



UNIVERSITY OF CALICUT

Abstract

General and Academic - Faculty of Science - Syllabus of MSc Home Science (Nutrition and Dietetics) programme for affiliated Colleges under CBCSS PG Regulations 2019 with effect from 2019 Admission onwards -Implemented- Orders Issued.

G & A - IV - J

U.O.No. 11588/2019/Admn

Dated, Calicut University.P.O, 29.08.2019

*Read:-*1. U.O.No. 4487/2019/Admn dated 26.03.2019

2. Minutes of the meeting of the Board of Studies in Home Science held on 03.04.2019

3. Item No. 1.6 in the minutes of the meeting of Faculty of Science held on 27.06.2019

ORDER

The Regulations for Choice Based Credit and Semester System for Post Graduate (PG) Curriculum-2019 (CBCSS PG Regulations 2019), for all PG Programmes under Affiliated Colleges and SDE/Private Registration with effect from 2019 Admission has been implemented in the University of Calicut vide paper read first above.

The meeting of the Board of Studies in Home Science held on 03.04.2019 has approved the Syllabus of MSc Programme in Home Science(Nutrition and Dietetics) in tune with the new CBCSS PG Regulations implemented with effect from 2019 Admission onwards, vide paper read second above.

The Faculty of Science at its meeting held on 27.06.2019 has approved the minutes of the meeting of the Board of Studies in Home Science held on 03.04.2019 vide paper read third above.

Under these circumstances, considering the urgency, the Vice Chancellor has accorded sanction to implement the Scheme and Syllabus of MSc Home Science (Nutrition and Dietetics) Programme in accordance with the new CBCSS PG Regulations 2019, in the University with effect from 2019 Admission onwards, subject to ratification by the Academic Council.

The Scheme and Syllabus of MSc Home Science (Nutrition and Dietetics) Programme in accordance with CBCSS PG Regulations 2019, is therefore implemented in the University with effect from 2019 Admission onwards.

Orders are issued accordingly. (Syllabus appended)

Biju George K

Assistant Registrar

To

The Principals of all Affiliated Colleges

Copy to: PS to VC/PA to PVC/ PA to Registrar/PA to CE/JCE I/JCE V/DoA/EX and EGSections/GA I F/CHMK Library/Information Centres/SF/DF/FC

Forwarded / By Order

Section Officer

**M Sc DEGREE PROGRAMME IN
HOME SCIENCE
(NUTRITION AND DIETETICS)**

UNIVERSITY OF CALICUT

CHOICE BASED CREDIT SEMESTER SYSTEM (CBCSS-PG)

SYLLABUS

2019 ADMISSION ONWARDS

M SC HOME SCIENCE (NUTRITION AND DIETETICS)

COURSE STRUCTURE NAD SCHEME OF EXAMINATION UNDER CBCSS

SI No.	CORE COURSE	TITLE OF THE COURSE	INSTRUC TION HRS/WK		CREDI T	EXAM HRS	SCEME OF EVALUATION	
			T	P			EE weight (75%)	IE weight (25%)
I	HND1 C01	HUMAN PHYSIOLOGY	5		4	3	4	1
	HND1 C02	NUTRITION THROUGH LIFE CYCLE	5		4	3	4	1
	HND1 C03	ADVANCED FOOD SCIENCE	5		4	3	4	1
	HND1 C04	MACRO NUTRIENTS	4		4	3	4	1
	HND1 C05	RESEARCH METHODS & STATISTICS	6		4	3	4	1
	TOTAL			25		20		
II	HND2 C06	ONCOLOGY NUTRITION	4		4	3	4	1
	HND2 C07	FOOD SERVICE MANAGEMENT	5		4	3	4	1
	HND2 C08	CLINICAL AND THERAPEUTIC NUTRITION	6		4	3	4	1
	HND2 C09	NUTRITIONAL MANAGEMENT IN LIFE STYLE DISEASES	5		2	3	4	1
	HND2 L01	PRACTICAL- CLINICAL AND THERAPEUTIC NUTRITION		4	4	3	4	1
	TOTAL			24		18		
III	HND3 C10	VITAMINS AND MINERALS	6		4	3	4	1
	HND3 C11	COMMUNITY NUTRITION	6		4	3	4	1
	HND3	PAEDIATRIC NUTRITION	6		4	3	4	1

	C12							
	HND3 E01 (1)	ELECTIVE COURSES 1. SPORTS NUTRITION	4		4	3	4	1
	HND3 E01 (2)	2.ENTREPRENEURIAL DEVELOPMENT						
	HND3 E01 (3)	3. NUTRITIONAL COUNSELLING & EDUCATION						
	*HND4 I01	HOSPITAL INTERNSHIP AND COMMUNITY NUTRITION EDUCATION PROGRAMME		4	4	3	4	1
	TOTAL		26		20			
IV	HND4 C13	METABOLIC AND BIOCHEMICAL CHANGES IN DISEASES	5		4	3	4	1
	HND4 L02	PRACTICAL- METABOLIC AND BIOCHEMICAL CHANGES IN DISEASES		4	2	3	4	1
	HND4 E02 (1)	ELECTIVE COURSE 1.DIABETIC CARE AND MANAGEMENT	6		4	3	4	1
	HND4 E02 (2)	2. QUANTITY FOOD PREPARATION TECHNIQUES						
	HND4 E03 (1)	1.FOOD SAFETY AND QUALITY CONTROL	6		4			
	HND4E03 (2)	2.PUBLIC NUTRITION AND HEALTH						
	HND4 P01	PROJECT		10	4		4	1
HND4 V01	VIVA VOCE			4		4	1	

	TOTAL		25	22		
	TOTAL CREDITS (CORE, ELECTIVES,PROJECT AND VIVA)		80			
I	HND1 A01	AUDIT COURSE I AEC- INDUSTRY TRAINING/SEMINAR PRESENTATION		4	2	
II	HND2 A02	AUDIT COURSE II PCC- SPSS		4	2	

- **Course will be conducted in the III semester and the evaluation will be conducted in the IV semester**

GRADING AND EVALUATION

(1) Minimum Credits for pass

Accumulated minimum credit required for successful completion of the course shall be 80.

(2) A project work of 4 credits is compulsory and it should be done in III & IV semesters. Also a comprehensive Viva Voce may be conducted by external examiners at the end of IV Semester and carries 4 credits.

(3) Evaluation and Grading:

All grading starting from the evaluation of papers is done on 5 point scale (A, B, C, D, E) and SGPA and CGPA – between 0 to 4 and in two decimal points. An overall letter grade (Cumulative Grade) for the whole programme shall be awarded to the student based on the value of CGPA using a 7-point scale given below.

Overall Grade in a Programme

CGPA	Overall Letter Grade
3.80 to 4.00	A+
3.50 to 3.79	A
3.00 to 3.49	B+
2.50 to 2.99	B
2.00 to 2.49	C+
1.50 to 1.99	C
1.00 to 1.49	D

(4) Weightage of Internal and External valuation:

The evaluation scheme for each course shall contain two parts (1) internal evaluation (2) external evaluation. Its weightage are as follows:

Evaluation	Weightage
Internal	1 (or 25%)
External	3(or 75%)

Both internal and external evaluation will be carried out using Direct Grading System

A) Theory: Every Semester

Pattern of question Paper -**External marks distribution**

Division	Type	No. of Questions	Weightage	Total Weightage
Part A	Short Answer	10 out of 12	1	10
Part B	Short Essay	6 out of 8	3	18
Part C	Essay	2 out of 4	4	8
Total Weightage				36

Internal marks distribution

Sl.No	Criteria	Weightage
1	Attendance	1
2	Assignments	1
3	Seminar	1
4	Test papers-2-	2
Total		5

B) PRACTICAL

Internal marks distribution

Sl.No	Criteria	Weightage
1	Attendance	1
2	Performance	1

3	Record	1
4	Class test (2)	2
Total		5

External marks distribution

HND2 L01 PRACTICAL –CLINICAL AND THERAPEUTIC NUTRITION

Sl . No	Criteria	Weightage
1	Presentation	8
2	Taste and Serving	2
3	Time and Cleanliness	2
4	Principle	4
5	Menu Plan	6
6	Calculation	4
7	RDA	4
8	Record	6
TOTAL		36

HND4 I01 HOSPITAL INTERNSHIP AND COMMUNITY NUTRITION EDUCATION PROGRAMME

Sl . No	Criteria	Weightage
1	Performance in Hospital Internship	15
2	Weekend Hospital Training	6
3	Report and Presentation	5
4	Community Nutrition Camp	8
5	Community Nutrition Camp-report	2
Total		36

HND4 L02 PRACTICAL – METABOLIC AND BIOCHEMICAL CHANGES IN DISEASES

Sl . No	Criteria	Weightage
1	Principle	4
2	Procedure	6

3	Calculation	4
4	Graph	4
5	Result	6
6	Record	6
7	Viva	6
Total		36

HND4 P01 -PROJECT

Internal Marks distribution

Sl.No	Criteria	Weightage
1	Initiative	1
2	Interest in Research	1
3	Regularity	1
4	Efficiency	1
5	Writing Skills	1
Total		5

External marks distribution

Sl.No	Criteria	Weightage (Total 36)
1	Choice of the topic	1
2	Introduction and Objectives	2
3	Review of literature	5
4	Methodology	8
5	Results and Discussion	8
6	Summary and conclusion	4

7	Bibliography	4
8	Abstract	2
9	Over all	2

HND4V01- Viva Voce

Internal Marks distribution

Sl.No	Criteria	Weightage
1	Preparation	1
2	Presentation	2
3	Knowledge	2
4	Total	5

External marks distribution

Sl.No	Criteria	Weightage
1	Preparation	10
2	Presentation	10
3	Knowledge	16
4	Total	36

SEMESTER I

HND1 C01 HUMAN PHYSIOLOGY

Objectives

1. To enable students to understand the metabolic changes in health and different disease conditions.
2. Gain knowledge about the relationship between nutrition and human system.

UNIT I BLOOD

Blood and its composition, Functions of each constituents of blood, important indices of RBC & WBC, Blood group, Rhesus factor, ESR, Blood viscosity, blood coagulation, Erythroblastosis foetalis, Blood transfusion and its importance, Blood vessels and its type Lymphatic System- Lymph, Composition, Lymph gland and functions.

UNIT II CARDIOVASCULAR SYSTEM

Structure and Functions of Heart. Special conducting tissues Properties of cardiac muscle, Heart rate & regulation. cardiac cycle, Heart sound, Cardiac output, Conduction system of the heart, hemorrhage. Compensatory changes after hemorrhage ECG & its significance. Pulse, Tachycardia and Bradycardia. Hemorrhage, compensatory changes after hemorrhage. Blood Pressure, Cardio vascular modification during exercise. Different types of circulation- foetal circulation, pulmonary, hepatic, capillary. Techniques to identify cardiovascular disorders –angioplasty, angiogram.

UNIT III RESPIRATORY SYSTEM

Organs & functioning, control of respiration, Mechanism of respiration, Chemical respiration, dyspnoea, asphyxia, hyperpnoea, orthopnoea, resuscitation and its methods. Gaseous exchange in lungs and tissues.

UNIT IV DIGESTIVE SYSTEM

Structure and functions of Alimentary tract, Functions of various secretions and juices- Saliva, Gastric, Bile, Intestinal, Pancreatic secretion and its composition. Functions of enzymes in digestion, Mechanism of secretion of digestive juices and its regulation, movements of stomach, small intestine, villi, defecation. Digestion of nutrients- protein, fats, carbohydrates. Liver, gall bladder, pancreas, spleen – anatomy & physiology Functions of bile salts.

UNIT V URINARY SYSTEM

Structure and functions of kidney, structure of nephron, , GFR, Urine formations, composition of normal and abnormal urine , regulation of reabsorption, Micturition, Role of Kidney in maintaining Ph of Blood, Acid base balance.

UNIT VI NERVOUS SYSTEM

Structure of a nerve cell- fibre, reflex action, nervous transmission- classification of nervous systems (only the parts and general functions), common test in neurological disorders- EEG, EMG, MRI, NCV

UNIT VII ENDOCRINE SYSTEM

Endocrine secretions, glands, role and regulatory functions of endocrine, site of secretions, regulation of secretions.

UNIT VIII REPRODUCTIVE SYSTEM

Male and female reproductive system- organs, structure and functions. Menstruation, menstrual cycle, puberty, menarche, menopause, fertilization, conception, implantation. Male and female contraception's- Etiology of male and female infertility

RELATED EXPERIENCE

1. Demonstration of measuring BP using sphygmomanometer.
2. Demonstration of blood group determination.
3. Microscopic examination of blood, TC, DC of WBC, RBC, ESR

REFERENCES

1. Chatterjee.C.C, Human Physiology (11th edition), vol 1 & 2, Medical Allied Physiology (1987).
2. Guyton.A.C, Textbook of medical physiology, 9th edition, Philadelphia, WB Saunders, 1991.
3. Guyton AC, Function of Human Body, 4th edition, Philadelphia, WB Saunders, 1985.
4. Wilson.K.J.W & Waugh.A, 1996, Ross & Wilson Anatomy & Physiology in Health & illness, 8th edition, Church hill living stone.

SEMESTER I
HND1 C02 NUTRITION THROUGH LIFE CYCLE

Objectives

1. Understand the role of nutrition in different conditions.
2. Develop competency in planning diets to meet the nutritional requirements of different socio economic levels.

UNIT I NUTRITION AND DIET IN HEALTH

Vital link between nutrition and health. Review –concept of adequate nutrition, under nutrition and malnutrition. Different food groups – guide in menu planning.

UNIT II RECOMMENDED DIETARY ALLOWANCES

ICMR Recommend Dietary Allowances (RDA) for Indians. Basis for requirements. Balanced diets.

UNIT III NUTRITION IN PREGNANCY

Nutritional status and general health. Importance of preconceptional nutrition. Weight gain during pregnancy and the nature of weight gain. Factors affecting maternal nutritional status. Physiological adaptations, physiological & metabolic changes in pregnancy. Requirements, storage of nutrients in normal pregnancy, physiological cost, complications of pregnancy and nutritional problems in young and too old expectant mothers, LBW babies – causes and complications. Immunization schedule & tests during pregnancy.

UNIT IV NUTRITION IN LACTATION

Physiological adjustments during lactation, lactation in relation to growth and health of infants, efficiency of milk production, diet during lactation.

UNIT V NUTRITION IN INFANCY

Nutritional status of the infants, rate of growth as the indicator. Nutritional allowances for the infants, breast feeding Vs formula feeding, food square, weaning foods suitable for infants, feeding the premature infants and LBW infants, interventions to prevent malnutrition.

UNIT VI NUTRITION IN PRESCHOOL AGE

Growth and development of preschool children, food habits and nutrient intake of preschool children. Dietary allowances – supplementary foods, reasons for under 5 MR. Interventions to prevent malnutrition among preschoolers.

UNIT VII NUTRITION DURING SCHOOL AGE

Physical development, nutritional status of school going children, food habits, nutritional requirements, nutrition and academic performance, interventions to prevent malnutrition.

UNIT VIII NUTRITION DURING ADOLESCENCE

Changes of growth, assessment of growth – sexual maturity rating, physical, physiological and psychological changes in adolescents. Nutritional needs of the adolescents, changes needed to prevent malnutrition in adolescents.

UNIT IX NUTRITION FOR THE ADULTS

Nutrition for the adult-Nutritional requirements according to the mode of activity. Nutrition and health of women-general nutritional problems of women, anemia, osteoporosis, pre and post menopausal syndrome, hormonal changes during menopause .Infertility –risk factors, prevention, methods of detection.

UNIT X NUTRITION IN OLD AGE

The ageing process- physiological, biochemical, metabolic, body composition changes and impact on health and nutritional status. Nutritional & health status of elderly.

UNIT XI NUTRITION IN SPECIAL EVENTS

Sports nutrition – Energy systems, carbohydrate loading, nutritional requirements, role of water and electrolytes in sports nutrition.

Space nutrition

RELATED EXPERIENCE

Planning diets to meet the requirements at different economic level- low, middle and high income for the following conditions.

1. Pregnancy
2. Lactation
3. Preschool age
4. School age
5. Adolescents
6. Adult
7. Old people
8. Athletes

REFERENCES

1. Mahan.L.K and Stump SE, Krause’s Food, Nutrition and Diet Therapy, WB Saunders Company, 10th edition, 2001.

SEMESTER I
HND1 C03 ADVANCED FOOD SCIENCE

Objectives

1. To understand the nutritive value of foods.
2. To understand the principles and chemistry of foods and apply the principles during preparation & cooking

UNIT I FUNCTIONAL PROPERTIES OF FOODS

Definition and properties of colloids, solution, sol, gel, emulsion, food dispersion. Enzymes- definition, classification, specificity of enzymes, enzyme inhibition, allosteric enzymes, application of enzymes in food industry. Sensory tests . Types of tests. Procedures for determination and monitoring of shelf life

UNIT II FOOD GROUPS

CEREALS & MILLETS

1. Cereal- Structure and composition. Parboiling, germination. Cereal cookery — effect of moist and dry heat, gluten- factors affecting gluten formation, Starch granules structure and characteristics. nonstarch poly saccharides- (fibres,cellulose, hemicellulose, pectic substances,gums, carboxy methyl cellulose(CMC))Application in food industry batters and dough, breakfast cereals , fermented products

2. PULSES, NUTS AND OILSEEDS

Nutritive value, Importance of germination & fermentation, protein concentrates and isolates, Anti nutritional factors present in pulses.

3. VEGETABLES AND FRUITS

Nutritional importance, pigments and acids in vegetables and fruits, browning reactions- enzymatic and non-enzymatic browning

UNIT III FLESH FOODS

Meat - Composition, post-mortem changes in meat

Fish – Composition, importance of fish.

Egg- Structure and nutritive value , Effect of heat on egg proteins, Quality of egg , and egg products.

Milk -Composition, physical properties and processing, effect of heat, milk products

UNIT IV FOOD ADDITIVES AND EMERGING TRENDS IN FOOD SCIENCE

Food additives , FSSAI , HACCP, Principles of food packaging and labeling.

Food Fortification, GM foods, novel foods, SCP, Leaf Protein, Nanotechnology in food industry

UNIT V NUTRACEUTICALS

Classification, probiotics, prebiotics, --health effect . Classification , sources and importance of polyphenols, Foods with nutraceutical effects- green tea grape seed, wheat grass, *Garcinia cambogia* and aloe vera.

RELATED EXPERIENCE

1. Microscopic examination of different starch granules and effect of heat on starch (cake and bread making) Determination of gluten content of different flours
2. Preparation of stable emulsion (mayonnaise)
3. Stages of sugar cookery, crystalline and non-crystalline candies- Fondant, fudge, marshmallow.
5. Preparation of foam and effect of additives on stability, Meringue.
6. Effect of heat on milk / scum formation. Preparation of any 3 products.
7. Changes in pigments due to different cooking methods.
8. Enzymatic browning of fruits and vegetables.
9. Sensory evaluation of foods.
10. Product development- preparation and standardization of novel nutritious recipes.
11. Market survey on new processed items available in the local markets.
12. microbiological test for foods

REFERENCES

- 1.Potter, N. Hotchkiss, H.J, Food Science, 5thedition, CBS publishers and distributors, New delhi, 1996.
- 2.Srilakshmi, B, Food Science, New Age International Pvt. Ltd., Chennai, 2006
- 3.Beckhan. C.G & Graves.H.J, Foundations of food preparations, Macmillan Publishing Co, New Delhi, 1979.

SEMESTER I

HND1 C04 MACRO NUTRIENTS

Objectives

1. Obtain depth on the study of major nutrients and
2. Develop competence for undertaking nutritional investigations.

UNIT I UNDERSTANDING NUTRITION

Nutrition science: Basic concepts. Methods for studying the nutrient requirements.

UNIT II CARBOHYDRATES

Digestion, absorption & utilization. Metabolism: Glycolysis, gluconeogenesis, TCA cycle, HMP shunt, glycogenesis, glycogenolysis, bioenergetics. Regulation of blood glucose concentration, threshold for glucose, abnormal levels in blood glucose. Glycemic index. Dietary Fiber & Resistant starch. Inborn errors of metabolism: galactosemia, glycogen storage disease, fructosuria, pentosuria. Modification of carbohydrate intake for specific disorder.

UNIT III PROTEINS

Digestion, absorption, utilization, RDA. Metabolism: General catabolism of amino acids, deamination, transamination, decarboxylation, urea cycle. Disorders of amino acid metabolism: phenylketonuria, cystinuria, albinism, alcaptonuria, maple syrup disease. Protein quality evaluation, Protein turnover, amino acid balance. Commercial uses of proteins. Novel proteins. Deficiency and toxicity.

UNIT IV FATS AND LIPIDS

Classification. Functions. Digestion. Absorption, transportation & utilization. Food sources & RDA. Metabolism of lipids: biosynthesis and oxidation of saturated and unsaturated fatty acids, cholesterol and regulation, bile acids and their metabolism. Toxicity and Deficiency. Plasma lipoproteins and their significance, lipotropic factors and ketone body formation.

UNIT V ENERGY

Definition. Direct and indirect calorimetry. Energy value of food- Bomb Calorimeter. Components of energy expenditure- Resting Energy Expenditure, Thermic Effect of Food, Energy expended in Physical Activity. Methods of estimation of energy expenditure, BMR- definition and factors affecting BMR. Physiological value of food. Energy Requirements. Control of food intake. Metabolic consequences of starvation. Factors affecting energy input in hunger, appetite.

UNIT VI INTERMEDIARY METABOLISM

Interrelationship between carbohydrates, proteins, and fats.

UNIT VII WATER

Functions. Water distribution in our body. Water balance. Requirements of water. Disturbances in fluid balance-dehydration and oedema.

REFERENCES

1. Mahan.L.K and Stump.S.E , Krause's Food, Nutrition and Diet Therapy, W.B Saunders Company, USA.
2. Nix.S, William's Basic Nutrition and Diet Therapy, Mosby, India.
3. Sreelakshmi.B, Nutrition Science.
4. Bamji, MS, Rao,MP; Reddy.V, "Textbook of human Nutrition", Oxford and IBH Publishing Co, New Delhi.
5. Berdenier, C.D, "Advanced Nutrition: Macronutrients", CRC press, USA.

SEMESTER I
HND1 C05 RESEARCH METHODS AND STATISTICS

Objectives

1. Understand the methodology of research and techniques
2. Develop skills in conducting research from planning a study to report Writing
3. Apply statistical procedure to analyse numerical data draw inferences

PART A: RESEARCH METHODS

UNIT I FUNDAMENTAL CONCEPT OF RESEARCH

Meaning, definition, objectives and characteristics of Research –basic research (fundamental research): applied research, action research, ex post facto research, evaluation research, historical research, exploratory research, industrial research, developmental research.

UNIT II RESEARCH DESIGN / PROPOSAL

Meaning and purpose of a research design or proposal, research problem definition, identification, statement of research problem, criteria for selection, definition of concepts (operational definition). Variables - types of variables, independent and dependent variables, control and intervening variables. Hypothesis - Meaning and importance, types. Finding related literature: Significance, source, role taking.

UNIT III RESEARCH METHODS AND TOOLS

Methods-surveys, observation, interview, experimentation, case study (clinical method), Tools – questionnaire, schedule (for interview and observation), rating scales, attitude scales. Development of tools – reliability, validity and item analysis. Other methods and tools of research in specialized areas.

UNIT IV SAMPLING

Census and sample method, theoretical basis for sampling, methods of sampling, size of sample merits and limitations of sampling, sampling and non sampling errors, reliability of sampling.

UNIT V REPRESENTATION OF DATA

Significance of diagrams, graphs, types of diagrams and graphs, limitation of diagrams and graphs.

UNIT VI RESEARCH REPORT WRITING

Principles of report writing ,basic components, preliminaries, text of reports, bibliography, foot notes, spacing ,margins, indentations , quotations , writing a scientific paper. Project proposal

RELATED EXPERIENCE

1. Prepare a project proposal for M.Sc dissertation.
2. Make a power point presentation of the project proposal.

PART B: STATISTICS

UNIT I MEANING AND ADVANTAGE OF STATISTICAL PRESENTATION OF DATA

UNIT II CLASSIFICATION AND ORGANISATION OF DATA

Classification, types, discrete and continuous variables, tabulation of data, parts of a table, types of table, general rules of tabulation.

UNIT III DESCRIPTIVE STATISTICS

1. Measures of central tendency-mean ,median, mode
2. Measures of variability –range, quartile deviation, mean deviation Standard deviation
3. Correlation coefficients, rank order correlation, product moment correlation regression and prediction
4. Normal probability curve –properties, practical applications

UNIT IV SAMPLING STATISTICS

1. Statistical inference and central limit theorem
2. Null hypothesis and tests of significance
3. The chi-square
4. Testing difference between mean, proportions, standard deviations and correlations.

UNIT V INTRODUCTION TO STATISTICAL PACKAGE FOR SOCIAL SCIRNCES (SPSS) RELATED EXPERIENCE

1. Construct a research tool.
2. Prepare a research tool.
3. Present abstract of a research report.
4. Preparation of diagrams/ graph

REFERENCES

1. Kothari.C.R, Research Methodology, Wiley Eastern Ltd, New Delhi, 2000.
2. Best W L & Khan V, Research in Education, 7th edition, prentice hall Private, New Delhi.
3. Roul L, Methodology of Educational Research, 2nd edition, Vikas Publishing House Ltd, New Delhi.

4. Gupta.SC & Kapur VK, Fundamentals of mathematical statistics, Sulthan Chand & Sons, New Delhi, 2001.

SEMESTER II

SEMESTER II

HND2 C06-ONCOLOGY NUTRITION

Objectives

1. To gain knowledge about different types of cancer
2. Understanding about the nutritional management in cancer

UNIT 1 Introduction to oncology

Cancer biology, Classification of cancer, Risk factors-environmental, hereditary & nutritional factors, Epidemiological data on cancer incidence, Standards for diagnosing malnutrition, Cancer Cachexia, Biochemical changes in cancer in general

UNIT 2 Nutrition Support for Oncology Patients

Medical nutrition therapy- Head and Neck Cancer, Breast and Reproductive Cancer, Prostate Cancer, Lung Cancer, Oral cancer, Esophageal cancer, Gastric cancer, Colon cancer, Pancreatic cancer, Hematologic Malignancies,

Enteral and parenteral nutrition in cancer, Nutrient supplementation in cancer. Role of nutrition and exercise in cancer survivorship, Roles of vitamins, minerals, phytochemicals, herbal and botanical supplements in cancer prevention and treatment , Role of alcohol, sugar, salt and caffeine in cancer, Palliative Care- Role of nutrition in palliative and hospice care

UNIT 3 Nutritional Management of Cancer

Nutritional implications in chemotherapy and radiation therapy–Anorexia and Other Gastrointestinal Toxicities Associated with Cancer Treatments, Surgical Oncology- Pre and post operative nutrition in cancer, Immunotherapy, Bone marrow transplantation, Interactions between cancer therapies and nutrient, Cancer support groups- governmental and non-governmental organizations

UNIT 4 Role of Dietitian in Cancer Care

Cancer prevention approaches- Children, adults and elderly, Patient support and management during therapy , Patient support and management during survivorship

PRACTICALS:

Case studies in Oncology Nutrition.

Visit to a major cancer research centre

Development of standardized recipes for cancer patients

REFERENCE:

1. Mary Mariyan, Susan Roberts, Clinical Nutrition for Oncology Patients, Jones and Bartlett Publishers, 2010
2. Vincent T De Vita Jr., Theodore S Lawrence, Steven A Rosenberg, Cancer, Principles and Practice of Oncology, Wolters Kluwer And Lippincott Williams & Wilkins Publications, 9th Edition, 2011
3. Laura Elliott, Laura L. Molseed, Paula Davis McCallum, The Clinical Guide to Oncology Nutrition, Oncology Nutrition Dietetic Practice Group, American Dietetic Association, Second Edition, 2006
4. Mohan,L.K. and Shump, S.E. Krause's Food Nutrition & Diet therapy, W.B.Sauders Company,XII edition,2001
5. David L Katz, Rachel S C Friedman, Nutrition in Clinical Practice, Wolters Kluwer Publishers, Third Edition, 2015

SEMESTER II
HND2 C07 FOOD SERVICE MANAGEMENT

Objectives

1. Understand the objectives of different types of food service institutions.
2. Apply knowledge in space allocation of food plants
3. Gain knowledge in menu planning preparation of recipes in large scale and serving and in food costing.

UNIT I FOOD SERVICE INDUSTRY

Scope of food industry: food industry segmentation

UNIT II ORGANISATION & ADMINISTRATION OF FOOD SERVICE INDUSTRY

Organisation –types, organization structure and management

UNIT III PHYSICAL FACILITIES AND LAYOUT

Planning, functional area according to different capacities, flow of traffic, work heights & storage heights for different areas& equipment

UNIT IV FOOD SERVICE EQUIPMENT

Classification, selection , purchasing, care and maintenance

UNIT V QUANTITY FOOD PREPARATION

Types of menu, menu planning, purchasing, storage, production management, conventional and non conventional sources of energy, Standardisation and portion control

UNIT VI STYLES OF SERVICE

Self service, tray service, waiter-waitress service, vending and mobile food service system

UNIT VII SANITATION AND HYGEINE

Environmental hygiene & sanitation, safe food handling practices, personal hygiene

UNIT VIII HUMAN RESOURCE MANAGEMENT

Recruitment & selection, induction, training, performance appraisal, leadership, communication, employee benefits, laws governing food service establishment

UNIT IX FINANCIAL MANAGEMENT

Budgets, records for control, factors affecting cost control, factors affecting cost control, concepts and behavior of cost. Break even analysis.

UNIT X MARKETING

Definition, marketing mix and promotion in food service.

RELATED EXPERIENCE

1. Standardization of 10 selected recipes.
2. Quantity preparation of any 2 food item.
3. Visit to any food service institution / flight kitchen.

REFERENCES

1. Marian C Spears; Food Service Organisation; III Edition, Prentice Hall Inc., USA. 1995
2. Lendal. H. Kotschever, Richard Donnelly, "Quantity Food Purchasing, Mac Millan Publishing Company, New York, IV Edition, 1993.
3. West and Woods, Introduction to Food Service, Macmillan Publishing Company, New York, 7 th edition, 1994.
4. Mohini Sethi and Surjeet, M Malhan, "Catering Management an Integrated approach" , Wiley Eastern Limited, Mumbai, II edition

SEMESTER II
HND2 C08 CLINICAL AND THERAPEUTIC NUTRITION

Objectives

1. Understand the physiology, metabolism and special requirements of critically ill.
2. Know the effect of various diseases on nutritional status and nutritional and dietary requirement.

UNIT I ROLE OF DIETITIAN IN THE HOSPITAL AND COMMUNITY

Education and personal qualifications, professional ethics and obligations. Educating the patient, diet clinics and follow up. Psychology of feeding the patient, problems of feeding children, assessment of patient's needs.

UNIT II ROUTINE HOSPITAL DIETS

Regular diet, light diet, soft diet, full liquid diet, clear liquid diet and tube feeding. Enteral and parenteral feeding –composition, monitoring and complications. Transitional feeding.

UNIT III MODIFICATIONS OF DIET IN FEBRILE CONDITIONS

Acute, chronic and recurrent fevers, typhoid, rheumatic fever, tuberculosis, malaria, H1N1, dengue fever and chikun guinea

UNIT IV GASTROINTESTINAL DISORDERS

Esophagitis, cancer of oral cavity, ulcer, indigestion, gastritis, carcinoma of the stomach, gastric surgery and dumping syndrome. Diarrhoea, constipation, flatulence, celiac disease, tropical sprue, steatorrhoea. Irritable bowel disease (IBD) – crohn's disease, ulcerative colitis, Irritable bowel syndrome (IBS), diverticulitis, colitis and colon cancer.

UNIT V LIVER, GALL BLADDER AND PANCREAS DISORDERS

Ecological factors: Dietary regimen in cirrhosis, hepatitis, hepatic coma, cholecystitis, cholelithiasis and pancreatitis

UNIT VI METABOLIC DISORDERS

Hypothyroidism, hyperthyroidism, gout, phenylketonuria and lactose intolerance

UNIT VII RENAL DISORDERS

Contributory factors and dietary modification- acute and chronic glomerulonephritis, nephrosis, Acute and Chronic Renal Failure, Nephrosclerosis and nephrolithiasis. End stage Renal Disease and Dialysis

UNIT VIII FOOD ALLERGY

Definition, types, tests, dietary management and prevention

UNIT IX DIET DURING NEUROLOGICAL DISORDERS

Alzheimer's disease, Parkinson's disease and epilepsy.

UNIT X DIET DURING METABOLIC STRESS

Burns, sepsis and trauma. Surgical conditions- CV complications, stroke and surgery, respiratory failure, hepatic failure, multi organ failure, GI tract (surgery and complications) and neurosurgery.

REFERENCES

1. Antia FP, Clinical Dietetics and Nutrition, Oxford University Press, New Delhi, 4th edition, 1997.
2. Davidson, Pasmore P and Break LP, Human Nutrition and Dietetics, English language book society, Livingstone, 1986.
3. Robinson, normal and Therapeutic Nutrition, Oxford & LBM Publishing, Calcutta, Bombay, 17th edition, 1990.
4. Garrow.JS & James W.P.T, Human Nutrition and Dietetics, Church Hill Living Stone, 1993.
5. Mahan.L.K and Stump SE, Krause's Food, Nutrition and Diet Therapy, WB Saunders Company, 10th edition, 2001.

SEMESTER II
HND2 C09 NUTRITIONAL MANAGEMENT IN LIFE STYLE DISEASES

Objectives

1. Gain knowledge about the principles of diet therapy and different therapeutic diets
2. Develop aptitude for taking up dietetics as a profession.

UNIT I STRESS

Stress – definition, types, psychosomatic disorders due to stress and functional adjustment/the biological effects of stress on various systems-brain, cardiovascular system, respiratory system, non-vital organs and immune system- in brief. Stress enhancing food, antistress foods and nutrients. Dietary guidelines for the management of stress.

UNIT II NUTRITION FOR WEIGHT MANAGEMENT.

Components of body weight, adipose tissue and regulation of body weight. Obesity- assessment, types, causes and complications. Theories of obesity. Weight reduction techniques-dietary management, surgical management, lifestyle modification, Under weight-causes, complications and dietary management.

UNIT III DIABETES MELLITUS

Classification, symptoms, diagnosis, causes and complications. Management of diabetes- dietary management, artificial sweeteners, diet and insulin and lifestyle management. Gestational diabetes – causes, complications and dietary management. Dietary management of diabetes in emergency (fasting, feasting and illness).

UNIT IV CARDIOVASCULAR DISEASES.

Risk factors, Blood lipids-Classification, assessment, dyslipidemia and hypercholesterolemia, Atherosclerosis-disease progression, causes, symptoms and clinical findings. Management-dietary and lifestyle. Dietary management in angina pectoris, myocardial infarction and cardiac failure.

Hypertension classification, causes, complications and dietary management

RELATED EXPERIENCE

- 1) Study the weight reduction techniques followed by various health centres.
- 2) Case study report of the patient with related disease.

REFERENCE

1. Mohan, L.K. and Shump, S.E. Krause's Food Nutrition & Diet therapy, W.B. Saunders Company, XII edition, 2001.
2. Shills, E.m., Olson, S.J. and Shiks, M.C. Modern Nutrition in health and disease, Lea and Febringer, Philadelphia, 8th edition, 1994

3. Srilakshmi,B.Dietetics, New Age International(P)Ltd,Chennai,2006.

SEMESTER II
HND2 L01 PRACTICAL - CLINICAL AND THERAPEUTIC NUTRITION

Objectives

To enable students to obtain knowledge on different therapeutic diets and their preparation

UNIT I PREPARATION OF HOSPITAL DIETS.

Visit to dietary kitchen, preparation of routine hospital diets-regular diet, soft diet, full fluid diet and preparation of tube feeding blends.

UNIT II DIET IN FEBRILE CONDITIONS.

Acute & chronic fevers – typhoid, tuberculosis.

UNIT IV DIET IN GASTRO INTESTINAL DISORDERS.

Peptic ulcer, gastritis, diarrhoea, constipation, malabsorption syndrome.

UNIT V DIET IN LIVER, GALL BLADDER AND PANCREAS DISORDERS

Cirrhosis, hepatitis, cholelithiasis and pancreatitis.

UNIT VI DIET IN METABOLIC DISORDERS.

Diabetes mellitus, hypothyroidism, hyperthyroidism, gout, phenyl ketonuria, Lactose intolerance.

UNIT VII DIET IN RENAL DISORDERS.

Glomerulonephritis, nephrosis, nephrolithiasis & diet in dialysis.

UNIT VIII DIET IN OBESITY AND UNDERWEIGHT.

UNIT IX DIET IN CARDIOVASCULAR DISORDERS.

Atherosclerosis, hypercholesterolemia, hypertension, myocardial infarction.

UNIT X DIET IN NUTRITIONAL DEFICIENCY DISEASES.

Anaemia, protein calorie malnutrition, vitamin A deficiency.

UNIT XI DIET IN CANCER.

UNIT X DIET FOR CRITICALLY ILL

Diet in Surgical conditions – stroke, multi organ disorders and burns.

SEMESTER III

SEMESTER III
HND3 C10 VITAMINS AND MINERALS

Objectives

- 1) To gain knowledge about different micro nutrient deficiencies.
- 2) Obtain depth on the study of major nutrients.

UNIT I CALCIUM AND PHOSPHORUS

Functions, distribution, absorption, transportation, utilisation, storage & excretion, sources, RDA. Calcium – Phosphorus ratio, calcium balance, phosphates in blood, therapeutic uses, deficiency & toxicity.

UNIT II MAGNESIUM, SULPHUR, SODIUM, POTASSIUM

Functions, distribution, absorption, transportation, utilisation, storage & excretion, sources, requirements, deficiency and toxicity. Sodium – Potassium balance.

UNIT III IRON

Functions, distribution, absorption, transport, utilization, storage & excretion, sources and RDA. Bioavailability of iron, methods of assessing iron availability, effects of excess iron retention and deficiency.

UNIT IV IODINE & FLUORINE.

Functions, distribution, absorption, transport, utilization, storage & excretion, sources and requirements, deficiency and toxic effects of iodine & fluorine. Iodine and thyroid, methods of combating IDD & fluoride in the prevention of dental caries.

UNIT V ZINC AND OTHER TRACE ELEMENTS

Functions, distribution, absorption, transport, utilisation, storage & excretion, sources, requirements, deficiency & toxic effects of Zinc, Copper, Molybdenum, Selenium, Nickel, Chromium, Cadmium.

UNIT VI FAT SOLUBLE VITAMINS

Functions, absorption, transport, utilisation, storage and excretion. Dietary sources, RDA, conversion of beta carotene into vitamin A, hyper and hypo vitaminosis.

UNIT VII WATER SOLUBLE VITAMINS

Functions, absorption, transport, utilisation, storage and excretion. Dietary sources, RDA, hyper and hypo vitaminosis and antivitaminosis.

UNIT VIII XENOBIOTICS

Classification, effects, action, metabolism, detoxification reaction.

REFERENCES

1. Mohan,L.K. and Shump,S.E.Krause's Food Nutrition&Diet therapy,W.B.Sauders Company,XII edition,2001.
2. Shills,E.M.,Olson,S.J. and Shiks,M.C. Modern Nutrition in health and disease,Lea and Febringer,Philadelphia,8th edition,1994
3. Srilakshmi,B. Nutrition science, New Age International(P)Ltd,Chennai,2006.
4. Bamji,M.S,Rao,P.R. and vinodini,R. Text book of Human Nutrition,oxford and IBH,Publishing Co.Pvt.Ltd,NewDelhi,1996.
5. Berdanier,C.D. Advanced Nutrition-Micronutrients ,CRC Press,Washington,D.C.1998.
6. Wardlaw, G.M.Contemporary nutrition – issues and insights, 2003, New York, McGraw Hill Companies.

SEMESTER III
HND3 C11 COMMUNITY NUTRITION

Objectives

To enable the students:

1. Gain insight in to the national nutritional problems and their implications and
2. Understand the international contribution towards nutritional improvements in india.
3. Develop skills in organizing and evaluating nutrition projects in the community.

UNIT I ASSESSMENT OF NUTRITIONAL STATUS

Assessing the food and nutritional problems in the community, methods available for the assessment of nutritional status of an individual and community, direct and indirect methods, clinical examination, nutritional anthropometry, biochemical methods, dietary survey.

UNIT II PREVALENCE OF MALNUTRITION IN INDIA

Common nutritional problems-prevalence, morbidity and mortality rate. Ecology of malnutrition. Nutrition and Infection. Nutritional disorders-anaemia, Vitamin A deficiency, Iodine Deficiency Disorder, PEM- Etiology, prevalence, symptoms and preventive measures. Measures to overcome malnutrition in India. Need for an integrated approach to solve the problems of malnutrition.

UNIT III NUTRITION INTERVENTION PROGRAMMES

Nutrition intervention programmes. Objectives and operation of nutrition intervention programmes, SLP, SNP, ANP and other programmes organized by governmental and nongovernmental agencies for the vulnerable sections of the population.

UNIT IV ROLE OF NATIONAL AND INTERNATIONAL ORGANIZATIONS TO COMBAT MALNUTRITION.

International organizations concerned with food and nutrition, FAO, WHO, UNICEF, UNESCO, CARE, AFPRO, CWS, World Bank and others, National organizations concerned with food and nutrition- ICMR, ICAR, CHEB, CSWB, SSWB, ICAR, NIN, NNMB, CFTRI

UNIT V NUTRITION EDUCATION

Meaning, nature, importance and methods of nutrition education to the community, training workers in nutrition education with education and extension work - when to teach, whom to teach and how to teach. Principles of planning, executing and evaluating nutrition education programmes, problems of nutrition education programmes.

UNIT VI FOOD PRODUCTION

Objectives in agriculture planning in relation to nutrition, Green Revolution, Blue Revolution, White Revolution and Yellow Revolution, a brief review of losses of foods in the post harvest period and agents causing food spoilage. Food security, PDS, FCI, Save grain campaign. Role of food technology, environmental sanitation and health.

RELATED EXPERIENCES

1. One week community nutrition camp & report.
2. Assessment of nutritional status through anthropometry and dietary survey.
3. Planning, conducting and evaluating nutrition education programmes.
4. Evaluation of School Lunch programmes and nutrition awareness for the beneficiaries.

REFERENCES

1. Reddy.V; Rao.P.N; Sastry.G and Nath.K.K, Nutrition trends in India, NIN, Hyderabad.
2. Bamji, MS, Rao,MP; Reddy.V, “Textbook of human Nutrition”, Oxford and IBH Publishing Co, New Delhi.
3. Jeliffee.D.B, “Assessment of Nutritional Status of the community”, World Health Organisation, Geneva.
4. Swaminathan.M, “Principles of Nutrition and Dietetics”, Bangalore publishing company Ltd, Bangalore.
5. Park.K, “Park’s textbook of preventive and social medicine”, 16th edition, M/S , Banarsidas Bhanot publishers, Jabalpur.

**SEMESTER III
HND3 C12 PAEDIATRIC NUTRITION**

Objectives

1. Realize the importance of nutritional care and nourishment of children.
2. Understand the specific needs of children and the effects of various diseases on nutritional status and nutritional requirements.

UNIT I INFANCY

Physiological development, assessment of nutritional status- anthropometric measurements, biochemical parameters, clinical & dietary data. Nutritional and food requirements for infants.

UNIT II IMMUNIZATION SCHEDULE.

Immunization schedule during pregnancy, infancy and childhood

UNIT III NUTRITIONAL MANAGEMENT OF PREMATURE, LBW BABIES AND CHILDREN WITH DEVELOPMENTAL DISABILITIES

Characteristics, causes and complications, feeding methods, growth and nutritional assessment.

UNIT IV IDENTIFICATION OF SICK NEWBORN

Detection of abnormal signs- cyanosis, jaundice, respiratory distress, bleeding, seizures, retusal and feed, abdominal distention, failure to pass meconium and urine.

UNIT V NUTRITIONAL MANAGEMENT IN MALNUTRITION

PEM, anaemia, scurvy, rickets, vitamin A deficiency, childhood obesity. Underweight and underweight nutrition- short term and long term consequences in brief.

UNIT VI NUTRITIONAL MANAGEMENT OF INFECTIOUS DISEASES

Diarrhoea, typhoid, TB and hepatitis.

UNIT VII NUTRITIONAL MANAGEMENT IN GASTRO INTESTINAL DISORDERS

Lactose intolerance, celiac disease, inflammatory bowel disease, constipation and fat absorption test diet (calculation of fluids & electrolytes-both deficit and maintenance and management of calorie intake).

UNIT VIII NUTRITIONAL MANAGEMENT FOR CHILDREN WITH SPECIAL CONDITIONS

Autism and ADH (Attention Deficit Hyperactivity disorder), epilepsy and AIDS.

RELATED EXPERIENCE

Measuring, recording and plotting growth of infants.

REFERENCES

1. Mahan, L.K. and Escott-Stump, S. (2000): Krause's Food Nutrition and Diet Therapy, 10th Edition, W.B. Saunders Ltd.
2. Shils, M.E., Olson, J.A., Shike, M. and Ross, A.C. (1999): Modern Nutrition in Health and Disease, 9th Edition, Williams and Wilkins.
3. Escott-Stump, S. (1998): Nutrition and Diagnosis Related Care, 4th Edition, Williams and Wilkins.
4. Davis, J. and Sherer, K. (1994): Applied Nutrition and Diet Therapy for Nurses, 2nd Edition, W.B. Saunders Co.
5. Walker, W.A. and Watkins, J.B. (Ed) (1985): Nutrition in Pediatrics, Boston, Little, Brown & Co.
6. Guyton, A.C. and Hall, J.E. (1999): Textbook of Medical Physiology, 9th Edition, W.B. Saunders Co.
7. Ritchie, A.C. (1990): Boyd's Textbook of Pathology, 9th Edition, Lea and Febiger, Philadelphia.
8. Fauci, S.A. et al (1998): Harrison's Principles of Internal Medicine, 14th Edition, McGraw Hill.
9. Textbook of pediatric nutrition- Book review, Stephen J Rose, Ach Dis Child, 1995.
10. Nutrition in pediatrics: Basic Sciences & clinical Applicatios, W. Allan Walker, John B Watkins & Christopher Duggan, 2003. BC Decker Inc, Hamilton, Ontario.

Journals

1. American Journal of Clinical Nutrition,
2. Archives of Diseases in Childhood,
3. Indian Journal of Pediatrics
4. Journal of Pediatric Gastroenterology and Nutrition.

SEMESTER III
HND3 E01 (1) SPORTS NUTRITION

Objectives

1. To enable the students to understand nutritional requirements of sports person
2. To understand the energy expenditure for different sports events

Unit I Introduction to sports nutrition

1. Introduction to sports nutrition: History, goals and importance. Recommended Dietary Allowances for athletes, ICMR recommendations, Reference sports man and woman – requirement specifications for different sports activities. Pre and Post exercise Diet.
2. Energy requirements of athletes, components and conversion of energy. Energy metabolism in athletes– factors influencing energy requirements of athletes. Requirements for different age groups and athletes.

Unit II Nutritional requirements of athletes,

1. Carbohydrates – Role in different sports activities. CHO loading- metabolic changes – supplements.
2. Proteins – Importance in anaerobic activities, metabolic changes – requirements for sports activities – supplements and high protein diets.
3. Lipids - Role in different sports activities – special reference to swimming – metabolic changes and utilization during exercise – Fat loading – importance.
4. Vitamins and minerals – Role in sports person, fat and water soluble vitamins. Ca, Fe, Zn & Mg. Factors influencing requirements – influence of deficiencies – supplementation.
5. Fluid and electrolytes for athletes – Distribution- Fluid balance – Fluid requirements – Dehydration effects . Water intoxication – Practical indices of hydration status – Sports drinks.

Unit III :- Diet related problems of athletes AND Ergogenic aids and sports supplements

1. Diet related problems of athletes – female athlete triad – Weight control – Weight maintenance – Diabetic athletes, disabled athletes, GI stress, cramps and stitches.
2. Ergogenic aids and sports supplements - classification, types - drugs, nutritional ergogenic aids - effects and safety concerns.

PRACTICALS:

1. Principles of diet planning for sports persons with special reference to nutrients and water needs
2. Concept of energy expenditure and calculation of EE
3. Planning a day's diet for the following sports activities for different age groups and sexes: Gymnastics, Athletics, Swimming, Cricket, Football, Diet considerations for female sports persons
4. Fitness assessment - height, weight and body composition. Body fat determinations by different methods
5. Determination of aerobic capacity - pulse rate, blood pressure, THR zone for exercise and VO₂max (demonstration)
6. Determination of muscle strength and endurance (demonstration)
7. Exercise Management: Importance of warming up / cool down / stretching, Work out - aerobic and strength training /cross training, Sports injury

References

1. B Srilakshmi, V Suganthi and C Kalaivani Ashok (2017) Exercise physiology Fitness and Sports nutrition, New Age International New Delhi.
2. Brouns Fred and Caustan – Cargill (2002) Essentials of Sports Nutrition – 2nd edition John Wiley and Sons, England.
3. Burke Louse and Deakin Vicky (2006) Clinical Sports Nutrition, McGraw – Hill Pvt. Ltd. Australia.
4. Summerfield Lianne M (2001), Nutrition Exercise and Behavior An integrated approach to weight management, Belmont (USA). Wadsworth/Thompson Learning.

SEMESTER III
HND3 E01(2) ENTREPRENEURIAL DEVELOPMENT

Objectives

1. To promote entrepreneurship skills among students.
2. To enable students to understand the need and relevances of entrepreneurship.
3. To understand the process and procedure of setting up small enterprises / self employment schemes.

UNIT I ENTREPRENEURSHIP

Definition, characteristics, meaning of entrepreneur, functions, types, importance of entrepreneurs in economic development factors affecting entrepreneurial growth.

UNIT II ENTREPRENEURIAL DEVELOPMENT PROGRAMME

Meaning and need, objectives, steps, qualities of successful entrepreneur, contents of training programmes, institutions conducting EDP.

Unit III WOMEN ENTREPRENEURS

Concept, need for women entrepreneurship, problems, measures taken for the development of women entrepreneurship in India.

UNIT IV AGENCIES FOR ENTREPRENEURSHIP

Agencies for training, infrastructure, financial help, marketing- DIC, SIDO, NSIC, TCO, SISI, STEP, STED, KITCO, CIDCO, KVIC.

UNIT V SMALL INDUSTRIES

Concept, definition, characteristics, objectives, problems, measures taken for the promotion of SSI, industrial estates.

UNIT VI PROJECT FORMULATION

Project, meaning, types, project identification, generation of project idea, sources of project, screening, project formulation – steps involved.

UNIT VII PROJECT REPORT PREPARATION

Definition, objectives, importance, contents

RELATED EXPERIENCE

1. Visits to agencies involved in development of entrepreneurship.
2. Visit to one or two units related to trade.
3. Interaction with one or two entrepreneurs

REFERENCES

1. Gupta.C.B & Sreenivasan N.P, Entrepreneurship Development in India, New Delhi, Sultan Chand, 1987.
2. Desai.V, Dynamics of entrepreneurial development & management, Mumbai, Himalaya publishing house, 1997.
3. Khanka .S.S., entrepreneurial development, S Chand & Co Ltd., Ram Nagar, New Delhi, 1999.
4. Jain, N.K & Varshney.R.L, Entrepreneurship Development-RBSA publications, Jaipur, 1999.

SEMESTER III

HND3 E01 (3) NUTRITIONAL COUNSELLING AND EDUCATION

Objectives

1. To understand the principles and methods of counseling.
2. To apply counseling methods to patients with different diseases

UNIT I COUNSELLING

Introduction, definition, meaning and importance. Goals of Counselling, Immediate and long term counselling.

UNIT II SPECIFIC TECHNIQUES OF COUNSELLING

Observation, listening, nonverbal behaviour, communication, questioning, silence, transference, interview techniques. Counselling strategies, skills and principles, referral services, professional ethics in counselling.

UNIT III COUNSELLING PSYCHOLOGY

Introduction, definition, meaning and importance.

UNIT IV PSYCHOLOGY

Introduction, definition., basic concepts - attention, perception, learning, memory, personality, cognition, motivation.

UNIT V COUNSELLING PROCESS

Various phases/ stages in counselling process. Types of Counselling: Crisis counselling, facilitative counselling, preventive counselling and development counselling. Counsellor - Counseee Relationship- Nature and characteristics, factors influencing the relationship. Counselling and Psychotherapy, values in counseling.

UNIT VI CONTEMPORARY THEORIES OF THERAPY

Psychoanalysis, behaviour therapy, client centred Therapy, gestalt therapy, reality therapy

UNIT VII FAMILY COUNSELLING

Family planning counseling, abortion counseling, importance of counseling for children and adolescents. Geriatric counseling for patients with specific diseases like HIV/AIDS, cancer, and diabetes

RELATED EXPERIENCE

Give counseling for 5 patients of different age groups - Report.

REFERENCES

1. Currie, Joe, Barefoot counselling: A premier in building helping relationships. Asian Trading Cooperation, Bangalore. 1976.

2. Bhatia, K.K., Principles of guidance and counselling, Kalyani Publishers, Ludhiana. 2002.
3. Nelson – Jones, Richard, Practical counselling and helping skills, Better Yourself Books, Bombay. 1994.
4. Narayan Rao. S., Counselling, Tata Mc GrawHill Bartlet, Hariot.M, Social work practice in Health Field: National Association of Social Work, New Delhi.
5. Banarjee G.R.: Social Service Department in a Hospital, TISS, Bombay.
6. Bowel A.H. and Gardner L. : The Young Handicapped Child: Edinburgh, E and S Livingston Ltd Cooperation, Bangalore. 1976.
7. May, Rollo, Art of counselling: A practical guide with case studies and demonstrations. Abingdon Press, New York. 1967
8. Prashantham B.J., Indian case studies in therapeutic counselling, Christian Counselling Centre, Vellore. 1978
9. Bhatia, K.K., Principles of guidance and counselling, Kalyani Publishers, Ludhiana. 2002.
10. Narayan Rao. S., Counselling, Tata Mc GrawHill Publishing Company Ltd, New York 1981.

SEMESTER III
HND4 I01 HOSPITAL INTERNSHIP AND COMMUNITY NUTRITION
EDUCATION PROGRAMME

Objectives

To enable students to:

1. Get an exposure to the working situation of the dietary department of a reputed hospital.
2. Develop skills in diet counseling and feeding of patients.
3. Develop capacity for taking dietetics as a profession.
4. Get an exposure for Planning, conducting and evaluating nutrition education programmes.

- 1. One month internship in a reputed hospital - Report**
- 2. Hospital training once in a week for a period of 8 months (30 days) - Report**
- 3. Diet counseling for the college students (10 students) – Report**
- 4. Community Nutrition education camp in the areas vulnerable to malnutrition/chemical disaster or disaster prone/tribal /coastal /slum areas etc.**

SEMESTER- IV

SEMESTER IV

HND4 C13 METABOLIC AND BIOCHEMICAL CHANGES IN DISEASES

Objectives

To enable the students to understand the biochemical and physiological changes in diseases.

UNIT I NORMAL CELLULAR PROCESS

Normal cellular process., cellular adaptations. – Cell injury-Causes. Necrosis and Apoptosis.

Body fluids; extracellular and intra cellular- CFC, Serous fluids-, peritoneal, pleural and pericardial – Transudates and exudates – Synovial fluids

UNIT II DRUG, FOOD AND NUTRIENT INTERACTION

Action of some common drugs, Effect of drugs on food intake, nutrient absorption, metabolism and requirements, effect of food and nutrients on absorption and metabolism of drugs. Effect of drug on the nutritional status.

UNIT III BIOCHEMICAL CHANGES IN DISEASES

Metabolic disorders, diseases of endocrine glands and inborn errors of metabolism

Disorders associated with hyperglycemia, hypoglycemia, Hyper and hypothyroidism. atherosclerosis, dyslipidemia, obesity & fatty liver.

Inborn errors of carbohydrate, lipid and protein metabolism.

Infectious Diseases

Fever, typhoid, TB, Chicken Gunea, and Dengue fever

Non infectious diseases

Hepatitis Renal calculi, alzheimer's,PCOD

Musculo-skeletal problems

Arthritis, Osteoporosis

Organ function tests

Liver, kidney, thyroid, pancreatic and gastric function tests.

UNIT IV BODY ELECTROLYTES

Law of electron neutrality, maintenance of pH, buffer system in the body, regulation of acid base balance, respiratory control and renal control, role of sodium, potassium & chlorine, estimation of body electrolytes (principles).

UNIT V MODE OF ACTION OF ENZYMES AND HORMONES

Enzymes-Intracellular distribution, factors affecting enzyme activity, enzymes in clinical diagnosis. Hormones -Mode of action, regulation of metabolism, hormonal status in different stages of life, endocrinological abnormalities and clinical diagnosis.

UNIT VI BIOPHYSICS

Principles involved in estimating calorimetry, chromatography, flame photometry, electrophoresis, ion selective electrodes, radioimmunoassay, ELISA test.

REFERENCES

1. Mukergee, K.L, Medical Laboratory technology, Tata MaGraw Hill Publishing Company, Co-Ltd, New Delhi.
2. Chatergee, M.N and Shinde R, Texrbook of Medical Biochemistry, Jay Pee rothers Medical Publishing Pvt Ltd, New Delhi.
3. Lehinger A L, Nelson DC and Cox MM, Principles of biochemistry, CBS Publishers and distributors, Jain Bhavan, Bhala Natu Nagar.

SEMESTER IV
HND4 L02 METABOLIC AND BIOCHEMICAL CHANGES IN CLINICAL
DISEASES - PRACTICAL

Objectives

To enable students to acquire skills to estimate selected body metabolites.

1. Qualitative analysis of urine for
 - a. Albumin
 - b. Sugar
 - c. Acetone and acetoacetic acid.
 - d. Bile pigment.
2. Quantitative analysis of urine for protein.
3. Quantitative estimation of blood
 - a. Sugar
 - b. Blood urea
 - c. Serum Creatinine
 - d. Cholesterol
 - e. Calcium
 - f. Phosphorus
4. Demonstration experiment on serum bilirubin, SGOT, SGPT, Alkaline Phosphatase and Vitamin A.

SEMESTER- IV
HND 4 E02 (1) DIABETIC CARE AND MANAGEMENT

Objectives

1. Obtain in-depth knowledge about Diabetes Mellitus (DM)
2. To make the students aware of various complications during Diabetes Mellitus
3. To gain knowledge about the management of Diabetes Mellitus through diet, exercise and medication

UNIT I BASICS OF DIABETES MANAGEMENT

Introduction, definition, and meaning, classification of D.M, and risk factors
Prevalence- International, national and state.

UNIT II ANATOMY AND PHYSIOLOGY OF PANCREAS

Secretion, functions and utilisation of insulin, glucagon and somatostatin.

UNIT III PATHOPHYSIOLOGICAL CHANGES IN PANCREAS, BETA CELLS AND ALPHA CELLS

Pathological changes in metabolism. Pathophysiology of Diabetes Mellitus.
Pathological changes in other systems- Eye, C.V system, Neuropathy, Nephropathy and Micro vascular.

UNIT IV DIAGNOSIS AND ROUTINE INVESTIGATIONS

Monitoring the blood glucose level, Urine testing for the presence of sugar, random blood glucose, GTT and Glycosylated Hb. (Hb A1C).

UNIT V MANAGEMENT OF DIABETES MELLITUS

- 1) Dietary Management- Role of carbohydrate, protein, fat and fiber in Diabetes Mellitus. Glycemic indices. Alcohol and diabetic diet, fruits and diabetes, refined sugar and alternative sweeteners and dietary supplements.
- 2) Physical activity and exercise-Evaluation of diabetic patients before recommending an exercise programme. Frequency, intensity, duration and type of exercise. Exercise in the presence of specific long term complications.
- 3) Medication and Diabetes- Oral agent for diabetes. Main group of OHA'S, general aspects in OHA therapy, Insulin therapy in Diabetes Mellitus- types of Insulin and time activity characteristics. Practical aspects of insulin therapy- storage, sterilization, injection sites, timing. Commonly seen side effects.

UNIT VI COMPLICATION OF DIABETES MELLITUS AND THEIR MANAGEMENT

- 1) Hyperglycaemia- definition and clinical manifestation- treatment, prevention. Ketoacidosis-definition and causes- clinical manifestation and clinical levels of hyperglycaemia., prevention and hyperglycaemia awareness.

2) Microvascular complications – Diabetic kidney disease- definition, etiology
Pathology clinical manifestation, treatment and prevention.
Eye care: Problems of eye and vision, types and clinical manifestation.
Foot care: definition and types of problems, prevention and treatment.

4) Macrovascular complications: Definition, clinical manifestation, prevention and
Treatment

UNIT VII MANAGEMENT OF CO- MORBID CONDITION

Hypertension, dyslipidaemia, obesity, metabolic disorders.

UNIT VIII PREVENTION AND MANAGEMENT OF LONG TERM DIABETIC COMPLICATIONS

Diabetic retinopathy- symptoms, stages, common factors affecting progression of
retinopathy and management.

Neuropathy-importance of early diagnosis, diagnosis, the feet and diabetes and principles
of treatment in neuropathy

Diabetic nephropathy- stages, diagnosis, risk factors for the development of diabetic
nephropathy, management- aggressive B.P control, protein restriction, maintain
hydration, infections of urinary tract, smoking, avoid renal damage from drug use and
renal replacement therapy.

RELATED EXPERIENCE

- 1) Analysis of urine blood sugar
- 2) Detection of blood glucose by using glucometer.
- 3) Case study of two diabetic patients (complicated cases)

REFERENCES

1. L. Kathleen Mahan, Sylvia Escott-Stump “Krause’s Food Nutrition and Diet Therapy”
W.B. Saunders Company, London. 2000.
2. Maurice E.Shils, James A. Olson, Moshe Shike, A.Catharine Ross. Modern Nutrition
in Health AND Disease”. Lippincott Williams and Wilkins, London, 1994.
3. B.Srilakshmi. “Dietetics” New Age International (P) Limited, New Delhi, 2005.
4. Ameri

can Diabetes Association -2010 guidelines

5. William and Pickup “Text book of Diabetes” .2005.

HND 4 E02 (2) QUANTITY FOOD PREPARATION TECHNIQUES

Objectives

To enable students to

1. Understand the objectives of different types of Food Service Institutions.
2. Gain knowledge in menu planning, preparation of recipes in large scale and serving and in food costing.

Unit I Food Service Industry (6 hrs)

Scope and objectives of hospitality industry, different categories of hotels.

Unit II Menu planning-The primary control of food service(7hrs)

Types of menu – A la carte, Table d’hote & cyclic, Static, single use, Factors affecting menu planning, menu presentation, cost concepts and menu pricing - Factor method, Prime cost method and Actual cost method.

Unit III Purchasing (6hrs)

Qualities of an institutional buyer, Purchasing activity, product selection, mode of purchasing, methods of purchasing and purchasing process, purchasing records.

Unit IV Receiving and storage (6hrs)

Receiving - delivery methods, delivery procedure and receiving procedure.

Storage –types (dry storage and cold storage)

Unit V Standardization of Recipes(7hrs)

Standardization and portion control

Unit VI Quantity Food production and quality control(6hrs)

Objectives of food production, methods of production, product standards and product control – HACCP

Unit VII Distribution and service of Food(7hrs)

Types of food service – waiter service, self service and vending.

Unit IX Budget(9hrs)

Steps in budget planning, break even analysis food budget, and food cost control.

Related Experience:

Standardization of 10 selected recipes used in food service Institutions and quantity food production of any two items.

REFERENCES:

1. Mohini Sethi and Surjeet, M. Malhan, “Catering Management an Integrated approach”, Wiley Eastern Limited, Mumbai, II edition reprinted, 1996.
2. Marian C. Spears; Food Service Organization; III Edition, Prentice Hall Inc., usa.1995.
3. West and Woods, Introduction to Food Service, Macmillan Publishing Company, New York, 7th edition, 1994.
4. Odder Cesarani and David Fosket, Theory of Catering, Odder and Stoughton, London, xth edition,2003.
5. Odder Cesarani and David Fosket, Food and beverage service, Odder and Stoughton, London, i9x t h edition, 2003.

SEMESTER IV
HND4 E03 (1) FOOD SAFETY AND QUALITY CONTROL

Objectives

1. Understand the common organisms associated with food borne illness
2. Apply the principles & methods of storage and preservation of various foods.
3. To study about the food safety methods.

UNIT I FOOD SAFETY-BASIC CONCEPTS

Food safety and importance of safe food. Factors affecting food safety- physical hazards, biological hazards, chemical hazards. Role of microorganisms in food- bacteria, fungi, yeasts, moulds, viruses, parasites. Denaturation of bacteria.

UNIT II MICROBIOLOGY OF NATURAL PRODUCTS

Water: sources, bacteriology of water supplies, bacteriological examination and purification of water.

UNIT III FOOD SPOILAGE

Causes, Factors affecting spoilage, Spoilage of perishable and non perishable foods.

UNIT IV FOOD BORNE DISEASES AND THEIR OUT BREAK.

UNIT V FOOD PRESERVATION

Objectives, principles and methods of food preservation.

UNIT VI FOOD ADDITIVES AND FOOD ADULTERATION

Food additives – classification & Food adulteration – definition, types, common adulterants and prevention.

UNIT VII FOOD PACKAGING

Packaging :concepts ,significance and functions. Classification of packaging materials- flexible packages, rigid packages, retail or shipping containers. Packaging methods. Moisture sorption properties of foods and selection of packaging materials. Interactions between packaging and food toxicity hazards. Biodegradable material and environmental issues. Labelling requirements and bar coding- Nutrition labeling and nutrition claims, coding of food products. Packaging laws and regulations

UNIT VIII FOOD LAWS AND STANDARDS

Mandatory measures-PFA, Essential commodities act, 1955. Voluntary standards and certification system- Bureau of Indian standards, AGMARK. Consumer protection act, 1986. Food standardization and regulation agencies in India-CCFS, CFL. International standards- Codex alimentarius, ISO, WHO, FAO, WTO, HACCP.

RELATED EXPERIENCE

1. Visit and study the various food preservation techniques applied in the industries/units.
2. Demonstration of food adulteration
3. Preparation of preserved foods by using different preservation methods.

REFERENCES

1. Roday, S 1999. Hygiene and Sanitation in Food Industry. Tata Mc Graw Hill Publishing Company Ltd., New Delhi
2. Frazier, W.C & Westhoff, D.C. Food Microbiology. Tata MC Graw –Hill Publishing Company Ltd., New Delhi, 5th Edition, 1997
3. Adams, M.R and Moss, M.O. Food Microbiology. New Age International (P) Ltd., Publishers. 1996
4. Anna K. Joshua, Microbiology. Popular Book Depot. Publishers. 1994 New Delhi, 1996
5. Potter, N. Hotchkiss, H.J. Food Science (5th edition) CBS Publishers and Distributors, New Delhi, 1996
6. Srilakshmi B. Food Science. 4th Edition. New Age International Private Limited, New Delhi, 2008
7. Shakuntala M.N., Shadaksharaswamy M. Foods –Facts and Principles. New Age International Publishers, New Delhi, 2002

SEMESTER IV
HND4 E03 (2) PUBLIC NUTRITION AND HEALTH

Objectives

It will enable the students to:

- Develop a holistic knowledge base and understanding of the nature of important nutritional problems and their prevention and control for the disadvantaged and upper socio-economic strata in society
- Understand the causes /determinants and consequences of nutritional problems in society
- Be familiar with various approaches to nutrition and health interventions, programmes and policies.

UNIT I CONCEPT OF PUBLIC NUTRITION

Relationship between health and nutrition, role of public nutritionists in the health care delivery

UNIT II SECTORS AND PUBLIC POLICIES RELEVANT TO NUTRITION AND HEALTH.

UNIT III PRIMARY HEALTH CARE OF THE COMMUNITY

National Health Care Delivery System, determinants of Health Status, indicators of Health

UNIT IV POPULATION DYNAMICS

Demographic transition, population structure, fertility behavior, population policy, fertility, interrelationship between Nutrition and quality of Life.

UNIT V FOOD AND NUTRITION SECURITY

Food production – access, distribution, availability, losses, consumption. Food Security. Sociocultural aspects and Dietary Patterns - their implications for Nutrition and Health

UNIT VI NUTRITIONAL STATUS

Determinants of nutritional status of individual and populations. Nutrition and Non-nutritional indicators - socio-cultural, biologic, environmental, economic. Assessment of nutritional status of individuals of different ages- MUAC, Wt for age, Ht for age, Wt for ht, Ponderal index, BMI. Applications and limitations in different field situations - choice of an indicator

UNIT VII MAJOR NUTRITIONAL PROBLEMS

Etiology, prevalence, clinical manifestations, preventive and therapeutic measures for: Macro and micro nutrient deficiencies. Other nutritional problems like lathyrism, dropsy,

aflatoxicosis, alcoholism and fluorosis. Overweight, obesity and chronic degenerative diseases

UNIT VIII NATIONAL FOOD, NUTRITION AND HEALTH POLICIES

Plan of action and programmes

UNIT IX APPROACHES AND STRATEGIES FOR IMPROVING NUTRITIONAL STATUS AND HEALTH

Programmatic options- their advantages and demerits – feasibility, political support, available resources (human, financial, infrastructural). Case studies of selected strategies and programmes: their rationale and context, how to select interventions from a range of possible options. Health based interventions, food-based interventions including fortification and genetic improvement of foods, supplementary feeding, and Nutrition education for behaviour change.

UNIT X HEALTH ECONOMICS AND ECONOMICS OF MALNUTRITION

Its impact on productivity and national development. Cost-Benefit, cost effectiveness, cost efficiency

REFERENCES

1. Owen, A.Y. and Frankle, R.T. (1986): Nutrition in the Community, The Art of Delivering Services, 2nd Edition Times Mirror/Mosby.
2. Park, K. (2000): Park's textbook of preventive and social medicine, 18th Edition, M/s. Banarasidas Bhanot, Jabalpur.
3. SCN News, UN ACC/SCN Subcommittee on Nutrition.
4. State of the World's Children, UNICEF.
5. Census Reports.
6. Berg, A. (1973): The Nutrition Factor, the Brookings Institution, Washington.
7. Beaton, G.H. and Bengoa, J.M. (Eds) (1996): Nutrition in Preventive Medicine, WHO.
8. Bamji, M.S., Rao, P.N., Reddy, V. (Eds) (1996): Textbook of Human Nutrition, Oxford and IBH Publishing Co. Pvt. Ltd., New Delhi.
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11. Gopalan, C. (Ed) (1987): Combating Undernutrition – Basic Issues and Practical Approaches, Nutrition Foundation of India.
12. Achaya, K.T. (Ed) (1984): Interfaces between agriculture nutrition and food science, The United Nations University.
13. National Family Health Survey I & II (1993, 2000): International Institute for Population Studies, Mumbai.
14. National Plan of Action on Nutrition (1995): Food & Nutrition Board, Dept. Of WCD, Govt. of India.

15. National Nutrition Policy (1993): Dept. of WCD, Govt. of India.
16. Nutrition Education for the Public (1997): FAO Food and Nutrition Paper, 62, FAO.
17. Allen, L. and Ahluwalia, N. (1997) Improving Iron Status Through Diet: The Application of Knowledge Correcting Dietary Iron Bioavailability in Human Populations. OMNI/USAID, Arlington, VA, USA
18. Nestel, P. (ed) (1995). Proceedings: Interventions for Child Survival. OMNI/USAID
Arlington, VA, USA
19. Documents and Reports published by the International Vitamin A Consultative Group
20. Documents and Reports of the International Nutritional Anemia Consultative Group
21. Howson, C.; Kennedy, E. and Horwiz, A. (eds) (1998). Prevention of Micronutrient Deficiencies: Tools for Policymakers and Public Health Workers. Committee on Micronutrient Deficiencies, Board on International Health, Food and Nutrition Board, National Academy Press, Washington D.C. USA.
22. Micronutrient Initiative (1998) Food Fortification: to end Micronutrient Malnutrition. The Micronutrient Initiative, Ottawa, Canada.
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24. Murray, C. and Lopez, A. (eds)(1996) Global Burden of Disease and Injury Harvard University Press, Cambridge, MA, USA.
25. Ross, J.; Horton, S. (1998) Economic Consequences of Iron Deficiency. The Micronutrient Initiative, Ottawa, Canada.
26. World Health Organization (1998) World Health Report: Life in the 21st century. Report of the Director General. WHO, Geneva, Switzerland
27. Ramakrishnan, U. (eds) (2001). Nutritional Anemias. CRC Press in Modern Nutrition, CRC Press, Boca Raton, FL.

HND2 A02 AUDIT COURSE II PCC- SPSS

Objectives:

- SPSS software was designed to perform statistical analysis on quantitative data. In plain English, SPSS software is used for complex calculations to analyze numerical data.
- SPSS software is used in nonprofit agencies, educational institutions and even in business to analyze numerical data. It performs several statistical and econometric analyses.
- It has wide applications in the field of Social Sciences, Life Sciences, finance, Marketing, Education and other fields where statistical analysis is required.
- The use of SPSS is very much essential for research work. Academic institutions, Research Institutes, NGO and other such organization are also required to make use of this statistical package.

UNIT 1: Entering and Editing Data

- Importing from Excel
- Characteristics of Variables
- Adding Value Labels
- Grouping Data
- Transforming Variables
- Selecting a Subset

UNIT 2: Producing summary statistics

- Frequencies
- Percentages
- Averages
- Measures of spread

UNIT 3: Charts

- Bar Charts
- Histograms
- Pie Charts
- Boxplots
- Cluster Bar Charts
- Scatter Diagrams

UNIT4: Tables

- Presentation
- Two Way Tables

UNIT 5: Analysis

- Interpreting Output
- Drawing Conclusions
- Exporting to Word and PDF

Model Question Paper
FIRST SEMESTER M Sc DEGREE EXAMINATION
(CBCSS-PG)

Home Science (Nutrition and Dietetics)

HND1 C01 - HUMAN PHYSIOLOGY

Time : 3 Hours

Maximum : 36 weightage

Part A

Answer ten questions, each in one paragraph.

Each question carries a weightage of 1

1. Functions of uterus
2. Defecation
3. Thalamus
4. Apnea
5. Abnormalities in heart rate
6. Ovarian Hormones
7. Malpighian corpuscles
8. Erythroblastosis fetalis
9. Parturition
10. Parts of stomach
11. ABO system
12. Heart valves

(10x1=10 weightage)

Part B

Answer any Six Questions, each within one page

Each question carries a weightage of 3.

13. Give a note on external female reproductive organs
14. Explain the mechanism of swallowing
15. What is synapse? Explain the structure and function
16. Discuss the chemical mechanism in the regulation of respiration
17. Give a note on ECG and its significant
18. Explain the role of hormones in calcium homeostasis
19. Explain urine formation
20. Explain Hemostasis

(6x3=18 weightage)

Part C

Answer any two questions.

Each question carries a weightage of 4.

21. Elaborate the component and its function of blood
22. Explain Properties of cardiac muscles and events of cardiac cycle
23. Elaborate Mentrual cycle
24. Pituitary is called master gland, Expalin (2x4=8 weightage)

Model Question Paper
FIRST SEMESTER M Sc DEGREE EXAMINATION
(CBCSS-PG)
Home Science (Nutrition and Dietetics)
HND1C02 NUTRITION THROUGH LIFE CYCLE

Time : 3 Hours

Maximum : 36 weightage

Part A

Answer ten questions, each in one paragraph.

Each question carries a weightage of 1

1. Hormones in lactation
2. Gerontology
3. Under 5 MR
4. Bulimia Nervosa
5. Amniocentesis
6. Lactogogues
7. LBW babies
8. Infertility
9. Immunization schedule
10. Formula feeding
11. Growth spurt
12. Menopausal syndrome

(10x1=10 weightage)

Part B

Answer any Six Questions, each within one page

Each question carries a weightage of 3.

13. What are the nutritional factors that affect academic performance in school children
14. What are the different types of food used for the space travelers's
15. What are the advantageous of breast feeding?
16. A pregnant woman should eat for too. Comment
17. Discuss how food groups can serve as a guide meal planning
18. What are the hormonal changes that takes place during pregnancy?
19. What are the importance of growth monitoring in children?

20. What is meant by 'Sports Nutrition'

(6x3=18 weightage)

Part C

Answer any two questions.

Each question carries a weightage of 4.

21. Explain physiology of lactation

22. Explain the importance of breast milk.

23. Explain the complications of pregnancy

24..Describe the contributory risk factors of infertility, prevention and methods of detection

(2x4=8 weightage)

Model Question Paper
FIRST SEMESTER M Sc DEGREE EXAMINATION
(CBCSS-PG)
Home Science (Nutrition and Dietetics)
HND1 C03 ADVANCED FOOD SCIENCE

Time : 3 Hours

Maximum : 36 weightage

Part A

Write a short note on the following ten questions, each in one paragraph.

Each question carries a weightage of 1

1. Parboiling
2. ARF
3. SCP
4. Colloids
5. Gelatinisation
6. Scorching of Milk
7. Allostearic enzymes
8. Asepsis
9. Maillard Reaction
10. Post mortem Changes
11. Enzyme specificity
12. Trypsin Inhibitors

(10x1=10 weightage)

Part B

Answer any Six Questions, each within one page

Each question carries a weightage of 3.

13. Describe Different methods and Objectives of Cooking
14. Write a note on Nanotechnology in Food Science
15. Bring out the importance of fish and omega 3 Fatty acid
16. Explain the principle of food Packaging
17. Write in detail about FSSAI
18. Explain sensory method of food evaluation

19. Explain food adulteration with examples and test for determination
20. Discuss the types and functions of food additives (6x3=18 weightage)

Part C

Answer any two questions.

Each question carries a weightage of 4.

21. Explain cereals under the following headings. Structure and Nutritive Composition
22. Describe the Types and Mechanism of rancidity
23. Classification of beverages in detail.
24. Explain the importance of nutraceuticals and its classification.
(2x4=8 weightage)

Model Question Paper
FIRST SEMESTER M Sc DEGREE EXAMINATION
(CBCSS-PG)

Home Science (Nutrition and Dietetics)

HND1 C04 - MACRO NUTRIENTS

Time : 3 Hours

Maximum : 36 weightage

Part A

Answer ten questions, each in one paragraph.

Each question carries a weightage of 1

1. Basic four concepts of nutrition
2. Glycemic Index
3. Classification of amino acids
4. Principles of indirect calorimetry
5. Functions of water
6. Properties of fat
7. Reference man
8. Resistant starch
9. NPU
10. Sources of Fat
11. Define BMR
12. TEF

(10x1=10 weightage)

Part B

Answer any Six Questions, each within one page

Each question carries a weightage of 3.

13. Write a note on digestion and absorption of Carbohydrate
14. Explain β oxidation of fatty acid
15. Write a note on Ketone body formation
16. Write the principles and procedures of Bomb calorimeter
17. Give a note on control of food intake and body weight
18. Write the general principles for deriving nutrient requirement
19. PEM
20. Define water balance and explain its regulatory mechanisms in the body

(6x3=18 weightage)

Part C

Answer any two questions.

Each question carries a weightage of 4.

21. Define RDA and elaborate the methods for studying the nutrient requirement
22. Elaborate the components of energy expenditure and its estimation methods
23. Describe protein under the following terms
 - a) Classification
 - b) sources
 - c) Digestion
 - d) metabolism
24. Elaborate the energetic of TCA cycle (2x4=8 weightage)

Model Question Paper
FIRST SEMESTER M Sc DEGREE EXAMINATION
(CBCSS-PG)
Home Science (Nutrition and Dietetics)
HND1 C05 RESEARCHMETHODS AND STATISITICS

Time :3 Hours

Maximum : 36 weightage

Part A

Answer ten questions, each in one paragraph.

Each question carries a weightage of 1

1. Industrial research
2. Primary data
3. Mean deviation
4. Operational definition
5. Validity of a tool
6. Pilot study
7. Range
8. Null hypothesis
9. Review of literature
10. Participant observation
11. Statistical inference
12. Interviewer bias

(10x1=10 weightage)

Part B

Answer any Six Questions, each within one page

Each question carries a weightage of 3.

13. Write a brief account of basic research
14. Discuss different types of variables
15. Distinguish between surveys and experiments
16. What are the characteristics of a good questionnaire?
17. Give the different applications of t-test
18. What are the criteria for selection of a research problem
19. Explain graphs used for presentation of data

20. Two sections were given in an examination for a course. The average score was 72 with standard deviation 6 for section 1 and 85 with standard deviation 5 for section 2. Student A from section 1 scored 84 and student B from section 2 scored 90. Who performed better relative to his/her group

(6x3=18 weightage)

Part C

Answer any two questions.

Each question carries a weightage of 4.

21. Explain normal distribution and its uses in testing of hypothesis
22. Explain the principles of research report writing. Explain the components of report writing
23. Explain the role of tests of significance in research
24. Explain how you will write a research proposal

(2x4=8 weightage)

Model Question Paper
SECOND SEMESTER M Sc DEGREE EXAMINATION
(CBCSS-PG)

Home Science (Nutrition and Dietetics)

**HND2 C06 ONCOLOGY NUTRITION
MODEL QUESTION PAPER**

Time: 3 Hours

Maximum: 36 weightage

Part A

Answer any ten questions, each in one paragraph. Each question carries a weightage of 1

1. Discuss on the methods for the diagnosis of cancer
2. Relation between caffeine & cancer
3. List out the nutritional risk factors of cancer
4. Explain the pathophysiology of cancer
5. Nutritional supplementation in cancer
6. Physical activity and cancer
7. Classification of cancer
8. Hematological malignancies
9. Palliative care in cancer
10. Phytochemicals and cancer
11. Colon cancer
12. Role of herbal supplements in cancer prevention

(10x1=10 weightage)

Part B

Answer any six Questions, each within one page. Each question carries a weightage of 3

13. Give a note on cancer cachexia
14. Explain on enteral nutrition support in cancer
15. Discuss the role of antioxidants in cancer prevention
16. Brief on leukemia and its management
17. Discuss on the cancer prevention approaches in elderly
18. Write a note on bone marrow transplantation
19. Define immunotherapy treatment in cancer
20. Brief on the diagnosis and treatment of breast cancer

(3x6=18 weightage)

Part C

Answer any two questions. Each question carries a weightage of 4.

21. Describe about the role of nutrition in pre and post operative care in cancer.
22. Discuss the various risk factors of cancer.
23. Elaborate on the MNT for gastric cancer. Give details on nutritional screening and assessment in cancer.
24. Enumerate the details of biochemical changes during cancer.

(2x4=8 weightage)

Model Question Paper
SECOND SEMESTER M Sc DEGREE EXAMINATION
(CBCSS-PG)

Home Science (Nutrition and Dietetics)

HND2 C07 - FOOD SERVICE MANAGEMENT

Time : Three Hours

Maximum : 36 weightage

Part A

Answer ten questions, each in one paragraph.

Each question carries a weightage of 1

1. Classify caters
2. Define management
3. How we develop Kitchen plan
4. Non conventional sources of energy
5. Radiation
6. HACCP
7. Vending
8. Behaviour of food cost
9. Criteria for staff selection
10. Objectives of marketing promotion
11. List out the personnel hygiene techniques used in food Industry
12. Trial Balance (10x1=10 weightage)

Part B

Answer any Six Questions, each within one page

Each question carries a weightage of 3.

13. What are the important food handling practices to be followed in a Food Industry?
14. What is BEA? and Explain the steps in budgeting
15. Write the important basic factors for the selection of equipments
16. Explain different methods of food purchasing
17. Write about work simplification in Kitchen plan
18. Write about scopes and classification of Hotels
19. What are the methods and channel of communication in Food Industry
20. Explain different food production methods (6x3=18 weightage)

Part C

Answer any two questions.

Each question carries a weightage of 4.

21. Elaborate standardization and portion control
22. Explain the role of Marketing Mix in Food Industry
23. Elaborate the types and style of food service
24. Explain the various aspects of Hygiene and sanitation in catering establishment
(2x4=8 weightage)

Model Question Paper
SECOND SEMESTER M Sc DEGREE EXAMINATION
(CBCSS-PG)
Home Science (Nutrition and Dietetics)
HND2 C08 CLINICAL AND THERAPEUTIC NUTRITION

Time : 3 Hours

Maximum : 36 weightage

Part A

Answer ten questions, each in one paragraph.

Each question carries a weightage of 1

1. What is Wilson's disease?
2. List any five foods to be avoided in a soft diet
3. What is PEG
4. What is ketogenic diet?
5. What is gluten free diet?
6. What is hepatic coma?
7. Write down the importance of milk in tuberculosis
8. What you meant by therapeutic nutrition?
9. Dumping syndrome
10. Antioxidants
11. Glycemic index (10x1=10 weightage)
12. H₁N₁

Part B

Answer any Six Questions, each within one page

Each question carries a weightage of 3.

13. Explain the consequences of diarrhoea
14. Role of dietitian in health care
15. What is enteral nutrition? Give the advantages of enteral nutrition.
16. What are the causes of nephritic syndrome? Explain its dietary management.
17. Discuss the dietary management of a patient suffering from acute pancreatitis
18. What is the significance of diet in hyperthyroidism
19. Differentiate between diverticulosis and diverticulitis

20. What is phenylketonuria and what are the factors to be considered in planning the diet for phenylketonuria (6x3=18 weightage)

Part C

Answer any two questions.

Each question carries a weightage of 4.

21. Enumerate the etiology symptoms and dietary management of hepatitis
22. Explain burns under the following headings
a) Classification b) complications c) dietary management
23. Write on the dietary management of peptic ulcer
24. Explain the different enteral feeding methods (2x4=8 weightage)

Model Question Paper
SECOND SEMESTER M Sc DEGREE EXAMINATION
(CBCSS-PG)
HOME SCIENCE (NUTRITION AND DIETETICS)
HND2 C09 – NUTRITIONAL MANAGEMENT IN LIFE STYLE DISEASES

Time : 3 Hours

Maximum : 36 weightage

Part A

Answer ten questions, each in one paragraph.

Each question carries a weightage of 1

1. GTT
2. BMI
3. What is dash diet
4. Familial Hypercholesterolemea
5. Carcinogens
6. Fat cell theory
7. Kempners Diet
8. Angina Pectoris
9. Poly urea and nocturea
10. Fish is good for our Heart, Justify
11. Cachexia
12. What are the danger signals of cancer

(10x1=10 weightage)

Part B

Answer any Six Questions, each within one page

Each question carries a weightage of 3.

13. Explain the development of cancer
14. Discuss the etiological factors of AIDS
15. Brief on stress enhancing and anti-stress foods.
16. Explain the parameters used in the diagnosis of obesity.
17. Describe the role of fat in the treatment of atherosclerosis
18. What is cancer? List the different types of cancers with tissue/cell of origin.
19. How do chylomicrons and very low density lipoproteins differ?

20. What is hyperglycemia? Point out its complications.

(6x3=18 weightage)

Part C

Answer any two questions.

Each question carries a weightage of 4.

21. Discuss different types of cancers and its dietary management

22. Explain AIDS under the following headings:

a) Classifications b) Pathophysiology c) Nutritional therapy

23. Explain the psychosomatic disorders due to stress. Comment on the dietary guidelines for the management.

24. Define hypertension. Explain in detail the life style modifications to manage hypertension.

(2x4=8 weightage)

Model Question Paper
THIRD SEMESTER M Sc DEGREE EXAMINATION
(CBCSS-PG)
Home Science (Nutrition and Dietetics)
HND3 C10 VITAMINS AND MINERALS

Time : 3 Hours

Maximum : 36 weightage

Part A

Answer ten questions, each in one paragraph.

Each question carries a weightage of 1

1. Hypothyroidism
2. Night blindness
3. Hemolytic anaemia
4. Siderosis
5. Hybernatemia
6. Fluorosis
7. Goitrogens
8. Antioxidants
9. Osteomalacia
10. Wilson's diseases
11. Rickets
12. Iodised salt

(10x1=10 weightage)

Part B

Answer any Six Questions, each within one page

Each question carries a weightage of 3.

13. Explain any three factors influencing calcium absorption
14. What is the role played by vitamin E in the body?
15. Write a brief account on Vitamin A deficiency
16. What are the functions and sources of thiamin ?
17. Differentiate between osteoporosis and osteomalacia
18. What are the factors that reduce iron absorption
19. Explain the significance of Folic acid during pregnancy

20. Explain the role of calcium in blood clotting

(6x3=18 weightage)

Part C

Answer any two questions.

Each question carries a weightage of 4.

22. What is IDD? Explain the national efforts in combating IDD.

23. Define detoxification. Briefly explain the various detoxification mechanisms in the body.

24. Explain Iron under the following heads:

a)Functions

b) Methods of assessing iron availability

c)Iron over load

d)Sources

25. Discuss the inter relationship of vitamins and minerals

(2x4=8 weightage)

Model Question Paper
THIRD SEMESTER M Sc DEGREE EXAMINATION
(CBCSS-PG)

Home Science (Nutrition and Dietetics)
HND3 C11 COMMUNITY NUTRITION

Time : 3 Hours

Maximum : 36 weightage

Part A

Answer ten questions, each in one paragraph.

Each question carries a weightage of 1

1. What is Koilonychias
2. What is Cretinism
3. Yellow revolution
4. PDS
5. What is Keratomalacia
6. Food fortification
7. What are the components of food security
8. ICMR, ICDS, CFTRI
9. Write a short note on PEM
10. What is exclusive breast feeding
11. What is double fortified salt?
12. Novel foods

(10x1=10 weightage)

Part B

Answer any Six Questions, each within one page

Each question carries a weightage of 3.

13. What is food security? What are the components of food security?
14. What are the objectives of NIN?
15. Write a note on Blue revolution
16. Differentiate Kwashiorkor and Marasmus
17. What are the factors affecting nutritional status of a community?
18. Give a brief account of school lunch programme

19. Discuss any 4 visual aids that can be used in nutrition education
20. Ecology of malnutrition

(6x3=18 weightage)

Part C

Answer any two questions.

Each question carries a weightage of 4.

22. Explain the objectives and guidelines of food fortification and enrichment and give suitable examples to substantiate its role in nutritional programmes.
23. How will you plan and implement a nutrition education programmes for a rural community.
24. What is meant by Dietary survey? Explain the types in detail.
25. Explain the role of International organizations to combat malnutrition

(2x4=8 weightage)

Model Question Paper
THIRD SEMESTER M Sc DEGREE EXAMINATION
(CBCSS-PG)

Home Science (Nutrition and Dietetics)

HND3 C12 PAEDIATRIC NUTRITION

Time : 3 Hours
Weightage

Maximum : 36

Part A

Answer any ten questions in one or two sentences.
Each question carries a weightage of 1.

1. Cyanosis
2. Immunization schedule during infancy
3. Ketogenic diet
4. What is ADHD?
5. MUAC
6. ORS
7. IBD
8. Lactose intolerance
9. Rickets
10. Marasmic kwashiorkor
11. Explain celiac disease in one or two sentences
12. What is weaning? Give its importance (10x1=10 Weightage)

Part B

Answer any six questions in a paragraph.
Each question carries a weightage of 3.

13. Explain food based approaches to treat PEM.
14. Explain the word Glycemic index.
15. Give an account of feeding methods to be adopted while feeding LBW babies
16. What is childhood obesity? Explain its short term and long term consequences.
17. Discuss the deficiency symptoms of vitamin A.
18. Discuss the etiology of anemia.
19. Explain the nutritional management in Hepatitis.

20. Outline the nutritional management strategies for a low birth weight babies

(6x3=18 Weightage)

Part C

Answer any two questions.

Each question carries a weightage of 4.

21. Describe the techniques for assessing the nutritional status of an infant.

22. Outline the signs of identifying a sick new born

23. Enumerate the etiology of childhood obesity. Discuss the consequences and preventive Strategies.

24. Explain Protein Energy Malnutrition under the following heads:-

a) Etiology b)Types c) Consequences. (2x4=8 Weightage)

MODEL EXAMINATION

THIRD SEMESTER M Sc DEGREE EXAMINATION

(CBCSS-PG)

Home Science (Nutrition and Dietetics)

HND3 E01 (1) SPORTS NUTRITION – SPORTS NUTRITION

Time : 3 Hours

Maximum : 36 weightage

Part A

Answer ten questions, each in one paragraph. Each question carries a weightage of 1

1. List out SAI and NIN seven groups of diet for Indian Sports persons
2. PAR
3. Fat Loading
4. Effects of nutritional ergogenic aids
5. List out RDA for any four sports activities
6. Sports Aneamia
7. List out the factors affecting protein requirement in young Athletes
8. Reference Sports Man
9. Water Intoxication
10. Write the points which boost the carbohydrate
11. Components of Energy Expenditure
12. List out goals of an optimal training diet

(10x1=10 weightage)

Part B

Answer any Six Questions, each within one page. Each question carries a weightage of

3

13. Explain History and importance of sports Nutrition
14. Detail on carbohydrate loading, ingestion and the inflammatory response
15. Describe fluid requirement of power Athletes
16. Explain supplements and high protein diet for Athletes
17. Elaborate energy requirement of children and Adults
18. Illustrate, role of fat in different sports activities
19. Describe any eight sports supplements
20. Justify, the role of calcium, Magnesium and antioxidants in Athletes

(6x3=18 weightage)

Part C

Answer any Two questions. Each question carries a weightage of 4.

21. Describe pre and post exercise Diet
22. Elaborate energy metabolism and explain factors affecting energy requirement of Athletes
23. Briefly explain diet related problems of Athletes
24. Explain protein requirement under the following headings
 - a) factors affecting protein requirement
 - b) Endurance Athletes
 - c) Strength Athletes

(2x4=8 weightage)

Model Question Paper
THIRD SEMESTER M Sc DEGREE EXAMINATION
(CBCSS-PG)

Home Science (Nutrition and Dietetics)

HND3 E03(3) NUTRITIONAL COUNSELING AND EDUCATION

Time : 3 Hours

Maximum : 36 weightage

Part A

Answer ten questions, each in one paragraph.

Each question carries a weightage of 1

1. Counselling
2. Nutrition Counselling
3. Eclectic Counselling
4. Crisis Counselling
5. Gestalt theory
6. Transference
7. Empathy
8. ELISA test
9. Active listening
10. Osteoporosis
11. Reality therapy
12. Goals of Counselling

(10x1=10 weightage)

Part B

Answer any Six Questions, each within one page

Each question carries a weightage of 3.

13. Write a note on different skills needed for a counsellor
14. Bring out the importance of Nutrition counseling for an adolescent girl
15. Explain developmental Counselling
16. Write the steps needed for counseling a cancer patient

17. Explain the importance of Geriatric Counselling
18. Discuss the role of nutrition counselor for diabetic patient
19. Different Skills of a Counsellor
20. Discuss different methods of Nutrition Education (6x3=18 weightage)

Part C

Answer any two questions.

Each question carries a weightage of 4.

21. Explain in detail about important points we consider while counseling an AIDS patient
22. Different theories of Counselling.
23. Describe the process and stages of Nutrition Counselling
24. Describe the different Types of Counselling

(2x4=8 weightage)

Model Question Paper

FOURTH SEMESTER M Sc DEGREE EXAMINATION

(CBCSS-PG)

Home Science (Nutrition and Dietetics)

HND4 C13 METABOLIC AND BIOCHEMICAL CHANGES IN DISEASES

Time : 3 Hours

Maximum : 36 weightage

Part A

Answer ten questions, each in one paragraph.

Each question carries a weightage of 1

1. Chromatogram
2. R_f value
3. Lecithin
4. Lactose intolerance
5. Ketosis
6. Glycosylated haemoglobin
7. ELISA test
8. Gout
9. Hemophilia
10. LDL
11. Spectrometry
12. Fructosamines

(10x1=10 weightage)

Part B

Answer any Six Questions, each within one page

Each question carries a weightage of 3

13. Describe the clinical changes that occur during galactosemia
14. Write a note on disorders of tyrosine metabolism
15. Bring out the importance of liver function test
16. Explain the principle behind electrophoresis
17. Write the principle of estimation of serum urea
18. Explain any one method for determination of blood glucose
19. Discuss the role of nitrogen balance in human body
20. Discuss the functions of electrolytes in the body

(6x3=18 weightage)

Part C

Answer any two questions.

Each question carries a weightage of 4

21. Diabetes mellitus is considered as an alteration of metabolism. Discuss
22. Describe the process of synthesis and breakdown of haemoglobin
23. Describe the various methods of maintaining acid- base balance in our body
24. Explain inborn errors of protein metabolism (2x4=8 weightage)

Model Question Paper

FOURTH SEMESTER M Sc DEGREE EXAMINATION

(CBCSS-PG)

Home Science (Nutrition and Dietetics)

HND4 E02(1) - DIABETIC CARE AND MANAGEMENT

Time: Three Hours

Maximum: 36 weightage

Part A

Answer ten questions, each in one paragraph.

Each question carries a weightage of 1

1. Glycemic Index
2. GTT
3. Define Diabetes Mellitus
4. Somatostatin
5. Non- Ketotic Hyper osmolar coma
6. Risk factors Diabetic retinopathy
7. Types of Insulin
8. Foot Care
9. Artificial sweeteners
10. Glycosylated Hb
11. Pathological changes in Carbohydrate Metabolism
12. Prevalence of Diabetes Mellitus (10x1=10 weightage)

Part B

Answer any Six Questions, each within one page

Each question carries a weightage of 3.

13. Explain management of metabolic disorders in Diabetes
14. Write Definition and classification of Neuropathy
15. Give a not on Ketoacidosis.
16. Discuss the complications and side effects of Insulin therapy
17. Briefly explain the classification of Diabetes Mellitus

18. State the importance of exercise for a diabetic patient
19. What are the pathological changes associated with cardiovascular system in a diabetic patient
20. Write a note on Regulation of Blood Glucose Level
21. How can diabetic retinopathy be prevented (6x3=18 weightage)

Part C

Answer any two questions.

Each question carries a weightage of 4.

22. Discuss Diabetic nephropathy under the following heads
a) Etiology b) stages c) Treatment d) prevention
23. Explain the anatomy and physiology of pancreas
24. Explain the medication and Diabetes
25. Discuss the prevention and management of long – term Diabetes under condition
a) dyslipidemia b)obesity (2x4=8 weightage)