

DHANALAKSHMI SRINIVASAN UNIVERSITY

SAMAYAPURAM- 621112

SCHOOL OF ALLIED HEALTH SCIENCES

BACHELOR OF SCIENCE IN CLINICAL NUTRITION & DIETETICS



PROGRAM OUTCOME AND COURSE OUTCOME

GOOD NUTRITION=GOOD HEALTH

B.SC.CLINICAL NUTRITION AND DIETETICS

(B.Sc.,-CND) FIRST YEAR

HUMAN NUTRITION

COURSE OUTCOME:-

To enable the students to:

- Gain basic knowledge of the different nutrients and their role in human Health.
- Gain insight into health problems associated with imbalance of nutrient Intake.
- Understand the signs, symptoms, toxicity of various nutrients.

UNIT I

NUTRITION & THERAPEUTIC DIETS

Introduction of nutrition, definition of nutrients, food, classification of nutrients, function-food, diet & nutrient interaction, food as source of nutrients, Food groups- Basic five ICMR, NIN, food guide pyramid, food composition.

Classification of therapeutic diet.

Recommended dietary allowances: definition, general principles of deriving RDA, factors affecting RDA, uses of RDA.

UNIT II

CARBOHYDRATE & FIBRE:

Carbohydrates: Definition, nutritional, classification, functions, requirements and sources, regulation of blood sugar level,

Energy: definitions, energy units, determination of energy value of foods by direct & indirect calorimetry.

Dietary fibre: Definition, classification, sources, role of fibre in preventing disease.

UNIT III

PROTEIN & LIPIDS

Proteins: Definition, composition nutritional classification of protein and amino acids, functions of proteins and amino acids, sources and requirements, Deficiency: Evaluation of protein quality-PER, BV, NPU and effects of deficiency.

Lipids: Definition, Composition, Nutritional classification, Functions, Sources and requirements; Essential fatty acids – Definition, Functions, Sources and effects of Deficiency.

UNIT IV

VITAMIN & MINERAL

Minerals: Classification and General Functions:

Macro minerals: Calcium, Phosphorus, Magnesium, Sodium and Potassium – Functions, Requirements, Sources, Effects of Deficiency, Effect of imbalance of Sodium and Potassium.

Micro Minerals: Iron, Iodine, Copper, Flourine and Zinc – Functions, Requirements, Sources and Effect of Deficiency.

Vitamins – Deficiency, Classification and General Functions:

Fat Soluble Vitamins – Vitamin A, D, E and K – Functions, Requirements, Sources And Effect

of deficiency.

Water soluble vitamins: Thiamine, Riboflavin, Niacin, Ascorbic acid, Folic acid, Vitamin B6 and B12 – Functions, Requirements, Sources and Effects of deficiency.

UNIT V

WATER & ELECTROLYTES

Water-as a nutrients, function, sources, requirement, water balance & effect of deficiency.

PRACTICAL :-

Qualitative analysis:-

1. Qualitative identification of carbohydrates – glucose, fructose, galactose, sucrose, maltose, lactose.
2. Preparation of Osazones and their identification.
3. Qualitative identification of amino acids – histidine, tyrosine, tryptophan, ysteine, arginine.
4. Qualitative tests for minerals.

Quantitative analysis:-

1. Quantitative estimation of glucose.
2. Estimation of ascorbic acid in citrus fruits.
3. Estimation of milk calcium- processed and unprocessed.
4. Estimation of Phosphorous.
5. Estimation of Iron.

REFERENCE TEXT BOOK:-

- 1 Swaminathan, M., Essentials of food and Nutrition, Vol I & II, Bappco Publishers, Madras 2000.
2. Srilakshmi. B., Nutrition Science, New age International (p) ltd, publishers,2004.

B.SC.CLINICAL NUTRITION AND DIETETICS
(B.Sc.,-CND) FIRST YEAR
HUMAN PHYSIOLOGY
THEORY: 100 HRS & PRACTICAL: 80HRS.

COURSE OUTCOME:-
➤ Understand the structure and functions of various organs of the body
➤ Obtain a better understanding of the principles of nutrition through the study of physiology
➤ Highlight the influence of improper functioning of the organ system and disease.

<p>UNIT I Cell: Structure, Functions. Tissues – Structure and functions of epithelial, connective, muscular and nervous tissue. Water and electrolyte balance.</p> <p>Digestive System: Structure of digestive tract and Process of digestion and absorption. Role of hormones in digestion, movements of small intestine. Liver and its functions.</p>
<p>UNIT II Circulatory System: Blood-Composition and functions – RBC, WBC and Platelets. Blood groups, coagulation, blood volume. Structure and functions of heart and blood vessels, ECG, cardiac cycle. Blood pressure-factors influencing blood pressure.</p>
<p>UNIT III Respiratory and Excretory System: Respiratory System: Structure of the respiratory system, mechanism of respiration. Exchange of Gases- Chloride Shift, respiratory volume.</p>
<p>UNIT IV Endocrine and Reproductive System: Endocrine system: Structure and functions of pituitary, thyroid, Para thyroid, adrenals, Islets of langerhans and sex glands. Reproductive System: General anatomy of female and male reproductive organs. Physiology of menstruation and fertilization. Physiology of lactation.</p>
<p>UNIT V Nervous System and Special Senses: Nervous systems - Structure and functions of brain and spinal cord. Special Senses: Structure of eye and ear. Organs of taste and smell.</p>

PRACTICALS:-

1. Compound Microscope
2. Determination of Blood groups.
3. Measurement of Human blood pressure.
4. Respiratory rate and pulse rate
5. Estimation of haemoglobin

6. RBC Estimation.

7. WBC Estimation 8. ES Estimation

TEXTBOOKS:-

1. Meyer B J, Meij H S and Meyer A C., (2003): Human Physiology, AITBS Publishers and Distributors.
2. Wilson, K.J.W and Waugh, A. (1996): Ross and Wilson, Anatomy and Physiology in Health and Illness, 8th Edition, Churchill Livingstone.

B.SC.CLINICAL NUTRITION AND DIETETICS
(B.Sc., CND) FIRST YEAR}
NUTRITIONAL BIOCHEMISTRY
THEORY: 100 HRS & PRACTICAL: 80HRS

COURSE OUTCOME:-
➤ To understand the simple and molecular structure of the different types of biomolecules.
➤ To identify from a group of molecular formulae, diagrams or models those which correspond to the different types of biomolecules
➤ To gain knowledge the physicochemical properties and biological importance of biomolecules.

<p>UNIT I Introduction to Biochemistry: Definition, objectives, scope and inter relationship between biochemistry and other biological science.</p>
<p>UNIT II Intermediary metabolism: Carbohydrate Metabolism, Glycolysis, TCA cycle & energy generation, HMP Shunt pathway, gluconeogenesis, glycogenesis, glycogenolysis, blood sugar regulation.</p> <p>Proteins: General reaction of amino acid metabolism, urea cycle. Lipoproteins: Types, composition, role and significance in disease(in brief).</p>
<p>UNIT III Lipids: Oxidation and biosynthesis of fatty acids (saturated & mono-unsaturated), Synthesis and utilization of ketone bodies, Ketosis, fatty livers, Essential Fatty acids, Cholesterol and its clinical significance</p> <p>General, concepts & functions of immunoglobulins.</p>
<p>UNIT IV Vitamins: Chemistry and biochemical role of fat soluble vitamins. A. D. E. and K. Water soluble vitamins – B1, B2, B6 niacin and C.</p> <p>Minerals: Biochemical role of inorganic elements, Interrelationship between vitamin and minerals.</p>
<p>UNIT V Enzymes: Definition, types and classification of enzymes, definition and types of coenzymes, Functions of coenzymes and cofactors, Specificity of enzymes, Isozymes, enzyme Kinetics including factors affecting enzyme action, regulations of enzyme activity, zymogen, allosteric enzymes, enzyme inhibition.</p>

PRACTICAL
1. Identification of carbohydrates (Qualitative Tests)
2. Identification of proteins (Qualitative Tests)

3. To study general properties of the enzyme Urease & Achromatic time of salivary amylase.
4. Estimation of glucose in urine by Benedict's methods
5. Urine analysis – normal & abnormal constituents of urine.
6. Blood glucose estimation.
7. Renal Function test.

REFERENCE TEXT BOOKS

1. Fundamentals of Biochemistry (2005) J.L Jain, 6th Edition, S. Chand & Co Ltd.,
2. Lehninger's Principles of Biochemistry (2000) Nelson, David I. and Cox, M.M. Macmillan/worth, NY. 13
3. Biochemistry (2013) U.Satyanarayana and U. Chakrapani, 4th edition, Elsevier.
4. Fundamentals of Biochemistry (1999) Donald Voet, Judith G.Voet and Charlotte W Pratt, John Wiley & Sons, NY.
5. Biochemistry, 3rd (1994) Lubert stryer, W H freeman and co, Sanfrancisco.
6. Biochemistry, 4th edition (1988) Zubay G L, W M C Brown Publishers.
7. Principles of Biochemistry (1994) Garrette & Grisham, Saunders College publishing.

B.SC.CLINICAL NUTRITION AND DIETETICS
(B.Sc.,-CND) FIRST YEAR
ENGLISH
THEORY: 100 HRS

CO1: Demonstrate a coherent and systematic knowledge of the field of English literature showing an understanding of current theoretical and literary developments in relation to the specific field of English studies.

CO2: Demonstrate a set of basic skills in literary communication and explication of literary practices and process with clarity.

UNIT I
Role of communication Defining Communication, Classification of communication, Purpose of communication, Major difficulties in communication, Barriers to communication, Characteristics of successful communication, The seven Cs, Communication at the work place. Human needs and communication “Mind mapping” Information communication
UNIT II
Comprehension passage :- Reading purposefully
Understanding what is read
Drawing conclusion
Finding and analysis
UNIT III
Explaining:-
How to explain clearly
Defining and giving reasons
Explaining differences
Explaining procedures
Giving directions
UNIT IV
Writing business letters:
How to construct correctly Formal language
Address Salutation
Body Conclusion
UNIT V
Report writing:-
Reporting an accident
Reporting what happened at a session
Reporting what happened at a meeting

B.SC.CLINICAL NUTRITION AND DIETETICS

(B.Sc., CND) FIRST YEAR

BASIC COMPUTER

THEORY: 100 HRS & PRACTICAL: 80HRS

COURSE OUTCOME:-

- To enable the students to operate a computer and put to use for education, information and research purpose

UNIT 1

Introduction to computer– I/O devices – memories – RAM and ROM – Different kinds of ROM kilobytes.

MB,GB their conversions – large computer –Medium, Micro, Mini computers Different computer languages – Number system – Binary and decimal conversions – Different operating system.

UNIT II

MS DOS – Basic commands – MD, CD, DIR,TYPE and COPY CON commands – Networking – LAN, WAN,MAN(only basic ideas) Typing text in MS word – Manipulating text – Formatting the text – using different font sizes, bold, italics Bullets and numbering – Pictures, file insertion – Aligning the text and justify – choosing paper size – adjusting margins – Header and footer, inserting page No’s in a document

UNIT III

Printing a file with options –Using spell check and grammar –Find and replace–Mail merge–inserting tables in a document.

Creating table in MS-Excel – Cell editing – Using formulas and functions – Manipulating data with excel – Using sort function to sort numbers and alphabets – Drawing graphs and charts using data in excel – Auto formatting – Inserting data from other worksheets.

UNIT IV

Preparing new slides using MS-POWERPOINT –Inserting slides – slide transition and animation– Using templates – Different text and font sizes – slides with sounds – Inserting clip arts, pictures, tables and graphs – Presentation using wizards.

UNIT V

Introduction to Internet – Using search engine – Google search – Exploring the next using Internet Explorer and Navigator – Uploading and Download of files and images – E-mail ID creation Sending messages – Attaching files in E-mail – Introduction to “C” language – Different variables, declaration, usage – writing small programs using functions and sub – functions.

PRACTICALS:-

Typing a text and aligning the text with different formats using MS Word Inserting a table with proper alignment and using MS-Word

Create mail merge document using MS-word to prepare greetings for 10 friends, Preparing a

slideshow with transition, animation and sound effect using MS Powerpoint Customizing the slideshow and inserting pictures and tables in the slides using MS-powerpoint

Creating a worksheet using MS-Excel with data and use of functions Using MS Excel prepare a worksheet with text, date time and data

Preparing a chart and pie diagrams using MS-Excel Using Internet for searching, uploading files, downloading files creating e-mail IDU sing C language writing programs using functions

REFERENCE TEXT BOOKS:-

1. Jain, S, MS-Office 2007 Training Guide Paperback, BPB Publications, 2010 Sampath K (1998), Introduction to Educational Technology, Sterling Publishers Pvt. Ltd
2. Kihrwadkar A, Pushpanadan, (2006), Information and Communication Technology in Education, Sarup and Sons, Delhi.
3. Sagar Krshna (2007), ICTs and Teacher Training, Authors Press, Delhi
4. Valerie Q (1998), Internet in a nutshell, Shroff Publishers and Distributors Pvt. Ltd, Delhi

B.SC.CLINICAL NUTRITION AND DIETETICS
(B.Sc., CND) SECOND YEAR
DIETETICS I
THEORY: 100 HRS & PRACTICAL: 80HRS

COURSE OUTCOME:-

- Acquire knowledge on the clinical, biochemical changes and dietary management of various disease
- Manage to make appropriate dietary modification for various disease conditions, skills and attributes required to meet entry level competency required for a dietician

UNIT I

Role of dietitian: The hospital & community. Basic concepts of diet therapy, Principles of diet therapy & therapeutic nutrition for changing needs. It should cover all age groups Adaptation of normal diet for changing needs.

UNIT II

Routine hospital diets –Regular diet, light diet, full liquid and tube feeding. Modification of diet- Febrile conditions, infections and surgical conditions.

UNIT III

Diets for gastro-intestinal disorders, constipation, diarrhea, peptic ulcer. Diet for renal diseases- Nephritis, Nephrotic syndrome and renal failure. Diet for obesity and cardiovascular disorders. Diet for Diabetes mellitus. Diet & nutrition in kidney diseases.

UNIT IV

Nutrition in cancer, Nutrition in Immune system dysfunction, AIDS & Allergy. Nutrition support in metabolic disorders, Nutrition in burns and surgery. Nutrition Addictive behavior in anorexia, nervosa, bulimia & alcoholism, Nutrient drug interaction.

UNIT V

Feeding the patients – Psychology of feeding the patient, assessment of patient needs. Feeding infants & children-problems in feeding children in hospitals. Nutrition & diet clinics Patients checkup and dietary counseling, educating the patient and followup, weaning foods.

PRACTICALS:-

1. Standardization of common food preparations.
2. Planning, preparation and calculation of following diets:
 - a) Normal diet.
 - b) Liquid diet
 - c) Soft diet
 - d) High and low caloric diet
 - e) Bland diet for peptic ulcer
 - f) Diet for Viral hepatitis and cirrhosis
 - g) Diet for Diabetes mellitus
 - h) Diet for Hypertension and Atherosclerosis

- i) Diet for Nephritis and Nephrotic syndrome
- j).Low and medium cost diets for P.E.M., Anemia & vitamin A deficiency

REFERENCE TEXT BOOK:-

1. Shubangini A Joshi, (1998): Nutrition and Dietetics, Tata Mc Graw Hill Pub.Co.Ltd., New Delhi.
2. Srilakshmi. B, (2005): Dietetics, V Edition, New Age International (P) Ltd,Publishers, Chennai.
3. National Institute of Nutrition, (2011): Dietary Guidelines for Indians – A Manual, Hyderabad.
4. Antia F.P, Clinical Dietetics and Nutrition, Oxford University Press.

B.SC.CLINICAL NUTRITION AND DIETETICS
(B.Sc.,-CND) SECOND YEAR
FOOD MICROBIOLOGY
THEORY: 100 HRS & PRACTICAL: 80HRS

COURSE OUTCOME:-
➤ Understand the role of microbes in health and diseases
➤ Study the microbes in relation to food spoilage, food-borne diseases and food preservation

<p>UNIT I Bacteria: Bacterial Morphology, characteristics, reproduction Moulds: General characteristics and importance of moulds. Yeast: General characteristics and importance of Yeasts. Waste product handling:- a. Planning for waste disposal. b. Solid wastes and liquid wastes</p>
<p>UNIT II Virus: General characteristics of viruses. Protozoa: General characteristics of protozoa. Soil microbiology: Role of microbes in Nitrogen cycle-with special emphasis on Pseudomonas and clostridium (in brief). Environmental microbiology: a. Water and water borne diseases. b. Air and air borne diseases. c. Soil and soil borne diseases. d. Sewage and diseases</p>
<p>UNIT III Microbes in water- Bacteriological examination of water, Test for E.Coli. (in brief) Microbes in air- Droplet infection and air- borne diseases and their control. (in brief) Meaning of food poisoning, food infection and their control. Meaning, importance and process of food preservation (in brief). Sterilization and Disinfection - Principles and methods of sterilization, physical and chemical disinfectants-advantages (in brief).</p>
<p>UNIT IV Spoilage, contamination and preservation of fruits, Spoilage, contamination and preservation of vegetables, Spoilage, contamination and preservation of dairy products, Spoilage, contamination and preservation of meat, Spoilage, contamination and preservation of fish, Spoilage, contamination and preservation of poultry</p>
<p>UNIT V Microbial intoxication and infections: Sources of contamination of food, toxin production and physiological action, sources of infection of food by pathogenic organisms, symptoms and method of control. Relevance of microbiology standards for food safety.</p>

PRACTICALS:-

1. Study of equipments in a microbiology lab.
2. Preparation of laboratory media and special media, cultivation of bacteria, yeasts and moulds.
3. Staining of bacteria: gram-staining.
4. Cultivation and identifications of important molds and yeast in food items.
5. Demonstration of available rapid methods and diagnostic kits used in identification of microorganisms or their products.
6. Visits (at least two) to food processing units or any other organization dealing with advanced methods in food microbiology.

REFERENCE TEXT BOOK:-

1. Anna. K. Joshua, Microbiology, Popular book depot, Chennai, 2002.
2. Michael. J. Pelezar, J.R.Chan, E.Cs.Noel, Microbiology, Tata McGraw – Hill publications co ltd., New Delhi 1998.
3. Power and Daginawala, General Microbiology, Himalaya publishing house, Bombay, 1996.

B.SC.CLINICAL NUTRITION AND DIETETICS
(B.Sc.,-CN&D) SECOND YEAR
FOOD SCIENCE
THEORY: 100 HRS & PRACTICAL: 80HRS

COURSE OUTCOME:-

CO1; To enable the students to obtain knowledge of different food groups, their composition, nutrients present, appropriate cooking methods for nutrient conservation and their role in diet with respect to food ingredients with lesser shelf life and are perishable
CO2: To judge the factors responsible for coagulation of protein in different food groups.
CO3: To demonstrate the impact of cooking on pigments present in fruits and vegetable.
CO 4: To assess the factors affecting sugar cookery.

UNIT I

Cereal- Structure and composition, Nutritional value, Processing- Milling, polishing. Parboiling, flaking, parching, roasting, use in variety of preparations selection, storage and care, breakfast cereals.

Pulses: composition and nutritional value, processing, soaking, germination

UNIT II

Cooking and fermentations: Toxic constituents of pulses, Lathyrism. Nuts and oil seeds: Nutritive value, importance & classification.

Milk and milk products: Composition of milk, properties and effect of heat, nutritional importance, milk processing, milk products

UNIT III

Flesh foods selection, storage, uses and nutritional aspects of meat, fish and poultry, spoilage of fish. Fruits and vegetables: Classifications, composition and importance in human nutrition storage, cooking of vegetables, changes during cooking, effect of heat, acid and alkali.

UNIT IV

Sugar and sugar products

- (a) Form of sugar and liquid sweetness.
- (b) Caramelization, Hydrolysis, Crystallization
- (c) Indian confectionery palm sugar by products.

Beverages: Coffee, tea, and cocoa, processing composition and preparation, spices and condiments, types and composition.

UNIT V

Fats and oils: Types, role of fat in cookery. Egg-composition & classification of egg & egg products, its nutritive value. Baking- Types of bake products & its nutritive value. Merits, demerits. Role of spices in food science- Importance, composition & classification.

PRACTICAL:-

1. Detection of toxins and adulterants of some of the common foods.
2. Preparation of some confectionary products.
3. Preparations of some traditional, fermented and other products.
4. Preparation of soya bean products and their acceptability test.
5. Survey of marketed processed and labeling of processed food items
6. Nutritional value & criteria of food selection in Indian diet according to ICMR.
7. Visit to confectionaries

REFERENCE TEXT BOOKS:-

1. Manay N.S., and Shadaksharaswamy, M (2001): Foods, facts and principles, New Age International Pvt. Ltd., publishers, New Delhi.
2. Mudambi S.R and Rajagopal V.M: Fundamentals of Foods and Nutrition, Wiley Eastern Ltd., New Delhi.
3. Srilakshmi B, (2005): Food Science, New Age International Publishers, New Delhi.
4. Usha Chandrasekhar, Food Science and Application in Indian Cookery, Phoenix Publishing House P. Ltd., New Delhi, 2002.

**B.SC.CLINICAL NUTRITION AND DIETETICS
(B.Sc.,-CN&D) SECOND YEAR
THERAPEUTIC NUTRITION II
THEORY: 100 HRS & PRACTICAL: 80HRS**

COURSE OUTCOME:-

- Understand the Physiological basis for Nutrition
- Get familiarized with the basic concepts and gain experience in Planning and Preparation of meals for various age group at different income level and conditions based on their nutritional needs.
- Get exposed to responsibilities of a dietician

UNIT I

Introduction to meal management-balanced diet, food groups& the planning of balanced diet, Food guides for selecting adequate diet, Diet therapy Diet & stress in current scenario, Meal planning for the family. Indian meal patterns vegetarian & non-vegetarian, Food faddism & the faulty food habits.

UNIT II

Nutritive value of common Indian recopies, Geriatric nutrition: Factors affecting food intake and nutrient use, nutrient needs, nutrition related problems

UNIT III

Nutrition of school children-Nutritional requirement, importance of snacks, school lunch. Nutrition during adolescence - Growth & nutrient needs, food choices, eating habits, factor influencing needs Nutrition during adulthood – Nutritional requirements, feeding pattern.

UNIT IV

Nutrition in pregnancy -Physiological stages of pregnancy, nutritional requirements, food selection, complication of pregnancy.
Nutrition during lactation- Physiology of lactation, nutritional requirements

UNIT V

Nutrition during infancy - growth & development, nutritional requirements, breast feeding, infant formula, introduction of supplementary foods. Nutrition during early childhood (Toddler/Preschool)-Growth & nutrient need, nutrition related problems, feeding patterns.

PRACTICAL:-

Planning preparation and nutritional, Evaluation of diets in relation to activity levels and physiological state.

- Planning and preparation of a balanced diet for a pregnant woman.
- Diet during complication of pregnancy.
- Planning and preparation of a balanced diet for a lactating woman.
- Preparation of weaning foods.
- Planning and preparation of a balanced diet for pre-school child.

➤ Balanced diet for school going child. Preparation of packed lunch
➤ Planning and preparation of a balanced diet for adolescence.
➤ Planning of meals for adult belonging to different income group.
➤ Planning meal for senior citizen.

REFERENCE:-

1. Corinne, H. Robinson (2010), “Normal and Therapeutic nutrition”, Oxford and IBH Publishing company, Bombay.
2. B. Srilakshmi (2012), “Dietetics”,4th edition, New age international Publisher, Chennai.

B.SC., CLINICAL NUTRITION AND DIETETICS
(B.Sc., CND) SECOND YEAR
FUNDAMENTALS OF TOURISM & HOSPITALITY MANAGEMENT
THEORY: 100 HRS & PRACTICAL: 80HRS

COURSE OUTCOME:-

- To enable the students to be familiarized with the nuances of Tourism & Hospitality industry
- Detailed study of equipments required in food service industry, planning and designing various food service outlets, kitchen management and sanitation.

UNIT I

Organization and management:

- A. Definition and types of organization
- B. Definition- functions and tools of management
- C. Technique of effective management and its application to food preparation and science.

UNIT II

Food material management

- A. Meaning, definition, and importance
- B. Food selection, purchasing, receiving and store room management
- C. Control in relation to the above operations (material planning, budgeting, material identification, modification and standardization, inventory control, store keeping.

UNIT III

Definition, objectives, functions, factors underlying successful store keeping, duties and responsibilities of a store keeper, purchasing, organization, principle, procedure, systems and quality control).

UNIT IV

Personnel Management: Recruitment, selection and training of personalities, work standards, productivity, supervision, performance appraisal and motivation incentives for effective performances.

UNIT V

Labour policies and legislation: (Personnel policies related to salaries, other emoluments, allowances, leave, uniform and other prize benefit, laws and organization)- Laws affecting food service institution to study the following: (hospital, flight kitchen, hotel, restaurant, canteen, Industrial) –

- a. Organization
- b. Physical plan and layout.
- c. Food and silver equipment
- d. Sanitation and hygiene with personal emphasis on Hospital.

PRACTICAL:-

Visit and appraisal of any two medical organizations.

1. Work simplification: food preparation, Calculating work unit, time norms etc.
2. Costing, accounting, budgeting, purchase.
3. Store keeping: Listing and management of food items in the store.
4. Personnel recruitment: Preparations of a project and report making.
5. Maintenance of the clothing for persons and staff involved in kitchen area.
6. Prepare an inventory for evaluating staffs personal hygiene.

REFERENCE TEXT BOOK:-

1. Kamra, K.K and M.Chand, Basics of Tourism-Theory, Operation and Practice, Kanishka Publishers, New Delhi. First Edition. 2006.
2. Puri M. and G.Chand, Tourism Management, Pragun Publications, New Delhi. First Edition.2006.
3. Roday .S, Biwal .A. and Joshi. V., TOURISM Operations and Management, Oxford University press publication , New Delhi, First addition 2009
4. Metti, M.C, Hotel Management and Catering, Anmol Publisher, New Delhi, 2008
5. June Payne-Palacio and Monica Theis, Foodservice Management: Principles and Practices, Pearson Publisher, 13th Global edition, 2012
6. Mohini Sethi, Institutional Food Management, New Age International Publishers, (2nd Edn), 2016

CLINICALTRANING

- The students of first year shall do the survey of patients suffering from various diseases and shall plan appropriate diet for them.
 - They shall maintain log book of patients and patients diets according to their health condition.
 - At the end of academic year their log books will be evaluated by the faculty concerned.
- B.Sc. in Human Nutrition (B.SC.-CN&D) Third Year

B.SC.CLINICAL NUTRITION AND DIETETICS
(B.Sc., CND) THIRD YEAR
COMMUNITY NUTRITION
THEORY: 100 HRS & PRACTICAL: 80HRS

COURSE OUTCOME:-

- ✓ Extensive study of role of nutrition in community health and national development, nutritional problems faced by our country, methods of assessment of nutritional status at community level, various methods of nutrition education in community,
- ✓ Role of various national and international agencies in community nutrition and recent advances in community nutrition research.

UNIT I

Nutrition and health in National development, Malnutrition meaning. Factors contributing to malnutrition, over nutrition, Nutritional disorders- Epidemiology, clinical features, prevention and dietary treatment for Protein Energy malnutrition, nutritional anemia's & vitamin deficiency disorders

UNIT II

Methods of assessing nutritional status:

- a) Sampling techniques , Identifications of risk groups,
- b) Direct assessment - Diet surveys, anthropometric, clinical and biochemical estimation.
- c) Indirect assessment- Food balance sheet, ecological parameters and vital statistics

UNIT III

Improvement of nutrition of a community:

- a) Modern methods of improvement or nutritional quality of food, food fortification, enrichment and nutrient supplementations.
- b) Nutrition education themes and messages in nutrition and health, Antenatal and postnatal care. Nutritional and infection relationship : Immunization and its importance, Food borne infection and intoxication diseases, foods involved, methods of prevention, Infestation of food borne diseases , Outbreak, Prevention signs and control of infection.

UNIT IV

National and International agencies in uplifting the nutritional status -WHO, UNICEF, CARE, ICMR, ICAR, CSIR, CFTRI. Various nutrition related welfare programmes, ICDS, SLP, MOM, and others (in brief).

UNIT V

Community nutrition programme planning - Identification of problem, analysis of causes, resources constraints, selection of interventions, setting a strategy, implementations and evaluation of the programme,

PRACTICAL:-

Diet and nutrition surveys: (Identified field area in the specific no. of families)

- { a) Identification of vulnerable and risk groups.
- (b) Diet survey for breast-feeding and weaning practices of specific groups.

(c) Use of anthropometric measurement in children.

1. Preparation of visual aids.

2. Field visit to

(a) Observe the working of nutrition and health oriented programmes (survey based result).

(b) Hospitals to observe nutritional deficiencies.

REFERENCE TEXT BOOK:-

1. Textbook Of Community Nutrition By Suryatapa Das.,
2. Public health nutrition. by author M. Margaret Barth.,

B.SC.CLINICAL NUTRITION AND DIETETICS
(B.Sc.,-CN&D) THIRD YEAR
THERAPEUTIC NUTRITION II
THEORY: 100 HRS & PRACTICAL: 80HRS

COURSE OUTCOME:-

- Acquire knowledge on the clinical, biochemical changes and dietary management of various disease.
- Manage to make appropriate dietary modification for various disease conditions, skills and attributes required to meet entry level competency required for a dietician.

UNIT I

Concept of Diet therapy: growth and source of dietetics, purpose and principles of therapeutic diets, modification of normal diet, classification of therapeutic diets.

Role of Dietician: Definition of nutritional care, interpersonal relationship with patient, planning and implementary dietary care, Team approach to nutritional care.

Diet in surgical conditions, burns and cancer, Obesity and leanness- causes, complication and health effects, dietary treatment and other recommendation.

UNIT II

Diet in fever and infections- Types- metabolism in fever, general dietary consideration diet in influenza, typhoid fever, recurrent malaria and Tuberculosis.

Diet in gastritis, peptic ulcer- symptoms, clinical findings, treatment, dietary modification, adequate nutrition, amount of food, and intervals of feeding, Chemically and mechanically irrigating foods,

Four stage diet (Liquid, soft, convalescent, liberalized diet).

Diet in disturbances of small intestine and color.

- Diarrhoea- (child and adult)- classification, modification of diet, fibre, residue.

Fluids & nutritional adequacy.

- Constipation- flatulence dietary considerations.
- Ulcerative colitis (adults)- symptoms, dietary treatment.
- Spruce, coeliac disease- disaccharide intolerance, dietary treatment.

UNIT III

Diet in Diabetes mellitus:

- a) Incidence and predisposing factors.
- b) Symptoms-types and tests for detection.
- c) Metabolism in diabetes
- d) Dietary treatment & meal management
- e) Hypoglycemic agent, insulin and its types.
- f) Complication of diabetes.

Diet in Renal diseases: Basic renal function, symptoms and dietary treatment in acute and chronic glomerulonephritis, Nephrosis, renal failure, dialysis.

Urinary calculi-causes & treatment, acid and alkali producing and neutral foods and dietary treatment.

Diet in diseases of the liver, gall bladder and pancreas,

- a) Etiology, symptoms and dietary treatment in - Jaundice, hepatitis, cirrhosis and hepatic coma.
- b) Role of alcohol in liver diseases.
- c) Dietary treatment in cholecystitis, cholelithiasis and pancreatitis.

UNIT IV

Gout- Nature and occurrence of uric acid, causes, symptoms and diet.

Diet in allergy and skin disturbances: Definition, classification, manifestations, common food allergies and test and dietetic treatment.

Diet in Cardiovascular diseases: Role of nutrition in cardiac efficiency, incidence of Atherosclerosis, dietary principles, Hyperlipidemia,

Hypertension- causes and dietary treatment, Sodium restricted diet, level of sodium restriction, sources of sodium, danger of severe sodium restriction

UNIT V

Routine hospital diets: Pre operative and post operative diets, study and review of hospital diet.

Basic concepts and methods of –

- (a) Oral feeding
- (b) Tube feeding
- (c) Parental nutrition
- (d) Intra venous feeding.

PRACTICAL:-

1. Planning, preparations with correlating the Biochemical values and calculations of diets with modified-

- (a) Consistency
- (b) Fibre and residue
- (c) Diet for Diarrhea and constipation
- (d) Diet for peptic ulcer.
- (e) Diet for liver disease.

2. Planning, preparation and calculation of diets in fever and infections.

3. Planning, preparation and calculation of diets for insulin dependent Diabetes mellitus, Planning, snacks. Desserts and beverages for diabetes.

4. Planning. Preparation and calculation of diet in cardiovascular diseases.

5. Planning, preparations and calculation of diet in Kidney failure, Kidney transplant, Renal complication & Kidney stones.

6. Planning, preparations and calculation of diet in Cancer, Trauma (burns) & Surgery

REFERENCE TEXT BOOK:-

1. Shubangini A Joshi, (1998): Nutrition and Dietetics, Tata Mc Graw Hill Pub. Co. Ltd., New Delhi.
2. Srilakshmi. B, (2005): Dietetics, V Edition, New Age International (P) Ltd, Publishers, Chennai.
3. National Institute of Nutrition, (2011): Dietary Guidelines for Indians – A Manual, Hyderabad.
4. Antia F.P, Clinical Dietetics and Nutrition, Oxford University Press.

B.SC.CLINICAL NUTRITION AND DIETETICS

(B.Sc.,-CND) THIRD YEAR DIETETICS II AND COUNSELLING THEORY: 100 HRS & PRACTICAL: 80HRS

COURSE OUTCOME:-

- CO1: `Manage to make appropriate dietary modification for various disease conditions, skills and attributes required to meet entry level competency required for a dietician
- CO2: Know the effect of various diseases on nutritional and dietary requirements.
- CO3: Provide and recommend appropriate nutritional care for prevention and treatment of various diseases.
- CO4: To develop skills and techniques in the planning and preparation of therapeutic diets for various diseases and nutritional deficiencies.

UNIT I

Practical consideration in giving dietary advice and counseling –

- a) Factors affecting and individual food choice.
- b) Communication of dietary advice
- c) Consideration of behavior modification
- d) Motivation.

UNIT II

Counseling and educating patient

- a) Introduction to nutrition counseling
- b) Determining the role of nutrition counselor
- c) Responsibilities of the nutrition counselor
- d) Practitioner v/s client managed care
- e) Conceptualizing entrepreneur skills and behavior
- f) Communication and negotiation skills.

UNIT III

Teaching aids used by dietitians charts, leaflets, posters etc., preparation of teaching material for patients suffering from Digestive disorders, Hypertension, Diabetes, Atherosclerosis & Hepatitis and cirrhosis.

UNIT IV

Computer application

- a) Use of computers by dietitian
- b) Dietary computations
- c) Dietetic management
- d) Education/ training
- e) Information storage
- f) Administrations
- g) Research

UNIT V

Computer application

- a) Execution of software packages
- b) Straight line, frequency table, bar diagram, pie chart, Preparation of dietary charts for patients
- c) Statistical computation- mean, median, standard deviation, conclusion and regression test.

PRACTICAL:-

1. Project planning for any one disease.
2. Computer application for different diseases.
3. Submitting computed data.
4. Preparation soft teaching aids in the field of nutrition.
5. Preparation of case history of a patient and feeding of information in the hard disc.

REFERENCE TEXT BOOK:-

1. Antia F.P, Clinical Dietetics and Nutrition, Oxford University Press.