

**SANTOSH DEEMED TO BE UNIVERSITY
PRATAP VIHAR, GHAZIABAD, UP**

BACHELOR OF SCIENCE IN CLINICAL NUTRITION & DIETETICS

PROPOSED GUIDELINE & SYLLABUS

EFFECTIVE FROM AUGUST (2021)

SESSION 2021-2022

DURATION – 3 YEARS



**DEPARTMENT OF GENERAL MEDICINE
SANTOSH MEDICAL COLLEGE HOSPITALS
NO.-1, AMBEDKAR ROAD, GHAZIBAD, UP.**

The Yearly Theory Examination Papers in 4 Sections containing 20 Marks of each section which should cover complete Syllabus viz:

I.	Short Notes	-	4 x 5 Marks	= 20 Marks
II.	Long Notes (Problem Based)	-	2 x 10 Marks	= 20 Marks
III.	Long Question	-	1 x 20 Marks	= 20 Marks
IV.	MCQs	-	20 x 1 Mark	= 20 Marks

Total Theory	80 Marks
Internal Assessment	20 Marks
Viva	20 Marks
Practical Internal	20 Marks
University Practical	60 Marks
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Total	200 Marks

Total Marks for each paper is proposed to be 200 Marks Maximum and a student shall be declared to have passed if he/she has secured more than 50 % in Theory Components including viva and 50 % in Practical components.

PROGRAM: -Bachelor of Science in Clinical Nutrition and Dietetics

(B.Sc. CND)

STUDY & SYLLABUS- EVALUATION SCHEME

B.Sc. CND 1st Year

S.No	subject	Internal Assessment weightage / Marks (Per Paper)	University Theory Marks (Per paper)	Viva	Practical Internal	Practical University	TOTAL
1.	Basic Nutrition-1	20	80	20	20	60	200
2.	Food Science	20	80	20	20	60	200
3.	Human Physiology	20	80	20	20	60	200
4.	Nutritional Biochemisty	20	80	20	20	60	200
5.	Basics of Computer	20	80	20	20	60	200

B.Sc. CND 2nd Year

S.No	subject	Internal Assessment weightage / Marks (Per Paper)	University Theory Marks (Per paper)	Viva	Practical Internal	Practical University	TOTAL
1.	Basic Dietetics	20	80	20	20	60	200
2.	Food Microbiology	20	80	20	20	60	200
3.	Food Processing & Preservation	20	80	20	20	60	200

4.	Personnel Management	20	80	20	20	60	200
5.	Family Meal Management	20	80	20	20	60	200

B.Sc. CND 3rd Year

S.No	subject	Internal Assessment weightage / Marks (Per Paper)	University Theory Marks (Per paper)	Viva	Practical Internal	Practical University	TOTAL
1.	Community Nutrition	20	80	20	20	60	200
2.	Advanced Dietetics-I	20	80	20	20	60	200
3.	Advanced Dietetics-II	20	80	20	20	60	200
4.	Dietetics Counselling	20	80	20	20	60	200
5.	Maternal and Child Nutrition	20	80	20	20	60	200

SYLLABUS

Bachelor of Science in Clinical Nutrition and Dietetics

(B.Sc. CND)

1st Year

PAPER-I : BASIC NUTRITION

B.Sc. Clinical Nutrition (B.SC.-CN) First Year BASIC NUTRITION

Introduction to nutrition - Food as source of nutrients, functions of food, definition of nutrition, nutrients & energy, adequate, optimum & good nutrition, malnutrition.

Nutrition - Fitness, Athletics & Sports.

Food guide - Basic five food groups How to use food guide (according to R.D.A.)

Interrelationship between nutrition & health : - Visible symptoms of goods health

Use of food in body - Digestion, Absorption, transport & utilization.

Role of fibres in human nutrition.

Carbohydrates: Functions, classification, food sources, storage in body.

Fats & oils : composition, saturated and unsaturated fatty acids, classification, food sources, function of fats.

Proteins - composition, sources, essential & non-essential amino acids, functions, Protein deficiency. 10. Water - as a nutrient, function, sources, requirement, water balance & effect of deficiency.

Minerals - macro & micronutrients. - Functions, sources. Bioavailability and deficiency of Calcium, Iron, Iodine, Sodium & Potassium (in very brief)

Vitamins (water & fat soluble) - definition, classification & functions.

Effect of cooking & heat processing on the nutritive value of foods.

Processed supplementary foods. 15. Food sanitation in hygiene

PRACTICAL

Use and care of kitchen equipments.

2. Controlling techniques - Weights and measures standard, household measures for raw and cooked food.

Food preparation and classifying recipes as good, moderate or poor, sources of specific nutrients, Amount of ingredients to be in standard recipe –

a) Portion size –

b) Beverages - tea, coffee, cocoa, fruit juice, milk, milk shakes.

c) Cereals and flour mixtures - basic preparation & their nutritive value - boiled rice and rice pulao, chapati, puri, paratha, sandwiches, pastas, pancakes, cookies & cakes.

Vegetables & fruits - Simple salads, Dry vegetables, Curries, fruits preparation using fresh and dried stewed fruit, fruit salad

Mix and milk products Porridges, Curds, paneer and their commonly made preparations, Milk based simple desserts and puddings, custard, kheer, ice cream

Meat - cuts of meat - Meat preparations, Poultry, Fish, hard and soft cooked, poached, scrambled, fried omlette & egnogs.

Soups - Basic, clear and cream soups.

Snacks- Pakoras, cheese toast, upma, pohe, peanut, chikki, til & laddo

FOOD SCIENCE

Min. Hrs - Theory : 80 hrs & Practical : 80 hrs. THEORY

1. Cereal- Structure and composition, Nutritional value, Processing- Milling, polishing. Parboiling,

flaking, parching, roasting, use in variety of preparations selection, storage and care, breakfast

cereals. 2. Pulses: composition and nutritional value, processing, soaking, germination.

3. Cooking and fermentations: Toxic constituents of pulses, Lathyrism.

4. Nuts and oil seeds: Nutritive value , importance & classification.

5. Milk and milk products: Composition of milk, properties and effect of heat, nutritional

importance, milk processing, milk products.

6. Flesh foods- selection, storage, uses and nutritional aspects of meat, fish and poultry, spoilage of

fish. 7. Fruits and vegetables: Classifications, composition and importance in human nutrition

storage, cooking of vegetables, changes during cooking, effect of heat, acid and alkali.

8. Sugar and Sugar products (a) Form of sugar and liquid sweetness. (b) Caramelization,

Hydrolysis, Crystallization (c) Indian confectionery

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

condiments, types and composition.

10. Fats and oils: Types, role of fat in cookery.

11. Egg - composition & classification of egg & egg products, its nutritive value.

12. Baking - Types of bake products & its nutritive value.

13. Role of spices in food science - Importance, composition & classification.

PRATICAL

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 soyabean 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.

HUMAN PHYSIOLOGY

Theory : 100 hrs & Practical : 80 hrs.

THEORY 1. Cell - Structure and function

Blood - Blood cells, Haemoglobin, Blood groups, Coagulation Factors , Anaemia

Skeletal System -Bones, joints & bone deformities in brief.

Cardiovascular system Heart rate, Cardiac cycle, cardiac output, blood pressure, hypertension, radial pulse.

Lymphatic system -Lymph glands and its function, spleen -structure and functions.

Respiratory System -Ventilation , Functions , Lungs volumes and capacities.

Gastrointestinal System -Process of digestion in various parts.

Endocrinology List of Endocrine glands, Hormones : Their secretion and functions (in brief).

Excretion system -Structure of nephron , Urine formation

Central Nervous System Parts, Sliding Filament Theory , Neuro Muscular Junction , Wallerian Degeneration, Motor Nervous system - Upper motor neuron system & lower motor neuron system. Sensory nervous system, Sympathetic Nervous system & Parasympathetic nervous system.

Skin - Structure and functions

Reproductive system Structure and functions of male & female reproductive organs, menstruation, puberty, menopause, fertilization and development of fertilized ovum, placenta and its function.

Special senses Structure and function of eye and ear, common diseases of eye and ear (in brief)

PRACTICAL

Compound Microscope 2.Determination of Blood groups.

Measurement of Human blood pressure.

Respiratory rate and pulse rate

5.Estimation of haemoglobin

6.RBC Estimation

7.WBC Estimation

8.ESR Estimation

NUTRITIONAL BIOCHEMISTRY

Basics of energy metabolism, nutrition & dietetics - Unit of measuring energy, calorific value of food, BMR & factors affecting it, SDA of food, calculation of energy requirement, balanced diet, nutrition in health & diseases (protein energy malnutrition).

Chemistry of carbohydrates & their related metabolism - Introduction, definition, classification, biomedical importance Brief outline of metabolism : Glycogenesis & glycogenolysis (in brief), Glycolysis, citric acid cycle & its significance, HMP shunt & Gluconeogenesis (in brief), regulation of blood glucose level.

Amino acids - Definition, classification, essential & non essential amino acids.

Chemistry of Proteins & their related metabolism - Introduction, definition, classification, biomedical importance Metabolism: Transformation, Decarboxylation, Ammonia formation & transport, Urea cycle.

Chemistry of Lipids & their related metabolism - Introduction, definition, classification, biomedical importance, essential fatty acids, identification of fats & oils (saponification no, acid no, iodine no, acetyl no, reichertmiesel no. etc.) Brief outline of metabolism: Beta oxidation of fatty acids, Ketosis, Cholesterol & its clinical significance, Lipoproteins in the blood composition & their functions in brief, Atherosclerosis.

Enzymes - Introduction, definition, classification, coenzymes, isoenzymes, properties, factors affecting enzyme action, enzyme inhibition, diagnostic value of serum enzymes - Creatinine kinase, Alkaline phosphatase, Acid phosphatase, LDH, SGOT, SGPT, Amylase, Lipase, Carbonic anhydrase etc.

Acid base balance concepts & disorders - pH, Buffers, Acidosis, Alkalosis 8.
Hormones - Classification, general mode of action, hormones of Pituitary, Thyroid, Parathyroid, Adrenals, Reproductive Glands, Pancreas, hormonal disorders, counter regulatory hormones.

Vitamins - Water & fat soluble vitamins, sources, requirement, deficiency disorders & biochemical functions.

Water metabolism Distribution of fluids in the body, ECF, ICF, Water metabolism, dehydration. 11. Hyperglycemia & hypoglycemia - Diabetes mellitus - definition, types, features, gestation diabetes mellitus , glucose tolerance test, glycosurias, Hypoglycemia & its causes

Liver functions and their assessment - Based on - a) Carbohydrate metabolism b) Protein metabolism c) Lipid Metabolism d) Measurements of serum enzyme levels e) Bile pigment metabolism : Jaundice - its types and their biochemical findings.

Renal functions tests - Various tests, GFR & clearance.

Tumor markers & their clinical applications - Including oncofetal antigens, CEA etc.

General concepts & functions of immunoglobulins

PRACTICAL

Identification of carbohydrates (Qualitative Tests)

Identification of proteins (Qualitative Tests)

To study general properties of the enzyme Urease & Achromatic time of salivary amylase.

Estimation of glucose in urine by Benedict's methods

Urine analysis - normal & abnormal constituents of urine.

Blood glucose estimation.

7. Renal Function test

BASICS OF COMPUTER

Min. Hrs - Theory : 40 hrs & Practical : 20 hrs.

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 – 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 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.

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.

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.

PRACTICAL

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 slide show with transition, animation and sound effect using MSPowerpoint Customizing the slide show 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 ID Using C language writing programs using functions

B.Sc. Clinical Nutrition (B.SC.-CN) Second Year BASIC DIETETICS

Min. Hrs - Theory : 100 hrs & Practical : 80 hrs.

2ND YEAR

BASIC DIETETICS

1. Role of dietitian: The hospital & community.
2. Basic concepts of diet therapy.
3. Principles of diet therapy & therapeutic nutrition for changing needs. It should cover all age groups.
4. Adaptation of normal diet for changing needs.
5. Routine hospital diets - Regular diet, light diet, full liquid and tube feeding.
6. Modification of diet - Febrile conditions, infections and surgical conditions.
7. Diets for gastro - intestinal disorders, constipation, diarrhoea, peptic ulcer.
8. Diet for renal diseases - Nephritis, Nephrotic syndrome and renal failure.
9. Diet for obesity and cardiovascular disorders.
10. Diet for Diabetes mellitus.
11. Diet & nutrition in kidney diseases.
12. Nutrition in cancer.
13. Nutrition in Immune system dysfunction, AIDS & Allergy.
14. Nutrition support in metabolic disorders.
15. Nutrition in burns and surgery.
16. Nutrition - Addictive behaviour in anorexia, nervosa, bulimia & alcoholism.
17. Nutrient drug interaction.
18. Feeding the patients - Psychology of feeding the patient, assessment of patient needs.
19. Feeding infants & children - problems in feeding children in hospitals.
20. Nutrition & diet clinics - Patients checkup and dietary counseling, educating the patient and followup .

PRACTICAL

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
 - k. Low and medium cost diets for P.E.M., Anemia & vitamin A deficiency

FOOD MICROBIOLOGY

Min. Hrs - Theory : 80 hrs & Practical : 80 hrs.

THEORY

1. Introduction of microbiology and its relevance to everyday life. General characteristics of bacteria, fungi, virus, protozoa, and algae .
2. Growth of microorganisms: Growth curve, effect of environmental factors in growth of microorganism - pH , water activity , oxygen availability, temperature and others.
3. Microbiology of deficient food: Spoilage. Contamination sources, types, effect on the following:
 - a. Cereal and cereal products
 - b. Sugar and sugar products.
 - c. Vegetables and fruits
 - d. Meat and meat products.
 - e. Fish, egg and poultry, Milk and milk products
 - g. Canned foods.
4. Environmental microbiology:
 - a. Water and water borne diseases.
 - b. Air and air borne diseases.
 - c. Soil and soil borne diseases.
 - d. Sewage and diseases.
5. Beneficial effect of microorganisms.
6. Relevance of microbial standards for food safety.
7. Waste product handling : -
 - a. Planning for waste disposal.
 - b. Solid wastes and liquid wastes.

8. 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.

9. Relevance of microbiology standards for food safety.

PRACTICAL

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.

FOOD PROCESSING & PRESERVATION

Min Hrs Theory: 100 hrs & practical 80 hrs

Theory

1. Introduction. Food processing and it's importance , processing technology of foods and nutritional implications for the following :

Cereals & Pulses – wheat grain characteristics and it's products

Rice processing , Pulses processing and their elimination of toxic factors

Fermentation

Germination

2. Nuts & oilseeds – oilseeds processing , solvent extraction purification , hydrogenation and tempering products – butter , margarine etc .

3 . - Physical principles in food processing operations .

Chemical principles of food processing .

Chemical and biochemical reactions affected food quality and safety .

4. Fundamentals of food preservation .

- concept .

- Importance of food preservation .

- Principles of food preservation .

- Techniques / Methods of food preservation .
5. Microorganisms in food .
 - Introduction .
 - Types if microorganisms .
 - conditions for growth .
 - Food spoilage – it's cause and their control .
 - Perishable , semi perishable and non perishable foods .
 - Factors affecting the growth of microorganisms in the food .
 6. Preservation by preservatives .
 - concept and definition
 - Types
 - Natural preservatives
 - Synthetic preservatives
 7. Irradiation
 - concept , definition
 - Principles of irradiation
 - types of irradiation
 - Application
 8. Preservation by drying .
 - concept , history .
 - Types of drying and dryers .
 - Treatment prior for drying .
 9. Food laws and standards .
 - Responsible agencies for safe food .
 - Present regulations / order/ standard related to foods .
 10. Some Recent concept in food Technology.
 - Biotechnology in food.
 - Algae as food – spirulina .
 - Low cost nutrient supplement's.
 - Packaging of foods .

Practical.

Identification of lab equipment.

Identification of class 1 & class 2 preservatives.

Identification of spoiled food.

Preparation of products by using salt as preservatives (any two)

Preparation of products by using sugar as preservatives (any two)

Preparation of products by using oil as preservatives (any two)
Preparation of products by using chemical preservatives (any two)
Freezing of fruits .
Steaming, Blanching of vegetables.
Preservation of fruits by syruring

PERSONNEL MANAGEMENT

Min. Hrs - Theory: 100 hrs & Practical: 80 hrs.

THEORY

1. 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.

2. Food material management:

a) Meaning, definition, and importance.

b) Food selection, purchasing, receiving and storeroom management.

c) Control in relation to the above operations (material planning, budgeting, material identification, modification and standardization, inventory control, store keeping, definition, objectives, functions, factors underlying successful storekeeping, duties and responsibilities of a storekeeper, purchasing, organization, principle, procedure, systems and quality control).

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

4. 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. Storekeeping: 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.

FAMILY MEAL MANAGEMENT

Min. Hrs - Theory: 100 hrs & Practical: 80 hrs.

THEORY

1. Introduction to meal management - balanced diet, food groups & the planning of balance diet.
2. Food guides for selecting adequate diet .
3. Diet therapy
4. Diet & stress in current scenario.
5. Meal planning for the family.
6. Indian meal patterns - vegetarian & non-vegetarian.
7. Food faddism & the faulty food habits.
8. Nutritive value of common Indian recepies.
9. Nutrition in pregnancy - Physiological stages of pregnancy, nutritional requirements. food selection, complication of pregnancy.
10. Nutrition during lactation - Physiology of lactation, nutritional requirements
11. Nutrition during infancy - growth & development, nutritional requirements, breast feeding, infant formula, introduction of supplementary foods.
12. Nutrition during early childhood (Toddler/Preschool)- Growth & nutrient need, nutrition related problems, feeding patterns.
13. Nutrition of school children- Nutritional requirement, importance of snacks, school lunch.
14. Nutrition during adolescence - Growth & nutrient needs, food choices, eating habits, factor influencing needs.

5. Nutrition during adulthood - Nutritional requirements, feeding pattern.
16. Geriatric nutrition: Factors affecting food intake and nutrient use, nutrient needs, nutrition related problems.

PRACTICAL

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

1. Planning and preparation of a balanced diet for a pregnant woman.
2. Diet during complication of pregnancy.
3. Planning and preparation of a balanced diet for a lactating woman.
4. Preparation of weaning foods.
5. Planning and preparation of a balanced diet for pre-school child.
6. Balanced diet for school going child. Preparation of packed lunch.
7. Planning and preparation of a balanced diet for adolescence.
8. Planning of meals for adult belonging to different income group.
9. Planning meal for senior citizen.

B.Sc. in Human Nutrition (B.SC.-CN) Third Year COMMUNITY NUTRITION

Min. Hrs - Theory : 100 hrs & Practical : 80 hrs.

THEORY

1. Nutrition and health in National development.
2. Malnutrition- meaning. factors contributing to malnutrition, over nutrition.
3. Nutritional disorders- Epidemiology, clinical features, prevention and dietary treatment for Protein Energy malnutrition, nutritional anaemias & vitamin deficiency disorders .
4. 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.
5. 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.

6. 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.

7. 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).

8. 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

1. 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.

2. Preparation of visual aids.

3. Field visit to (a) Observe the working of nutrition and health oriented programmes (survey based

result). (b) Hospitals to observe nutritional deficiencies.

ADVANCE DIETETICS

Total Theory: 100 Hours and Practical: 80 Hours

ADVANCED DIETETICS - 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 implementing dietary care, Team approach to nutritional care.

Routine hospital diets: Preoperative and postoperative diets, study and review of \ hospital diet. Basic concepts and methods of - (a) Oral feeding (b) Tube feeding (c) Parental nutrition (d) Intravenous feeding.

Pregnancy- Physiology changes in pregnancy, weight gain during pregnancy, food and nutrient requirements complication of pregnancy, and their nutritional management.

Elderly - Physical and physiological changes, nutritional requirements, the problem of old age, nutrients influencing the aging process.

Nutrition, Infection, and Immunity.

Eating disorder - Anorexia nervosa Bulimia underweight.

Introduction of nutraceutical relationship between nutraceutical, foods and Medicines.

Diet, Nutrient and drug interaction, the effect of drugs of ingestion, digestion, absorption and metabolism of nutrients, the effect of drug dose on food, nutrients, and nutritional status.

Inborn error of metabolism and their dietary management and physical changes during this disorder Antioxidant, free radicals scavenging activity. How antioxidants and phytochemicals functional food helpful for the degenerative disease or non-communicable disease

PRACTICAL:

Planning and formulation of food exchange list.

Planning preparation and evaluation of diets for pregnant women.

Planning; preparation and evaluation of diets for old age patient like denture problems digestive issue and their special 'needs

Planning Preparation and calculation of gluten free diet and lactose free diet

Evaluate and analysis of gluten free lactose free food products available in the market

Survey for different Nutraceuticals available in the market.

ADVANCED DIETETICS -II

Adaptation of normal diet, Progressive diet - general & modified diet

Diet in surgical conditions, burns and cancer.

Obesity and leanness- causes, complication and health effects, dietary treatment and other recommendation.

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 colour.

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.

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.

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 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 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.

PRACTICAL

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

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

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

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

Planning, preparation and calculation of diet in cardiovascular diseases.

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

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

DIETETICS AND COUNSELLING

Min. Hrs - Theory : 100 hrs & Practical : 80 hrs.

THEORY

1. Practical consideration in giving dietary advice and counseling - a) Factors affecting and individual food choice. b) Communication of dietary advice c) Consideration of behaviour modification d) Motivation.
2. 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.
3. 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.

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

5. 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. Preparations of teaching aids in the field of nutrition.
5. Preparation of case history of a patient and feeding of information in the hard disc.

MATERNAL AND CHILD NUTRITION B.SC CLINICAL NUTRITION [3RD YEAR]

Nutrition during pregnancy Nutritional requirement during pregnancy and modification of existing diet and supplementation .

Common problems of pregnancy and their management vomiting and nausea , pica , pregnancy induced hypertension , obesity , GDM , thyroid .

Physiological and psychological changes during pregnancy .

Nutrition during Lactation . Nutritional requirement during lactation and dietary management and food supplements , importance of breast feeding.

Nutrition during infancy and introduction of complementary feeding initiation and management of weaning .

Dietary management of children during fever , diarrhoea, pneumonia.

Nutrition and healthcare programmes for mother and child , immunization scheduled for infant and children .

Nutrition related disorder in early childhood eg- PEM AND PCM.

Nutritional requirements for preterm babies and low birthweight baby .

Nutritional requirement for school going children and their packed Lunch .

Diabetes in children [type 1] factors affecting symptoms ,insulin therapy and dietary management .

Obesity in children causes prevention and dietary treatment .

PRACTICAL

Diet planning for pregnant lady according to trimester.

Diet planning for GDM.

Diet planning for lactating mother.

Supplementataion food for children [Energy bar ,protein bar].

Planning for weaning foods .

School visit

Case study for pregnant lady and their baby