). Student needs to attempt two questions out of three from each part. Each question will be of 20 marks.

Assessment Tools:

Assignment/Tutorial
Sessional tests
Surprise questions during lectures/Class
Performance Term end examination



Charu Dora
HOD- Clinical nutrition
& Dietetics

6. Basic- Therapeutic and Clinical Nutrition (Practical)

Objectives:

- To understand the importance of Good laboratory practice (GLPs) of foods laboratory.
- To understand the importance of weights and measures in nutritional cookery.
- To plan and create suitable therapeutic diets based on patient needs for various diseases/disorders
- To develop skills to prepare special therapeutic / health food

2.30.5 Practical's

- Planning of hospital diet.
 - 1) Liquid (Clear/ Full Liquid)
 - 2) Soft
 - 3) Normal
- Planning, calculation and preparing diets for different disorders:
 - 1) Diarrhea/constipation.
 - 2) Hepatitis
 - 3) Hypertension/Atherosclerosis.
 - 4) Diabetes: Type I and II
 - 5) Fevers – Typhoid/Tuberculosis
 - 6) Weight Management: Overweight
 - 7) Renal Calculi

2.30.6 Text Books/Reference Books:

1. Khanna K, Gupta S, Seth R, Passi S J, Mahna R, Puri S (1997). Textbook of Nutrition and Di-eteics. Phoenix Publishing House Pvt Ltd
2. Mahan, L.K. and Escott Stump S. (2000): Krause's Food Nutrition and Diet Therapy 11th edition, W.B Saunders Ltd.
3. Shils, M.E. Olson, J. and Shike, M. (2013) Modern Nutrition in Health and Diseases, KM Var-ghe Company, Bombay.
4. Williams, S.R. (2001) Basic Nutrition and Diet Therapy. 11th ed. Times Mirror Mosby College Publishing


2.30.7 Assessment Tools:

Practical Record

Sessional tests

Surprise questions during lectures/Class Performance

Term end examination


Charu Dua
HOD - Clinical nutrition &
Dietetics

Syllabus- Semester 5



- Charu Dha

HOD - Clinical nutrition
& Dietetics

1. Health Fitness and Sports – Theory

Objectives:

- To understand the role of Nutrition in sports and fitness.
- To determine the basic nutritional requirements of a sportsperson during competitions
- To classify the physiological basis of fuel mobilization during exercise.
- To relate the various alternative systems for Health and Fitness.

2.31 Part A

Unit 1 Health, Fitness and Nutrition

- 1.1 Definition, components and assessment criteria of age specific fitness and health status.
- 1.2 Holistic approach to the management of fitness and health.
- 1.3 Effect of specific nutrients on physical fitness.
- 1.4 Nutrition, exercise, physical fitness and health inter-relationship.

Unit 2 Carbohydrates and Exercise

- 2.1 Mobilization of carbohydrates, proteins, fats during exercise.
- 2.2 Importance of carbohydrate loads.

Unit 3 Nutrition for Sports Person

- 3.1 Nutritional Requirements of Sportspersons, Pre-game and Post game meals.
- 3.2 Water and Electrolyte: Losses and their replenishments during exercise and sport events and effect of dehydration.


2.32 Part B

Unit 4 Body Composition Analysis in Sports Person

- 4.1 Kinanthropometry
- 4.2 Composition of Human Body for sports person
- 4.3 Estimation of body fat among athletic groups
- 4.4 Somatotyping– Ectomorph, mesomorph and endomorph, their specific characteristics

Unit 5 Ergogenic aids

- 5.1 Dietary Supplements
- 5.2 Sports drink – Importance, Composition and types


charu jua
HOD - Clinical nutrition
& Dietetics

Unit 6 Alternative systems for health and fitness

- 6.1 Yoga and Meditation
- 6.2 Spiritual Health Chakras – Location of chakras and consciousness, Ayurveda, Naturopathy
- 6.3 Gunas, satvic food, tamasic food and Rajasic food.
- 6.4 Sports injury

2.32.1 Reference Readings:

- 1 Whitney E.N and Rolfes S.R. Understanding Nutrition. Wadsworth Publishing; 10 edition (May 25, 2004)
- 2 Ira Wolinsky. Nutrition in Exercise and Sports. 3 illustrated, revised publisher CRC press, 1997
- 3 Parizkova. J. Nutrition, Physical activity and health in early life. Illustrated, revised publisher CRC press, 1996

Instructions for paper setting: Seven questions are to be set in total. First question will be conceptual covering entire syllabus and will be compulsory to attempt. Three questions will be set from each Part A and Part B (one from each unit). Student needs to attempt two questions out of three from each part. Each question will be of 20 marks.

Assessment Tools:

- Assignment/Tutorial
- Sessional tests
- Surprise questions during lectures/Class
- Performance Term end examination


2. Health Fitness and Sports – Practical

2.32.2 Objectives:

- To understand the role of nutrition in Sports.
- To compare various dietary supplements available in market
- To evaluate various types of sports drinks
- To design meals according to the nutritional requirements of a sportsperson during competition

2.33 PRACTICAL:

1. To conduct a market survey on different types of supplements and Sports Drinks available in the market.
2. To develop sports drink for pre, during and post-game sessions.
3. To conduct a dietary survey of sportsperson and evaluate it as per nutritional guidelines given for sportspersons.
4. To conduct two case studies on sportspersons with special reference to pre game and post-game meals.


Charu Dha
HOD - Clinical nutrition &
Dietetics

2.33.1 Reference Readings:

1. Whitney E.N and Rolfes S.R. Understanding Nutrition. Wadsworth Publishing; 10 edition (May 25, 2004)
2. Ira Wolinsky. Nutrition in Exercise and Sports. 3 illustrated, revised publisher CRC press, 1997
3. Parizkova. J. Nutrition, Physical activity and health in early life. Illustrated, revised publisher CRC press, 1996

Instructions for paper setting: Seven questions are to be set in total. First question will be conceptual covering entire syllabus and will be compulsory to attempt. Three questions will be set from each Part A and Part B (one from each unit). Student needs to attempt two questions out of three from each part. Each question will be of 20 marks.

Assessment Tools:

Assignment/Tutorial

Sessional tests

Surprise questions during lectures/Class

Performance Term end examination

3. Food SERVICE Management - Theory

Objectives:

- To identify the process of planning, organizing, in the management of human, material and financial resources.
- To understand the principles underlying the preparation and service of quality food.
- To use the skills of menu planning for quality and quantity preparation.
- To plan menu for any food service institution

2.34 PART A

2.34.1 Unit 1 Introduction to Institutional Catering Management

- 1.1 Development of catering institutions
- 1.2 Philosophy, principles and functions of management
- 1.3 Approaches and tools of management
- 1.4 Management of resources

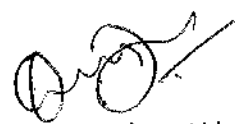
2.34.2 Unit 2 Planning and Organization

- 2.1 Kitchen spaces
- 2.2 Storage spaces
- 2.3 Service areas

2.35 PART B

2.35.1 Unit 3 Food Management

- 3.1 Food purchasing and inventory management
- 3.2 Menu planning
- 3.3 Food service


Anamika Datta
HOD - Clinical Nutrition
& Dietetics

2.35.2 Unit 4 Hygiene Sanitation and Safety

- 4.1 Hygiene and sanitation
- 4.2 Food safety and security

2.35.3 Reference Readings

1. Sethi Mohini (1993): Catering Management: An Integrated Approach, 2nd Edition, Wiley Publication.
2. Sethi Mohini (1993): Institutional Food Management, 2nd Edition, Wiley Publication.
3. West, B. Bessie & Wood, Leville (1988): Food Service in Institutions, 6th Edition, Palacio June Macmillan Publication Company, New York.

***Instructions for paper setting:** Seven questions are to be set in total. First question will be conceptual covering entire syllabus and will be compulsory to attempt. Three questions will be set from each Part A and Part B (one from each unit). Student needs to attempt two questions out of three from each part. Each question will be of 20 marks



Aashu Dua

MCD - clinical nutrition &
Dietetics

4. Food SERVICE Management – Practical

Objectives: The students will be able:

- To identify the process of planning, organizing, in the management of human, material and financial resources.
- To understand the principles underlying the preparation and service of quality food.
- To use the skills of menu planning for quality and quantity preparation.
- To plan menu for any food service institution

2.35.4 Practical's

- 1) Standardization of recipes: Planning and Preparation of Recipes, Modification in Basic recipes, preparation of standard recipe
- 2) Planning and preparation for school lunch, hostels.
- 3) Meals for special occasions, birthday party.
- 4) Visits to hotels, restaurants, hospital, and canteen.

2.35.5 Reference Readings:

1. West, B. Bessie & Wood, Levelle (1988): Food Service in Institutions, 6th Edition, Palcio June Macmillan Publication Company, New York.
2. SethiMohini (1993): Catering Management: An Integrated Approach, 2nd Edition, Wiley Publication.
3. Desseler, Garry (1987): "Personnel Management: Modern Concepts and Techniques", Prentice Hall, New Jersey.
4. Keiser, J. &Kaillo, E. (1974): Controlling and Analysis of Cost in Food Service Operations. Wiley & Sons, New York.

5. Instrumentation for Food Analysis (Theory)

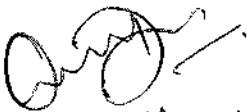
Objectives:

- To understand the principals involved in analytical techniques in food analysis.
- To use appropriate techniques for analysis of food products.
- To analyze the use of different techniques for food analysis based on the current food standards and regulations
- To understand the food safety standards

2.36 PART A

2.36.1 Unit 1 Introduction to food analysis

- 1.3 Food standards and regulations
- 1.4 Sampling techniques
- 1.5 Preservation of samples


Charu Dasa
MEd - clinical nutrition
& Dietetics

2.36.2 Unit 2 Physicochemical I and Biochemical I Methods of Analysis

- 2.1 Determination of moisture, ash content, fiber, protein, carbohydrates, fat, vitamins and minerals in different food samples
- 2.2 Color measurement in food samples
- 2.3 Differential Scanning Calorimetry

2.37 PART B

2.37.1 Unit 3 Spectrometric methods

Principle of working and application of:

- 3.1 Atomic Absorption Spectrometry
- 3.2 Atomic Emission Spectrometry
- 3.3 Infrared Spectrometry
- 3.4 Inductively coupled plasma-Atomic Emission spectroscopy
- 3.5 Flame photometry

2.37.2 Unit 4 Separation techniques

- 4.1 Gas solid Chromatography
- 4.2 High performance liquid chromatography
- 4.3 Ion exchange chromatography
- 4.4 Column chromatography
- 4.5 Gel permeation chromatography
- 4.6 Electrophoresis



Charu Dora
HOD- Clinical nutrition
& Dietetics

2.37.3 Reference Readings:

1. Pare J.R.J., Belanger J.M.R.: Instrumental Methods in Food Analysis, Elsevier Publications
2. Gruenwedel, D.W.; Whitaker, J.R. (editors) (1984): Food Analysis Principles and techniques, Volumes 1 to 8, Marcel Dekker, Inc., New York.
3. Winton AL (1999) Techniques of food analysis, Allied Science, Official methods of analysis, Association of official analytical chemist USA.
4. James CS (1998). Analytical chemistry of foods, Blackie Acad, UK.
5. Principles of Food Science: Part-I Food Chemistry. Fennema, O.R. Ed. 1976 Marcel Dekker, New York.
6. Food Chemistry, Aurand, L.W. and Woods, A.E. 1973. AVI, Westport.
7. Y. Pomeraz and C.E. MeLoari, „Food Analysis: Theory and Practice”, CBS Publishers and Distributor, New Delhi, India.

Instructions for paper setting: Seven questions are to be set in total. First question will be conceptual covering entire syllabus and will be compulsory to attempt. Three questions will be set from each Part A and Part B (one from each unit). Student needs to attempt two questions out of three from each part. Each question will be of 20 marks.


Assessment Tools:

Assignment/Tutorial

Sessional tests

Surprise questions during lectures/Class

Performance Term end examination


Charu Dua
Clinical nutrition
& Dietetics

6. Instrumentation for Food Analysis (Practical)

Objectives:

- To understand the guidelines for working in a laboratory setting
- To demonstrate analytical skills for determining the nutritional composition of food products
- To analyze the use of different techniques for food analysis in association with the current food standards and regulations
- To understand the food safety standards

2.37.4 Practical:

1. Working guidelines for good laboratory practices.
2. Determination of moisture content in a food sample.
3. Determination of ash content of a food sample.
4. Determination of fiber content of a food sample.
5. Estimation of vitamin C content in a food sample using titration.
6. Estimation of color in a food sample using spectrophotometer.
7. Separation of proteins in a food sample using electrophoresis.
8. Determination of chlorophyll content in a food sample using paper chromatography.

2.37.5 Reference Readings:

1. Fennema, O.R. Ed. (1976): Principles of Food Science: Part-I Food Chemistry Marcel Dekker, New York.
2. Food Chemistry, Aurand, L.W. and Woods, A.E. (1973) AVI, Westport.
3. Y. Pomeraz and C.E. McLoari. (1992) Food Analysis: Theory and Practice, CBS Publishers and Distributor, New Delhi, India.

Instructions for paper setting: Seven questions are to be set in total. First question will be conceptual covering entire syllabus and will be compulsory to attempt. Three questions will be set from each Part A and Part B (one from each unit). Student needs to attempt two questions out of three from each part. Each question will be of 20 marks.

Assessment Tools:

Assignment/Tutorials

Sessional tests

Surprise questions during lectures/Class Performance

Term end examination



Charu Jua
HOD - Clinical nutrition
& Dietetics

Syllabus- Semester 6



Charu Deka
HOD- Clinical
nutrition & Dietetics

1. Advance Therapeutic Clinical Nutrition (Theory)

Objectives:

- To understand the etiology, physiological and metabolic anomalies of acute and chronic disorders / diseases
- To classify the effect of various disorders / diseases on nutritional status, nutritional and dietary requirement
- To develop appropriate nutrition care and assessment tool for prevention of various disorders / diseases
- To create appropriate nutrition diet for treatment of various disorders / diseases

2.38 PART A

2.38.1 Unit 1: Nutrition Care Process

- 1.1. Nutrition Care Process
- 1.2. Nutrition Assessment
- 1.3. Nutrition Diagnosis
- 1.4. Nutrition Intervention
- 1.5. Nutrition Monitoring & Evaluation
- 1.6. Nutrition Documentation
- 1.7. Ethical Issues

2.38.2 Unit 2 Sign- symptoms, patho-physiology, etiology and dietary management of Endocrine Disorders

- 1.1 Thyroid Disorders- Assessment in Thyroid Disorders, Hypothyroidism, Hyperthyroidism
- 1.2 Polycystic Ovary Syndrome
- 1.3 Diabetes Mellitus

2.38.3 Unit 3 Sign- symptoms, pathophysiology, etiology and dietary management of cardiovascular disorders

- 2.1 Myocardial Infarction
- 2.2 Congestive Heart failure

2.38.4 Unit 4 Sign- symptoms, pathophysiology, etiology and dietary management of Renal Disorders

- 1.1 Nephrotic Syndrome
- 1.2 Glomerulonephritis
- 1.3 Acute kidney Disease
- 1.4 Chronic Kidney Disease
- 1.5 Renal Stones.



Charu Dua
HOD- Clinical nutrition
& Dietetics

2.39 PART B

2.39.1 Unit 5 Sign- symptoms, pathophysiology, etiology and dietary management of Lung disorders

- 4.1 Bronchopulmonary dysplasia,
- 4.2 COPD
- 4.3 Asthma
- 4.4 Cystic Fibrosis

2.39.2 Unit 6 Sign- symptoms, pathophysiology, etiology and dietary management of neurological conditions

- 5.1 Neurological diseases arising from nutritional excesses and deficiencies:
 - 5.1.1 Pernicious anemia
 - 5.1.2 Wernicke Korsakoff Syndrome
 - 5.1.3 Stroke
 - 5.1.4 Parkinson's disease
 - 5.1.5 Alzheimer's disease
 - 5.1.6 Multiple Sclerosis
- 5.2 Diet, Nutrient and Drug interactions

2.39.3 Unit 7 Sign- symptoms, pathophysiology, etiology and dietary management of Musculoskeletal and Rheumatic Disorders

- 1.1 Osteoporosis
- 1.2 Osteoarthritis and Rheumatoid arthritis
- 1.3 Gout
- 1.4 Systemic lupus erythematosus

2.39.4 Unit 8 Sign- symptoms, pathophysiology, etiology and dietary management of Gastrointestinal Tract Disorders

- 1.1 Upper and lower Gastrointestinal disorders
- 1.2 GERD, peptic Ulcers
- 1.3 Dumping syndrome
- 1.4 Irritable bowel syndrome
- 1.5 Lactose Intolerance
- 1.6 Celiac Disease, inflammatory bowel disease
- 1.7 Hemorrhoids

2.39.5 Unit 9 Sign- symptoms, pathophysiology, etiology and dietary management of Liver Disorders

- 1.1 Fatty Liver
- 1.2 Cirrhosis
- 1.3 Alcoholism

2.39.6 Reference Readings:

1. L.K. Mahan and E. S. Stump, 2008, Krause's Food & Nutrition Therapy. 12th ed. Saunders- Elsevier.

2. M.E. Shils, M. Shike, A.C. Ross, B. Caballero and R. J. Cousins., 2005, *Modern Nutrition in Health and Disease*. 10th ed. Lipincott, William and Wilkins.
3. M.J. Gibney, M. Elia, Ljungqvist and J. Dowsett, 2005, *Clinical Nutrition. The Nutrition Society Textbook Series*. Blackwell Publishing Company.
4. J.S.Garrow, W.P.T. James and A. Ralph, 2000, *Human Nutrition and Dietetics*. 10th ed. Churchill Livingstone.
5. Mahan, L. K. and Escott Stump. S. (2016) *Krause's Food & Nutrition Therapy* 14th ed. Saunders-Elsevier.
6. Joshi Y K. (2008) *Basics of Clinical Nutrition* 2nd ed. Jaypee Brothers Medical Publishers.
7. Shils, M.E., Shike, M, Ross, A.C., Caballero B and Cousins RJ (2005) *Modern Nutrition in Health and Disease*. 10th ed. Lipincott, William and Wilkins.
8. Gibney MJ, Elia M, Ljungqvist & Dowsett J. (2005) *Clinical Nutrition. The Nutrition Society Textbook Series*. Blackwell Publishing Company.
9. Garrow, J.S., James, W.P.T. and Ralph, A. (2000) *Human Nutrition and Dietetics*. 10th ed. Churchill Livingstone. Williams, S.R. (2001) *Basic Nutrition and Diet Therapy*. 11th ed. Times Mirror Mosby College Publishing.

Instructions for paper setting: Seven questions are to be set in total. First question will be conceptual covering entire syllabus and will be compulsory to attempt. Three questions will be set from each Part A and Part B (one from each unit). Student needs to attempt two questions out of three from each part. Each question will be of 20 marks.

Assessment Tools:

Assignment/Tutorials

Sessional tests

Surprise questions during lectures/Class Performance

Term end examination

2. Advanced Clinical Nutrition (Practical)

2.39.7

Objectives:

- To understand the etiology, physiological and metabolic anomalies of acute and chronic disorders / diseases
- To develop appropriate assessment tool for prevention of various disorders / diseases
- To develop diet plans for treatment of various disorders.
- To create appropriate nutrition diet plan for diseases.

2.39.8 Planning and calculation of following diets:

1. Diet for patients suffering from Ulcerative Colitis
2. Diet for patients suffering from Myocardial Infarction
3. Diet for patient suffering from Congestive Heart Failure
4. Diet for patient suffering from Nephrotic Syndrome/ARF/CRF
5. Diet for patients suffering from COPD
6. Diet for patient suffering from Diabetes Mellitus
7. Diet for patient suffering from Renal Disorder
8. Diet for patient suffering from Liver Disease
9. Diet for patient suffering from Pernicious Anaemia
10. Diet for patient suffering from Osteoporosis



Charvi Dube

MOD - Clinical nutrition
& Dietetics

2.39.9 Reference Readings

1. L.K. Mahan and E. S. Stump, 2008, Krause's Food & Nutrition Therapy. 12th ed. Saunders- Elsevier.
2. M.E. Shils, M. Shike, A.C. Ross, B. Caballero and R. J. Cousins., 2005, Modern Nutrition in Health and Disease. 10th ed. Lipincott, William and Wilkins.
3. T. Longvah, R. Ananthan, K.Bhaskarachary and K.Venkaiah, 2017, Indian Food Composition Tables, Telangana, India: National Institute of Nutrition.

Instructions for paper setting: Practical assessment will be carried out using the following parameters: practical performance, written, practical record, and viva voce.

Assessment Tools:

Practical Record

Viva I & II

Surprise questions during lectures/Class Performance

3. Nutrition in Intensive Care (Theory)

Objectives:

- To understand physiology and metabolism in critical conditions.
- To develop critical thinking skills and apply evidence based nutrition principles
- To understand the theoretical basis for nutrition intervention strategies with the anatomical, physiological and/or biochemical changes that occur in diseases conditions.
- To integrate the theories and principles of nutrition therapy into clinical practice.
-

2.40 PART- A

2.40.1 Unit 1: Introduction to Intensive care

- 1.1 Concepts of critical care and intensive care, History of critical care units, Unit designs, Goals of Care
- 1.2 Nutritional Support - Assessing nutritional status, Enteral and Parenteral nutrition, Monitoring nutritional status and, determining if needs are met

2.40.2 Unit 2: Dietary management of critical conditions

- 2.1 Acid/Base Abnormalities
- 2.2 Electrolyte/Fluid Abnormalities
- 2.3 Ventilator Support, ventilator associated pneumonia/ nosocomial pneumonia/ Aspiration pneumonia

2.40.3 Unit 3: Medical Nutrition Therapy for oncology conditions-

- 3.1 Introduction to Cancer, Dietary components associated with Cancer
- 3.2 Etiology and diagnosis
- 3.3 Medical treatments and their side effect
- 3.4 Medical nutrition therapy
- 3.5 Cancer prevention and nutrition components
- 3.6 Types of Oncology - Oral, esophagus, gastric, lungs, blood cancer, breast cancer, uterus/ovarian cancers.

2.41 PART B

2.41.1 Unit 4: Medical Nutrition Therapy for-

- 4.1 Burns
- 4.2 Sepsis
- 4.3 Trauma
- 4.4 Surgery

2.41.2 Unit 5: Cardio-vascular Systems

- 1.1 Cardiac assessment and diagnosis,
- 1.2 ECG,
- 1.3 Management of Heart Failure, Coronary Artery Bypass Surgery, heart transplant

2.41.3 Unit 6: Renal System

- 6.1 Kidney Failure,
- 6.2 Kidney Replacement Therapies,
- 6.3 Hemodialysis, Continuous Renal Replacement Therapies (CRRT), Peritoneal Dialysis

2.41.4 Reference readings:

1. P. Faber and M.Siervo, 2014, Nutrition in Critical Care. Cambridge university press, Newyork..

Charu Dha

HCD - Clinical nutrition
& Dietetics

2. R. Rajendram, R. Victor, Preedy, V. B. Patel, 2015, Diet and Nutrition in Critical Care. Springer New York.
3. P. Singer, 2013, Nutrition in Intensive Care Medicine: Beyond Physiology. Karger Medical and Scientific Publishers.
4. L. K. Mahan and E. Stump. S., 2008, Krause's Food & Nutrition Therapy. 12th ed. Saunders-Elsevier

Instructions for paper setting: Seven questions are to be set in total. First question will be conceptual covering entire syllabus and will be compulsory to attempt. Three questions will be set from each Part A and Part B (one from each unit). Student needs to attempt two questions out of three from each part. Each question will be of 20 marks.

Assessment Tools:

- Assignment/Tutorials
- Sessional tests
- Surprise questions during lectures/Class Performance
- Term end examination

4. Nutrition in Intensive Care (Practical)

Objectives:

- To plan and prepare nutritionally adequate diet for different critical conditions.
- To Acquaint with the different diseases and their requirements
- To understand the critical conditions through case studies.
- To utilize the knowledge in practical use.


2.41.5 Practical

1. Plan the enteral and parenteral diets
2. Planning preparation and nutritional calculation of various diets.
 - Diet for oral/oesophagus, gastric, blood cancer, uterus/ovarian cancers.
 - Diet for sepsis/burns/trauma patients
 - Diet for patients with heart transplant/ kidney failure
3. Prepare a report of 5 case studies related to critical conditions mentioned in theory.

2.41.6 Reference readings

1. P. Faber and M. Siervo, 2014, Nutrition in Critical Care. Cambridge university press, Newyork..
2. R. Rajendram, R. Victor, Preedy, V. B. Patel, 2015, Diet and Nutrition in Critical Care. Springer New York.
3. P. Singer, 2013, Nutrition in Intensive Care Medicine: Beyond Physiology. Karger Medical and Scientific Publishers.
4. L. K. Mahan and E. Stump. S., 2008, Krause's Food & Nutrition Therapy. 12th ed. Saunders-Elsevier

Instructions for paper setting: Practical assessment will be carried out using the following parameters: practical performance, written, practical record, and viva voce.


 Charu Dua
 MCD- Clinical nutrition
 & Dietetics

Assessment Tools:

Practical

Record

Viva I&II

Surprise questions during lectures/Class Performance

Term end examination



Charu Dua

67

HOD- Clinical nutrition
& Dietetics

5. Management of Nutrition Related Disorders (Theory)

Objectives:

- To memorize nutrition related disorders prevailing in the community
- :To understand the management of these nutrition related disorders
- To relate the biochemical and clinical manifestations with treatment of these disorders.
- To formulate appropriate diet for these disorders

2.42 PART A

2.42.1 UNIT 1: Nutrition in Infection and fever

- 1.1 Nutrition and Infection
- 1.2 Metabolic Changes during infection
- 1.3 Classification and etiology of Infection
- 1.4 Etiology, pathophysiology, symptoms and nutrition Management of Typhoid
- 1.5 Etiology, pathophysiology, symptoms and nutrition Management of Tuberculosis

UNIT 2: Nutrition in AIDS

- 2.1 Signs and Symptoms
- 2.2 Transmittal Routes
- 2.3 Medical nutrition therapy

UNIT 3: Inborn Errors of Metabolism:

Metabolic defect, clinical symptoms and management of

- 3.1 Phenylketonuria
- 3.2 Galactosemia
- 3.3 Maple Syrup Urine Disease
- 3.4 Homocystineuria
- 3.5 Familial Hypercholesterolemia
- 3.6 Wilson's disease

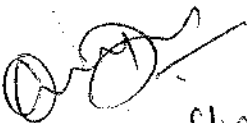
UNIT 4: Nutrition in Various types of Cancers

- 4.1 Upper GI cancer
- 4.2 Lower GI cancers
- 4.3 Head and Neck Cancers
- 4.4 Dysphagia and Cancers
- 4.5 Bone Marrow Transplants
- 4.6 Other Cancers

2.43 PART B

UNIT 5: Etiology, clinical symptoms and dietary management of:

- 4.1 Eating disorders:
 - Anorexia Nervosa


Charu Dua
HOD - clinical nutrition
& Dietetics

- Bulimia Nervosa
- Binge Eating Disorder
- Medical Nutrition Therapy and Counseling in Eating Disorder
 - Complications
 - Nutritional Therapy

UNIT 6: Nutrition in Food Allergies

- 5.1 Clinical Features
- 5.2 Mechanism of diagnosis
- 5.3 Treatment
- 5.4 Medical Nutrition Therapy for allergies

UNIT 7 : Nutritional Care of the Terminally Ill

- 6.1 The dying process
- 6.2 Palliative versus curative care
- 6.3 Dietary Management for Symptom Control.

2.43.1 Reference Readings:

- 1 L. K.Mahan and E. Stump. S., 2008, Krause's Food & Nutrition Therapy. 12th ed. Saunders-Elsevier
- 2 M.E.Shils, M. Shike, A.C. Ross, B. Caballero and R.J.Cousins, 2005, Modern Nutrition in Health and Disease. 10th ed. Lipincott, William and Wilkins.
- 3 M.J. Gibney, M. Elia, Ljungqvist and J. Dowsett, 2005, Clinical Nutrition: The Nutrition Society Textbook Series. Blackwell Publishing Company.
- 4 R.D. Lee and D.C. Neiman, 2009, Nutritional Assessment. 5th edition. Brown & Benchmark.

Instructions for paper setting: Seven questions are to be set in total. First question will be conceptual covering entire syllabus and will be compulsory to attempt. Three questions will be set from each Part A and Part B (one from each unit). Student needs to attempt two questions out of three from each part. Each question will be of 20 marks.

Assessment Tools:

Assignment/Tutorials

Sessional tests

Surprise questions during lectures/Class Performance

Term end examination



Charan Dora

69

HOD - Clinical nutrition
& dietetics

6. Management of Nutrition Related Disorders (Practical)

Objectives:

- To know the prevalence of nutrition related disorders in the community
- To understand the practical management of these nutrition related disorders
- To practically relate the biochemical and clinical reports with dietary treatment of these disorders.
- To formulate appropriate diet plans for these disorders.

2.43.2 Practicals:

Planning and calculation of following diets:

1. Diet for AIDS patients
2. Diet for patients suffering from Inborn Error of Metabolism
3. Diet for patient suffering from Malabsorption syndrome
4. Diet for patient suffering from Gout
5. Diet for patient suffering from Food Allergies

2.43.3 Reference Readings:

1. L. K. Mahan and E. Stump. S., 2008, Krause's Food & Nutrition Therapy. 12th ed. Saunders-Elsevier
2. S.R. Williams, 2001, Basic Nutrition and Diet Therapy. 11th ed. Times Mirror Mosby College Publishing
3. K. Khanna, S. Gupta, R. Seth, S. J. Passi, R. Mahna, S. Puri, 2013. Textbook of Nutrition and Dietetics. Phoenix Publishing House Pvt Ltd

Instructions for paper setting: Practical assessment will be carried out using the following parameters: practical performance, written, practical record, and viva voce.

Assessment Tools:


Practical

Record

Viva I & II

Surprise questions during lectures/Class Performance

Term end examination


Charu Dua
HOD- Clinical nutrition
& Dietetics

Syllabus- Semester 7



71

Charu Dha

MCD- Clinical nutrition &
Dietetics

1. NUTRITION COMMUNICATION AND COUNSELLING THEORY

Objectives:

- Understand the importance of BCC in managing nutrition related problems
- Draw out a complete counseling plan for individuals based on their physiological conditions using the appropriate tools
- Understand how best to maintain adherence to changed dietary practices for specific physiological conditions
- Gain knowledge on traditional and alternate methods to manage disorders

UNIT I: Basics of Diet Counseling

- 1.1 Concept and importance of counseling in the nutrition care process
- 1.2 Traditional, Current and Emerging methods/tools of counseling
- 1.3 Skills and attributes of a counselor
- 1.4 Barriers to effective communication
- 1.5 Understanding dietary patterns and food choices and their impact on counseling
- 1.6 Behaviour Change Communication and Models for behaviour change
- 1.7 Counseling strategies


2.44 UNIT II: Processes Involved in Dietary Counseling 8

- 2.1. Managing resources of the communicator/counselor
- 2.2. Designing of counseling plans – goals & objectives, evaluation instruments.
- 2.3. Implementation: facilitating self-management of disease condition
- 2.4. Evaluation: evaluating adherence to dietary changes
- 2.5. Counseling approaches after evaluation

2.45 UNIT III: Dietary Counseling through the Life Span 20

- 3.1. Considerations for counseling plans for:
 - 3.1.1. Prenatal, antenatal and postnatal women
- 3.2. Childhood nutrition problems like:
 - 3.2.1. SAM, weight management, vitamin and mineral deficiencies
- 3.3. School children, adolescents, young adults
 - 3.3.1. Fitness, weight management, eating disorders, nutritional anemia
- 3.4. Managing diet related chronic diseases in adults:
 - 3.4.1. Obesity
 - 3.4.2. Diabetes
 - 3.4.3. Dyslipidemia
 - 3.4.4. Hypertension
 - 3.4.5. Cancer risk prevention
 - 3.4.6. Renal disease
 - 3.4.7. Liver disorders
- 3.5. Geriatric Counselling

2.46 UNIT IV: Nutritional/Medicinal Role of Traditional Foods, Traditional Food Beliefs


Chavira Dura
HOD - Clinical nutrition
& Dietetics

4.1. Role of Ayurveda, Naturopathy, Yoga and other traditional medicines in disease management

2.47 Suggested Readings:

1. Mahan, L. K. and Escott Stump. S. (2016) *Krause's Food & Nutrition Therapy 14th ed.* Saunders-Elsevier
2. Snetselaar L. (2009). *Nutrition Counseling Skills for the Nutrition Care Process. Fourth Ed.* Sudbury, Massachusetts: Jones Bartlett Publishers.
3. Holli B Betsy and Beto A Judith. (2014). *Nutrition Counseling and Education Skills for Dietetics Professionals. Sixth edition.* USA: Lippincot Williams and Wilkins; Wolters Kluwer.
4. Gable J. (2016). *Counseling Skills for dietitians. Florida, USA: John Wiley and Sons.*
5. Midwinter R and Dickson J. (2015). *Embedding Counseling and Communication Skills. A Relational Skills Model.* Routledge
6. Devito Joseph A. (2015) *Human Communication: The Basic Course.* New York: Pearson
7. King K and Klawitter B. (2007). *Nutrition Therapy. Advanced Counseling Skills. Third Edition.* Philadelphia, USA: Lippincot Williams and Wilkins; Wolters Kluwer.
8. <http://www.fao.org/docrep/X2550E/X2550e04.htm>
9. WHO recommendations on antenatal care for positive pregnancy experience (2016)

2. NUTRITION COMMUNICATION AND COUNSELLING PRACTICAL

Objectives:

- To be able to do nutritional counselling for patients with various disorders
- To be able to right a Counselling Points during Nutrition consult
- To be able to Counsel Nutrition patients of various Age Groups

2.47.1

2.47.2 Practicals:

Counselling for:

1. Weaning Diet
2. Pregnancy and Lactation
3. Pediatric age Group
4. Elderly
5. Preventive Health Check Ups
- 6.

2.48 Suggested Readings:

10. Mahan, L. K. and Escott Stump. S. (2016) *Krause's Food & Nutrition Therapy 14th ed.* Saunders-Elsevier
11. Snetselaar L. (2009). *Nutrition Counseling Skills for the Nutrition Care Process. Fourth Ed.* Sudbury, Massachusetts: Jones Bartlett Publishers.
12. Holli B Betsy and Beto A Judith. (2014). *Nutrition Counseling and Education Skills for Dietetics Professionals. Sixth edition.* USA: Lippincot Williams and Wilkins; Wolters Kluwer.
13. Gable J. (2016). *Counseling Skills for dietitians. Florida, USA: John Wiley and Sons.*
14. Midwinter R and Dickson J. (2015). *Embedding Counseling and Communication Skills. A Relational Skills Model.* Routledge
15. Devito Joseph A. (2015) *Human Communication: The Basic Course.* New York: Pearson



Charu Dua

HOD - clinical nutrition
& Dietetics

16. King K and Klawitter B.(2007). Nutrition Therapy. Advanced Counseling Skills. Third Edition. Philadelphia, USA:Lippincot Williams and Wilkins; Wolters Kluwer.
17. <http://www.fao.org/docrep/X2550E/X2550e04.htm>
18. WHO recommendations on antenatal care for positive pregnancy experience (2016)

Instructions for paper setting: Practical assessment will be carried out using the following parameters: practical performance, written, practical record, and viva voce.

Assessment Tools:

- Practical
- Record
- Viva I & II
- Surprise questions during lectures/Class
- Performance Term end examination

3. INSTITUTIONAL AND HOSPITAL FOOD MANAGEMENT THEORY

Objectives:

- Steer expertise to function as a food service manager.
- Develop knowledge in managing food service in a healthcare set up.
- Understand and manage resources in a food service institution.
- Gain practical experience in managing food material for food service management.

UNIT I: Organization and Management


- 1.1. Management Theories: Classical, Scientific, Systems approach, MBO, JIT, TQM, QWL
- 1.2. Tools of Management
- 1.3. Tangible Tools: Organization chart, Job description, Job specification, Job analysis: Path way chart, Process chart, Work schedule, Production schedule, Staff and service analysis, Budget
- 1.4. Intangible tools: Communication, Leadership, Decision making and its application in hospitals and other food service organizations

2.49 **UNIT II: Hospital Food Service Management**

- 2.1. Meal Ordering System (manual, electronic)
- 2.2. Patient menu construction
- 2.3. Menu card/ display
- 2.4. Food production processes for various situations
- 2.5. Guidelines of regulatory bodies

2.50 **UNIT III: Institutional Resource Management**

- 3.1. Personnel Management
 - Functions of a personnel manager, absenteeism, labour turnover
 - Recruitment and selection process - Process and Sources-Internal and External, Process interview, Tests
 - Orientation and Training- Importance of orientation and training, content of program me, Steps of developing an Orientation program me, Types of training - OJT, Group; continuous training, training for development, Developing a training programme


 Charu Dua
 HOD - Clinical Nutrition
 & Dietetics

- Appraisal of employees – Importance, Methods, Limitation
 - Motivating employees- Motivation theories and approaches -Content theories: Maslow, Herzberg, McClelland; Process theories: Vroom, Equity; Reinforcement theory;
 - Techniques of motivating employees
 - Employee behavior and policies
- 3.2. Financial and Marketing
- Managing finances in a catering establishment
 - Records: Menu, Purchase, Store, Production, Sales, Personnel, Utilities
 - Reports : Cost analysis: Concept of Trial Balance, Profit and Loss Account
 - Marketing techniques and strategies
- 3.3. Equipment's and Layouts in Food Service Units (Hospitals and theme restaurants)
- Types of equipment's
 - Steps in layout planning and architectural features
 - Feasibility assessment in terms of layout planning
 - Application in hospitals and food service organizations

2.51 UNIT IV: Food Safety and Hygiene

8

- 4.1. HACCP
- 4.2. GMP,GHP
- 4.3. Food safety and standard regulations
- 4.4. Food Safety in different food service units (Hospitals and other catering establishments)

Suggested Readings:

1. West B Bessie & Wood Levelle (1988) *Food Service in Institutions* 6th Edition Revised By Hargar FV, Shuggart SG, & Palgne Palacio June, Macmillian Publishing Company New York.
2. Sethi Mohini (2005) *Institution Food Management*. New Age International Publishers
3. Kazarian E A (1977) *Food Service facilities Planning*. 3rd Edition Von Nostrand Reinhold New York.
4. Kotas Richard & Jayawardardene. C (1994) *Profitble Food and Beverage Management*. Hodder & Stoughton Publications
5. Kotler Philip (2001) *Marketing management Millennium Edition* Prentice Hall of India
6. Taneja S and Gupta SL (2001) *Entrepreneurship Development*. Galgotia Publishing
7. Dessler Gary (2007) *Human Resource Management* 11th edition Prentice Hall New Jersey
8. Luthans Fred (2004) *Organisational Behaviour* 10th Edition Mc Graw Hill International
9. Basic Food Safety Training Manual Catering (<http://www.fssai.gov.in/home/capacitybuilding/e-library/training-manual.html>)
10. <http://www.fssai.gov.in/home/capacity building/e-library/training-manual.html>)

4. INSTITUTIONAL AND HOSPITAL FOOD MANAGEMENT PRACTICAL

Objectives:

- Understand the operations of food service units.
- Develop insight about products and their price in market.
- Develop skills in planning menus for various food service organizations within specific budgets.
- Application of acquired skills in menu planning and quantity food production



- Charu Dua

HOD - Clinical nutrition
& Dietetics

2.52 UNIT I:

Market survey of various food products raw and processed in different kind of markets

2.53 UNIT II:

- Planning menus for the following:
 - Conference
 - Food stall

2.54 UNIT III:

- Planning menu and adjusting nutrients and cost for the following:
 - Food items for MDM
 - Cyclic menu for hospital (government/private)

2.55 UNIT IV:

- Standardization and quantity cooking
 - Canteen project

2.56 UNIT V:


- Developing a checklist for Hospital personnel in hygiene and sanitation
- Developing Check list for Hospital Kitchen Hygiene and sanitation
- Learning Statutory Compliance
- Learning Kitchen Layout at hospital

UNIT VII

- Patient meal Lay Out and Service
 - Flow Process
 - Tray Layout
 - Service Trolley
 - Correct patient correct Diet

Suggested Readings:

1. West B Bessie & Wood Levelle (1988) *Food Service in Institutions* 6th Edition Revised By Hargar FV, Shuggart SG, & Palgne Palacio June, Macmillian Publishing Company New York.
2. Sethi Mohini (2005) *Institution Food Management*. New Age International Publishers
3. Kazarian E A (1977) *Food Service facilities Planning*. 3rd Edition Von Nostrand Reinhold New York.
4. Kotas Richard & Jayawardardene. C (1994) *Profitable Food and Beverage Management*.
5. Hodder & Stoughton Publications
6. Taneja S and Gupta SL (2001) *Entrepreneurship Development*, Galgotia Publishing
7. FSSAI guidelines for Food Safety Training and Certification for Food Business Operators


MED - Clinical nutrition
& Dietetics

5. POLICIES AND PROGRAMMES IN PUBLIC HEALTH NUTRITION THEORY

Objectives:

- Become familiar with the various approaches and strategies for improving nutritional and health status.
- Get exposure to various Government policies and programs aimed at improving the nutritional and health status of the population
- Acquire knowledge about the process of planning public health nutrition programs

UNIT I: Approaches and Strategies for Improving Nutritional and Health Status

- 1.1. Health based interventions including immunization, provision of safe drinking water/sanitation, prevention and management of diarrhea diseases
- 1.2. Food based interventions including fortification, use of biotechnology, supplementary feeding
- 1.3. Education based interventions including growth monitoring and promotion, communication for health and nutrition Behaviour change
- 1.4.

UNIT II: National Policies for Promotion of Nutrition and Health Status of the Population

- 2.1. National Nutrition Policy and National Nutrition Mission
- 2.2. National Food Security Act
- 2.3. National Health policy
- 2.4. Population policy
- 2.5. National water policy
- 2.6. National Urban Sanitation Policy

UNIT III: National Nutrition and Health Programme

- 3.1 Components, administration and evaluation of programs for prevention and control of micronutrient deficiencies and improving food and nutrition security

UNIT IV: Nutritional Surveillance

- 2.7. Objectives, initial assessment indicators for use in nutrition surveillance
- 2.8. Nutritional surveillance for programme planning: Triple A approach

UNIT V: Programme Planning

- 2.9. Diagnosis of situation, setting of objectives, suitability and relative costs of various strategies, implementation, monitoring and evaluation

Suggested Readings:

- 3 Gibney M.J., Margetts, B.M., Kearney, J.M. Arab, I. eds (2004) *Public Health Nutrition*, NS Blackwell Publishing.
- 4 National Nutrition Policy, GOI, New Delhi, 1993
- 5 Owen, A.Y. and Frankle, R.T. (1986) *Nutrition in the Community. The Art of Delivering Services*, 2nd ed. Times Mirror/Mosby.
- 6 Park, K. (2017) *Park's Textbook of Preventive and Social Medicine*, 24th ed. Jabalpur M/s. Banarsidas Bhanot.
- 7 Vir, S. (2011). *Public health nutrition in developing countries Part-1 & 2*. Woodhead Publishing India limited.
- 8 Wadhwa, A. and Sharma, S. (2003) *Nutrition in the Community*. A textbook. SCN News, UN ACC/SCN Subcommittee on Nutrition



Charu Dua

MEd - Clinical nutrition & Dietetics

6. POLICIES AND PROGRAMMES IN PUBLIC HEALTH NUTRITION PRACTICAL

Objectives:

- Plan and prepare cyclic menu/ low cost nutritious dishes for vulnerable groups
- Familiarize with ongoing national nutrition programs
- Plan and implement interventions for nutritional improvement of the community

UNIT I:

- ☑ Planning and preparation of cyclic menu for a school feeding programme

UNIT II:

- ☑ Field visit to ongoing National Nutrition Programme

UNIT III:

- ☑ Development of a plan for nutrition education programme in community.
- ☑ Preparation of communication aids for different groups. Implementation of programme in community

UNIT IV:

- ☑ Development of low cost recipes for elementary school children, adolescents, pregnant and lactating mothers

Suggested Readings:

- ☑ *Basic food preparation* (2010) Fourth edition, Lady Irwin College.
- ☑ Chadha R, Mathur, P(2015) *Nutrition A life cycle Approach*. Orient BlackSwan Pvt. Ltd., Lady Irwin College.
- ☑ Indian Council of Medical Research: *Dietary Guidelines for Indians (2011) Dietary Guidelines for Indians: A manual*. Second edition, National Institute of Nutrition.
- ☑ Longvah T, Ananthan R, Bhaskarachary K, Venkaiah K (2017) *Indian food composition tables*. National Institute of Nutrition.
- ☑ Khanna, K, Gupta, S, Sethi, R, Mahna, R, Rekhi, T. (2004) *The Art and science of cooking- A Practical Manual*. Elite Publishing House Pvt. Ltd.



Syllabus- Semester 8



Charu Dua

79

HOD- Clinical nutrition & Dietetics

1 SEMINAR AND SCIENTIFIC WRITING THEORY


Objectives:

- Develop preliminary insight for research papers.
- Comprehend a scientific paper's objectives, results and its application in Indian context.
- Acquire skills in presenting a scientific paper.

CONTENT

- ☐ Scientific report development and Presentation of the reviews on upcoming nutrition and food science advances

2 INTERNSHIP


Chenni Dura
HOD - Clinical nutrition
& Dietetics

