SunRise University
Approved by Govt. of Rajasthan vide Sunrise University Act, 2011
Recognized by UGC Act, 1956 u/s 2 (f)

SYLLABUS

B.SC. NUTRITION

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.DURATION OF COURSE: • B.Sc. Clinical Nutrition course will be a full time course .
• Duration will be four years.
• This course shall be divided into three professional examinations namely B.Sc. in Nutrition Part-I at the end of first academic year, B.Sc.-CN Part II at the end of second academic year end B.Sc.-CN Part-III at the end of third academic year.
EXAMINATION: • There shall be an annual university examination at the end of each academic year in the form of theory papers and practical examinations. The candidate shall be required to appear in every subject as specified in the course structure for each year.
Duration of Examination: Each theory paper shall be of three hours duration

COURSE OF THE STUDY

B.Sc. in Clinical Nutrition Part-I (First Year)

S. N	Name of the subject	Teaching Hours		
		Theory	Practical's	Total
1	Basic nutrition	100	80	180
2	Human physiology	100	80	180
3	Nutritional biochemistry	100	80	180
4.	English	60	-	60
5.	Basics of computers	80	20	100

B.Sc.Clinical Nutrition Part-II (Second Year)

S. N	Name of the subject	Teaching Hours		
		Theory	Practical's	Total
1	Basic Dietetics	100	80	180
2	Family meal Management	100	80	180
3	Food Microbiology	80	20	100
4.	Food Science	80	20	100
5	Personnel Management	100	20	100
6	Clinical Training			160

B.Sc. Nutrition Part-III (Third Year)

S. N	Name of the subject	Teaching Hours		
		Theory	Practical's	Total
1	Advanced Dietetics	100	80	180
2	Community Nutrition	100	80	180
3	Dietetics and counseling	100	80	180
4	Practical Work			

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INTERNAL ASSESSMENT • It will be for theory and practical both. • It will be done through the whole year. • Candidate must obtain at least 45% marks in theory and practicals separately in internal assessment to be eligible for the annual university examination.
• Internal assessment (Theory) will be done as follows :
a) Mid-term and term examinations
b) Assignments/Projects/Class test/Clinical Presentations
c) Attendance
Internal assessment (Practical) will be done as follows :
a) Laboratory manual = 10 marks
b) Day to day performance = 05 marks
c) Attendance = 05 marks Total = 20 marks
CRITERIA FOR PASSING • A candidate is declared to have passed University examination in a subject, if he/she secures 50% of the marks in theory and 50% in practical's separately.

B.Sc. Nutrition (B.SC.-CN) First Year BASIC NUTRITION
1. Introduction to nutrition - Food as source of nutrients, functions of food, definition of nutrition, nutrients & energy, adequate, optimum & good nutrition, malnutrition.
2. Nutrition - Fitness, Athletics & Sports.
3. Food guide - Basic five food groups How to use food guide (according to R.D.A.)
4. Interrelationship between nutrition & health : - Visible symptoms of goods health
5. Use of food in body - Digestion, Absorption, transport & utilization.
6. Role of fibres in human nutrition.
7. Carbohydrates: Functions, classification, food sources, storage in body.
8. Fats & oils : composition, saturated and unsaturated fatty acids, classification, food sources, function of fats.
9. Proteins - composition, sources, essential & non-essential amino acids, functions, Protein deficiency. 10. Water - as a nutrient, function, sources, requirement, water balance & effect of deficiency.
11. Minerals - macro & micronutrients. - Functions, sources. Bioavailability and deficiency of Calcium, Iron, Iodine, Sodium & Potassium (in very brief)
12. Vitamins (water & fat soluble) - definition, classification & functions.
13. Effect of cooking & heat processing on the nutritive value of foods.
14. Processed supplementary foods. 15. Food sanitation in hygiene
. PRACTICAL
1. Use and care of kitchen equipments.
2. Controlling techniques - Weights and measures standard, household measures for raw and cooked food.
3. 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.
4. Vegetables & fruits - Simple salads, Dry vegetables, Curries, fruits preparation using fresh and dried stewed fruit, fruit salad
5. Mix and milk products Porridges, Curds, paneer and their commonly made preparations, Milk based simple desserts and puddings, custard, kheer, ice cream
6. Meat - cuts of meat - Meat preparations, Poultry, Fish, hard and soft cooked, poached, scrambled, fried omlette & eggnogs.
7. Soups - Basic, clear and cream soups. 8. Snacks- Pakoras, cheese toast, upma, pohe, peanut, chikki, til & laddo
8. Snacks- Pakoras, cheese toast, upma, pohe, peanut, chikki, til & laddo

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HUMAN PHYSIOLOGY

Theory : 100 hrs & Practical : 80 hrs.

THEORY 1. Cell - Structure and function

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

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

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

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

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

7. Gastrointestinal System -Process of digestion in various parts.

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

9. Excretion system -Structure of nephron , Urine formation

10. 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.

11. Skin - Structure and functions

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

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

PRACTICAL

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.ESR Estimation

NUTRITIONAL BIOCHEMISTRY

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

THEORY

1. 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).

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

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

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

5. 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 out line of metabolism: Beta oxidation of fatty acids, Ketosis, Cholesterol & its clinical significance, Lipoproteins in the blood composition & their functions in brief, Atherosclerosis.

6. 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.

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7. 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.

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

10. Water metabolismDistribution 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

12. 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.

13. Renal functions tests - Various tests, GFR & clearance.

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

15. General concepts & functions of immunoglobulins

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

ENGLISH

Min. Hrs - Theory: 60 hrs.

Communication:

1. Role of communication Defining Communication
2. Classification of communication
3. Purpose of communication
4. Major difficulties in communication
5. Barriers to communication
6. Characteristics of successful communication

The seven Cs

7. Communication at the work place
8. Human needs and communication “Mind mapping” Information communication

Comprehension passage:-

9. Reading purposefully
10. Understanding what is read
11. Drawing conclusion
12. Finding and analysis
13. Explaining:-
14. How to explain clearly
15. Defining and giving reasons
16. Explaining differences
17. Explaining procedures
18. Giving directions
19. Writing business letters:-
20. How to construct correctly Formal language
21. Address Salutation
22. Body Conclusion

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23. Report writing:-
24. Reporting an accident
25. Reporting what happened at a session
26. Reporting what happened at a meeting

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 sue 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

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B.Sc. Nutrition Second Year BASIC DIETETICSMin. Hrs - Theory : 100 hrs &

Practical : 80 hrs.

BASIC DIETETICS

1. Role of dietarian: The hospital & community.
2. Basic concepts of diet therapy.
3. Principles of diet therapy & therapeutic nutrition for changing needs. It should corner 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 annorexia, 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

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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 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.

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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.

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.

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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.

TRANING
Min. Hrs - 200 hrs.

1. The students of first year shall do the survey of patients suffering from various diseases and shall plan appropriate diet for them.
2. They shall maintain logbook of patients and their diets.
3. At the end of academic year their logbooks will be evaluated by the faculty concerned. B.Sc. in Human Nutrition (B.SC.-HN) Third Year

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B.Sc. Nutrition 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 & vitmain 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.

ADVANCED DIETETICS

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

THEORY

1. Concept of Diet therapy : growth and source of dietetics, purpose and principles of therapeutic diets, modification of normal diet, classification of therapeutic diets.
2. Role of Dietician : Definition of nutritional care, interpersonal relationship with patient, planning and implementary dietary care, Team approach to nutritional care.
3. 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.
4. Diet in surgical conditions, burns and cancer.
5. Obesity and leanness- causes, complication and health effects, dietary treatment and other recommendation.
6. Diet in fever and infections- Types- metabolism in fever, general dietary consideration diet in influenza, typhoid fever, recurrent malaria and Tuberculosis .
7. Diet in gastritits, 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).

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8. 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.
9. 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.
10. Gout- Nature and occurrence of uric acid, causes, symptoms and diet.
11. Diet in allergy and skin disturbances: Definition, classification, manifestations, common food allergies and test and dieteric treatment.
12. 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.
13. 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.
14. Diet in Cardiovascular diseases: Role of nutrition in cardiac efficiency, incidence of Atherosclerosis, dietary principles, Hyperlipidenmia, Hypertension- causes and dietary treatment, Sodium restricted diet, level of sodium restriction, sources of sodium, danger of severe sodium restriction.

PRACTICAL

1. 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 tor 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. deserts 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.

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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.

SCHEME OF EXAMINATIONS

B.Sc.Nutrition Part-I (First Year)University Examination

S.No	SUBJECT/PAPERS	UNIVERSITY EXAMINATION						INTERNAL EXAMINATION	
		THEORY PAPER		PRACTICALS		VIVA		THEORY PAPER	
		Max	Min	Max	Min	Max	Min	Max	Min
1	Basic Nutrition	100	50	100	50	*	*	50	25
2	Human Physiology	100	50	100	50	*	*	50	25
3	Nutritional Biochemistry	100	50	100	50	*	*	50	25
4	English	100	50	*	*	*	*	50	25
5	Basics of Computers	100	50	*	*	*	*	50	25

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B.Sc.,Nutrition Part-II (Second Year) UniversityExamination

S.No	SUBJECT/PAPERS	UNIVERSITY EXAMINATION						INTERNAL EXAMINATION	
		THEORY PAPER		PRACTICALS		VIVA		THEORY PAPER	
		Max	Min	Max	Min	Max	Min	Max	Min
1	Basic Dietetics	100	50	100	50	*	*	50	25
2	Food Microbiology	100	50	100	50	*	*	50	25
3	Food Science	100	50	100	50	*	*	50	25
4	Personnel Management	100	50	100	50	*	*	50	25
5	Family meal management	100	50	100	50	*	*	50	25

B.Sc.Nutrition Part-III (Third Year) University Examination

S.No	SUBJECT/PAPERS	UNIVERSITY EXAMINATION						INTERNAL EXAMINATION	
		THEORY PAPER		PRACTICALS		VIVA		THEORY PAPER	
		Max	Min	Max	Min	Max	Min	Max	Min
1	Community Nutrition	100	50	100	50	*	*	50	25
2	Advanced Dietetics	100	50	100	50	*	*	50	25
3	Dietetics Counseling	100	50	100	50	*	*	50	25
4	Clinical Training (Log Book)	*	*	*	*	100	50	*	*

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PROJECT WORK
Min. Hrs.-160 Hrs

1. Basic concepts of project planning a) Defining objectives- Need, problem, project, feasibility, planning, formulation. - . Identifying resources b) Methods/approaches, Project Appraisal- Project Format

2. Guideline for project writing –

Title of the project - Name of the person - Duration of the project, type of project. –

Aims and objectives - summary of the proposed project - Project information, location, people and personnel involved. - Working/methodology –

Evaluation - Writing and reporting

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