

B.Sc. Human Nutrition –Session 20-21

SEMESTER	COURSE CODE	Title of Course	Credits
First Semester	Compulsory Core Papers		
	T+P		
	UGHN.101	Fundamentals of food and nutrition	3+1
	UGHN.102	Introduction to human physiology and nutrition	3+1
	UGHN.103	Nutritional biochemistry	3+1
	Ability Enhancement Compulsory Courses		
	AECEG OR AECHD	Ability Enhancement Course in English OR Ability Enhancement Course in Hindi	4 4
TOTAL CREDIT			16
Second Semester	Compulsory Core Papers		
	UGHN.104	Community Nutrition	3+1
	UGHN.105	Food microbiology hygiene and sanitation	3+1
	UGHN.106	Nutrition and Health Communication	3+1
	Ability Enhancement Compulsory Courses		
	CHEQ/EA	Course in Environment Awareness	4
	TOTAL CREDIT		
Third Semester	Compulsory Core Papers		
	UGHN.107	Public health and epidemiology	4
	UGHN.108	Food science and experimental cookery	3+1
	UGHN.109	Family Meal Management	4
	Skill Enhancement Courses		
	UGHN.110 or UGHN.111	Advance therapeutic nutrition Institutional food management	3+1 4
	Credits of Third Semester		
Forth Semester	Compulsory Core Papers		
	UGHN.112	Nutritional management in health and diseases	4
	UGHN.113	Nutritional assessment and surveillance	4
	UGHN.114	Computer Application and Statistics	3+1
	Skill Enhancement Courses		
	UGHN.115	Assessment of Nutritional Status	4

	or UGHN.116	Maternal and Child Nutrition	4
	Credits of Forth Semester		16
Fifth Semester	Compulsory Core Papers		
	UGHN.117	Food Safety and Quality Control	4
	UGHN.118	Diet therapy	3+1
	UGHN.119	Institutional Food Management	4
	Skill Enhancement Course		
	UGHN.120 or UGHN.121	Catering management	4
		Policy program and interventions	4
Credits of fifth Semester		16	
SIXTH Semester	Compulsory Core Papers		
	UGHN.122	Dietetic techniques and patient counselling	3+1
	UGHN.123	Nutrition and Health of Women	4
	UGHN.124	Economics of Food	4
	Skill Enhancement Courses		
	UGHN.125 or UGHN.126	Nutrition in emergencies and disaster	4
		Or Nutritional assessment and surveillance	4
Credits of Sixth Semester		16	
Grand Total Credits		96	

UGHN: 101 - FUNDAMENTALS OF FOOD AND NUTRITION

Unit I: Concept of Nutrition

Introduction to nutrition -Food as source of nutrients, functions of food, definition of nutrition, nutrients & energy, adequate, optimum & good nutrition, malnutrition. Interrelationship between nutrition & health : -Visible symptoms of good health.

Unit II: Functions of Food

Food as source of nutrients, functions of food, definition of nutrition, nutrients & energy, adequate, optimum & good nutrition, malnutrition. Food guide - Basic five food groups, recommended dietary allowances.

Unit III: Nutrients: Macro and Micro-nutrients

Classification, sources, functions, Recommended Dietary Allowances, Deficiency Disorders Water, Protein Carbohydrates, Fats, Iodine, Energy, Fibre, Calcium, Iron, Fat-soluble vitamins (A,D,E,K), Water soluble Vitamins- (Thiamine, Riboflavin, Niacin), Vitamin C, Folic Acid - Pyridoxine, Panthothenic acid, B12.

Unit IV: Methods of cooking, Preparation

Advantages and Disadvantages and Effect of cooking on Nutritive Value, Processed supplementary foods.

UGHN: 102 - INTRODUCTION TO HUMAN PHYSIOLOGY AND NUTRITION

Unit 1: Cell - Structure and function

Unit 2: Blood- Blood and its composition, Haemoglobin, Blood groups, Coagulation of blood

Unit 3: Cardiovascular System-Structure and functions of heart, Heart rate, Cardiac output, blood pressure and its regulation

Unit 4: Gastrointestinal System- Structure and function of various organs of the GI Tract.,

Digestion and absorption of food and the role of enzymes and hormones.

Unit 5: Reproductive System- Structure and functions of sex glands and organs including

hormones.

Unit 6: Excretory System- Structure and functions of Kidney, Structure and function of Skin, Regulation of temperature of the body.

- Unit 7:** **Respiratory System**-Structure of lungs, Mechanism of respiration and its regulations.
- Unit 8:** **Nervous System**-Elementary Anatomy of Nervous System. Functions, Special Senses.
- Unit 9:** **Body Composition and changes through the life cycle**
- Unit 10:** **Energy in Human Nutrition** – Energy Balance, Assessment of Energy Requirements, Deficiency and Excess.
- Unit 11:** **Proteins** – Assessment of Protein quality (BV,PER, NPU), Digestion and Absorption factors affecting protein bio-availability including anti nutritional Factors.
- Unit 12 :** **Lipids** – Digestion and Absorption, role and nutritional significance (SFA, MUFA, PUFA, w-3).
- Unit 13:** **Carbohydrates** – Digestion and absorption, Blood glucose and effect of different carbohydrates on blood glucose.
- Unit 14:** **Minerals and Trace Elements** – Physiological role, bio-availability And requirements, sources, Deficiency and Excess (Calcium, Phosphorus, ,Iron, Fluoride, Zinc, Iodine,).
- Unit 15:** **Vitamins** – Physiological role, bio availability and requirements, Sources, deficiency and excess (Fat Soluble and Water soluble)
- Unit 16:** **Water** – Functions requirements.

UGHN: 103 - NUTRITIONAL BIOCHEMISTRY

- Unit 1:** **Introduction to Biochemistry** – Definition objectives , scope .
- Unit 2:** **Carbohydrates** – Definition, classification, structure and properties of
- Monosaccharides , Disaccharides , Polysaccharides
- Unit 3:** **Lipids** – Definition and classification of lipids, types and properties of
- Fatty acids.
 - Classification and structure of phospholipids, structure of glycolipids, types and structure of sterols.
- Unit 4:** **Proteins** – Definition, classification, structure and properties of
- Amino acids. Essential and non-essential amino acids.
 - Definition, classification, structure, properties and functions of proteins.

Unit 6: Nutrition policy in India and plan of action

UGHN: 105 - FOOD MICROBIOLOGY, HYGIENE AND SANITATION

Unit 1: Brief history of microbiology and introduction of important microorganisms in foods.

Unit 2: Cultivation of microorganisms- nutritional requirements of microorganisms, Types of media used and methods of isolation.

Unit 3: Primary sources of microorganisms in foods and physical and chemical methods used in the destruction of microorganisms (sterilization and disinfection).

Unit 4: Fundamentals of control of microorganisms in foods: extrinsic and intrinsic parameters affecting growth and survival of microbes use of high and low temperature, moisture, hydration, freezing, freeze drying, irradiation and preservatives in food preservation.

Unit 5: Food spoilage: contamination and microorganisms in food in the spoilage of different kinds of food and their preservation. cereal and cereal products, vegetable and fruits, fish and other sea foods, meat and meat products, poultry, milk and Milk products, canned foods.

Unit 6: Public Health hazards due to contaminated foods: food borne infections and intoxications- symptoms, mode and sources of transmission and methods of preservation. investigation and detection of food borne diseases outbreak.

Unit 7: Microbes used in biotechnology, fermented foods and their benefits.

Unit 8: Importance of sanitation and hygiene in foods, kitchen hygiene, employee health, food plant hygiene, food laws.

Unit 9: Indices of food, water and air sanitary quality. microbiological criteria of food, water and air testing (bacteriological analysis).

Practicals:

Unit 1: Demonstration of the different parts of microscope, their use and care of the microscope including oil immersion lens.

Unit 2: Preparation of bacterial smears and simple staining, differential staining, spore staining, staining of molds and yeasts.

Unit 3: Preparation of common laboratory media for cultivation of bacteria, molds and yeasts.

Unit 4: Isolation of microorganisms by pour plate method (dilution), spread plate and streak plate method.

Unit 5: Sampling of air, water, dust, soil, etc. and methods to study the various sources of transmission of microorganisms in foods.

Unit 6: Methods of microbiological analysis of water, milk and food for enumeration of standard plate count and coliform count.

Unit 7: Assessment of surface sanitation of kitchens by swab and rinse methods.

UGHN: 106 - NUTRITION AND HEALTH COMMUNICATION

Unit 1: Objectives, principles and scope of nutrition and health, Education and promotion

unit 2 : the diffusion process- limitation and utility: two step rate of diffusion and exposure, models and communication. behaviouristic and cognitive theories.

unit 3 attitudes and opinions: attitude change and principles of congruity communication, public opinion and propaganda. role of opinion leaders.

Unit 2: Determinants of Communication effectiveness

Age, sex, power/status, educational levels of source and receiver, credibility, group norms, referent value, affiliation.

Unit 3: Development In India – rural and urban

Concept of rural and urban communication-role in development.

Unit 4: Teaching methods formal and non formal

Individual, group and mass approach. Expository, discovery, participatory, evaluative Simulation Games, Brain storming. Selection, use advantages and limitations.

Unit 5: Communication media used/useful in Nutrition and Health Education-

Role and relative importance of spoken word, interpersonal communication, visual and audiovisual aids. Mass media – print media, radio and recording, television, films, video, advertising, social marketing, folk media, satellite, multimedia.

Unit 6: Acceptability and credibility of communication in rural and urban environment

Role of opinion builders and opinion leaders. Barriers and accelerators n effective communication with reference to different communication media. Selection use, advantages and limitations.

Unit 7: Communication and Social Development

Education, Health, Nutrition, Hygiene, Family planning, Environment.

Unit 9 Communication and social development: education, health, nutrition, hygiene, family planning, environment.

unit 10 Market research: target audience for health messages, role of advertising.

unit 11: Participatory training

UGHN. CHEQ/EA

Course in Environment Awareness

THIRD SEMESTER

UGHN-107

Public health and epidemiology

Unit 1 : Health and dimensions of health: positive health versus absence of disease.

Unit 2: Community and its organisation: concept of community and types of community, factors affecting health of the community- environmental, social, cultural, dietary organisational, economic, political. vulnerable groups/ needs of special populations.

Unit 3: Public health, demography and epidemiology: demography and its applications. epidemiology- study of the epidemiology approach- time distribution, place a person, determinants of disease like preventive and social means. Community Health through the lifespan. vital statistics and their significance.

Unit 4: Epidemiological methods: descriptive analytical experimental serological, clinical.

Unit 5: Communicable and infectious Disease Control: nature of communicable and infectious diseases, infection, contamination, these infections, decontamination, transmission- direct and indirect vector borne diseases, epidemiology of infection, interacting organisms and causative agents- their Microbiology environmental measures and epidemiological principles of Disease Control.

Unit 6: Community water and waste management: importance of water to the community etiology and effects of toxic agents in water infectious agents, sources of water, safe drinking water/ potability and test for potability. community waste and waste disposal- disposal and treatment of solid waste and disposal liquid waste disposal.

Unit 7: community food protection:
epidemiology of foodborne diseases, matter transmission, can control of food protection and safety- objectives, process and outcome, vector control, rodent control.

Unit 8: Food adulteration: laws governing food standards, significance- PFA, FPO, ISI, Agmark meat product order, common adulterants in food and their effects on health, common household methods to detect adulterant in foods.

UNIT 6- Fats, oils and related products: Sources composition, effects of composition on fat properties of fat and uses in food preparation. Fat substitutes: fat deterioration and antioxidants, Radiolysis.

UNIT 7- Proteins: classification, composition, denaturation, non enzymatic Browning.

UNIT 8- Enzymes: Nature of enzymes stability and action. proteolytic enzyme oxidases, lipases, immobilized enzymes.

UNIT 9- Milk and Milk products: composition, physical and functional properties, denaturation, effects of processing and storage. dairy products: cultured milk, yoghurt, butter, cheese, concentrated and dried products frozen desserts.

UNIT 10- Meat and poultry: muscle composition, characteristics and structure. postmortem changes. Processing, preservation and their effects. heat induced changes in meat. tenderizers. meat products.

UNIT 11- Eggs- structure and composition changes during storage functional properties of eggs, used in cookery korma egg processing

UNIT 12- Fish and sea foods: types and composition, Aaj storage and changes during storage

UNIT 13- Pulses and legumes: structure, composition, processing.

UNIT 14- Nuts and oilseeds: composition extraction and by products.

UGHN: 109 -

FAMILY MEAL MANAGEMENT

Unit 1: Introduction to meal management - balanced diet, food groups & the planning of balance, Diet. Food guides for selecting adequate diet. Indian meal patterns - vegetarian & non-vegetarian. Nutritive value of common Indian recepies.

Unit 2 : Meal planning for the family-

1. Nutrition in pregnancy - Physiological stages of pregnancy, nutritional requirements. food selection, complication of pregnancy.

2. Nutrition during lactation - Physiology of lactation, nutritional requirements.

3. Nutrition during infancy - growth & development, nutritional requirements, breast feeding, infant formula, introduction of supplementary foods.

4. Nutrition during early childhood (Toddler/Preschool)- Growth & nutrient need, nutrition related problems, feeding patterns.

5. Nutrition of school children- Nutritional requirement, importance of snacks, school lunch.

6. Nutrition during adolescence - Growth & nutrient needs, food choices, eating habits, factor influencing needs.

7 Nutrition during adulthood - Nutritional requirements, feeding pattern.

8. Geriatric nutrition : Factors affecting food intake and nutrient use, nutrient needs,

Skill Enhancement Courses

UGHN.110

ADVANCED THERAPEUTIC NUTRITION

Unit 1-Nutritional screening and assessment of nutritional status of hospitalized and outdoor patients. Identification of high risk patients. Assessment of patient needs based on interpretation of patient data – clinical, biochemical, biophysical, personal etc.

Unit 2-Newer trends in delivery of nutritional care and dietary counselling.

Unit 3-Diet, nutrient and drug interaction. Effect of drugs on ingestion, digestion, absorption and metabolism of nutrients. Effect of food, nutrients and nutritional status on drug dosage and efficacy.

Unit 4-Nutritional support – Recent advances in techniques and feeding substrates.

Unit 5-Etiopathophysiology, metabolic and clinical aberrations, complications, prevention and recent advances in the medical nutritional management of:

- Weight imbalances
- Cardio vascular disorders
- Diabetes mellitus and other metabolic disorders
- GI Tract Disorders
- Liver and gall bladder, Pancreatic disorders
- Renal disorders
- Stress and trauma

UGHN .111 -

INSTITUTIONAL FOOD MANAGEMENT

Unit 1- Introduction to Food Service Systems

- Evolution of the food service industry
- Characteristics of the various types of food service units

Unit 2- Approaches to Management

- Theories of management
- Aspects of management
- Styles of management
- Management tools

Unit 3-Strategies in Planning

- Conceptual strategy
- Marketing strategy
- Financial strategy

- Types of plans

Unit 4-Management of Resources

- Finance
 - Determining the finance needed to establish or run an unit
 - Budgets
 - Sources of finance
- Planning adequate cash flow Space and equipments :
- steps in Planning layouts
- determining equipment
- selection and placements
- maintenance of equipment
- Layout

Unit 5-Material: menu planning

planning the material needed
method of selection , storage
quantity food production
service and modes of delivery

Unit 6-Staff: manpower planning

manpower placement
record recruitment in induction training training, motivation, performance.
time and energy: measures for utilisation and conservation.

Unit 7:- Techno economic feasibility of food production/ service Enterprise.

Unit 8:- Cost accounting accounting/ analysis: food cost analysis, records to be maintained, reports and Trends analysis.

Unit 9: Marketing and sales management: marketing strategies, sales analysis, market promotion

Unit 10: Quality assurance: food quality, total quality management

Unit 11: Computer aided record maintenance and Management.

FOURTH SEMESTER

UGHN- 112

Nutritional management in health and diseases

Unit 1: Definition of Health and nutrition- dimensions of health(physical and psychological, emotional and spiritual).

Unit 2: Energy requirements- factors affecting energy requirements: BMR activity, age, climate, diet- induced thermo Genesis(SDA), physiological conditions..

Unit 3 : Concept of nutritionally adequate diet and meal planning: a- importance of meal planning

b- factors affecting meal planning- social cultural and religious Geography economic availability of time and material resources.

- religious, Geography, economic, availability of time and material resources.

Unit 4: Nutrition through life cycle: adulthood pregnancy, lactation, infancy, preschool adolescence, old age.

Unit 5: Principles of diet therapy: modification of normal diet for therapeutic purposes, full diet soft diet, fluid diet, bland diet.

Unit 6: Nutritional management in common ailments: requirement and diet planning- constipation, fevers- weight management.

UGHN - 113

Nutritional assessment and surveillance

Unit 1: Nutritional status and surveillance: meaning objectives and importance.

Unit 2: direct nutritional assessment of human groups: clinical science, nutritional anthropometry, biochemical tests, biophysical methods.

Unit 3: Diet surveys: need and importance methods of dietary survey interpretation- concept of consumption unit intra and their individual distribution in family. adequacy of diet with respect to RDA, concept of family food security.

Unit 4: Clinical signs: need and importance, identifying signs of PEM Vitamin A deficiency and Iodine Deficiency. interpretation of descriptive list of clinical signs.

Unit 5: Nutritional anthropometry: need and importance, standards for reference, techniques for measuring height, waist chest and arm circumference, interpretation of these measurements and use of growth chart.

Unit 6: Rapid assessment procedure- Need and importance technique, interpretation.

Unit 7: Secondary sources of Community Health data: sources of relevant vital statistics, importance of Infant, child and maternal mortality rates, epidemiology of nutritionally related diseases.

Unit 8: Social logical factors in the etiology and prevention of malnutrition: food production and availability, cultural influences, socio-economic factors, food consumption, conditioning infections, Medical and educational services, psychological, emergency/ disaster conditions example. famine, floods. war.

Unit 9: Surveillance systems:

international national regional and community.

Unit 1- Conceptual understanding of statistical measures. Classification and tabulation of data. Measurement of central tendency, measures of variation.

Unit 2- Frequency distribution, histogram, frequency, polygons, Ogive.

Unit 3-Binomial distribution

Unit 4-Normal distribution – Use of normal probability tables

Unit 5-Parametric and non-parametric tests.

Unit 6-Testing of hypothesis. Type I and Type II errors. Levels of significance

Unit 7-Chi-square test. Goodness of fit. Independence of attributes 2×2 and $r \times c$ contingency tables.

Unit 8-Application of student 't' test for small samples. Difference in proportion for means and difference in means.

Unit 9-Correlation, coefficient of correlation, rank correlation

Unit 10-Regression and prediction

Unit 11-Analysis of variance – one way and two-way classification.

Unit 12-Experimental Designs

- Completely randomized design
- Randomized block design
- Latin square design

1. Nutritional assessment as a tool for improving the quality of life of various segments of the population including hospitalized patients.
2. Current methodologies of assessment of nutritional status, their interpretation and comparative applications of the following.
 - Food consumption
 - Anthropometry
 - Clinical and laboratory
 - Rapid Assessment & PRA
 - Functional indicators such as grip strength, respiratory fitness, Harvard Step test, Squatting test.
3. Nutritional Surveillance – Basic concepts, uses and setting up of surveillance systems.
4. Monitoring and Evaluation

Unit 1-Importance of Maternal Nutrition:

Current Nutrition and Health Status of Women and Children in India.

- **Unit 2**-Importance of nutrition prior to and during pregnancy.
- **Unit 3**-Effect of under nutrition on mother-child.
- **Unit 3**-Physiology and endocrinology of pregnancy and embryonic and fetal growth and development.
- **Unit 4**-Nutritional requirements during pregnancy.
- **Unit 5**-Adolescent Pregnancy
- **Unit 6**-Pregnancy and AIDS
- **Unit 7**-Pregnancy and TB
- **Unit 8**-Intra-uterine growth retardation
- **Unit 9**-Complications of pregnancy and management and importance of antenatal care.
- **Unit 10**-Congenital malformation, fetal alcohol syndrome and gestational diabetes mellitus.

Unit 11-Growth and development during infancy, childhood and adolescence.

Unit 12-Feeding of infants and children and dietary management

Unit 13-Malnutrition in mothers and children: aetiology and management.

Unit 14-Policies and programmes for promoting maternal and child nutrition and health.

FIFTH SEMESTER

Unit 1-Introduction to quality assurance and food safety assurance. Current concepts of quality control.

Unit 2-Quality assurance programme: Quality plan, documentation of records, product standards Product and purchase specifications, process control and HACCP, hygiene and housekeeping. Corrective action, quality and programme and total quality process.

Unit 3-Quality Costs: Measurement and Analysis.

Unit 4-Product Evaluation:

- Sampling for product evaluation and line control.
- Statistical quality and process control
- Specifications and food standards. International, National – Mandatory, Voluntary.
- Sample preparation
- Reporting results and reliability of analysis.
- **Unit 5**-Tests for specific raw food ingredients and processed. Foods including additives.
 - a. Proximate Principles
 - b. Nutrient analysis
 - c. Quality parameters and tests of adulterants.

Unit 6-Consumer protection.

Unit 1: Basic concepts of diet therapy

Therapeutic adaptations of normal diet, principles and classification of therapeutic diets.

Unit 2: Team approach to health care. Assessment of patient's needs.**Unit 3: Routine Hospital Diets**

Regular, light, Soft, fluid, Parenteral and enteral feeding.

Unit 4: Energy Modifications and nutritional care for weight management

Identifying the overweight and obese, etiological factors contributing to obesity, Prevention and treatment, low energy diets balanced energy reduction and behavioural modification. Underweight – aetiology and assessment, high energy diets for weight gain, anorexia nervosa and bulimia

Unit 5: Diets for Febrile conditions, Infections and Surgical conditions**Unit 6: Etiological factors, symptoms, diagnostic tests and management of**

Upper GI tract disease – Diseases of Oesophagus and dietary management, Diseases of stomach and dietary management. Gastric and duodenal ulcers and dietary management

Unit 7: Etiology, Symptoms, diagnostic tests and management of

Intestinal diseases – Diarrhoea, Steatorrhoea, Diverticular disease, inflammatory Bowel disease, Ulcerative Colitis. Flatulence, Constipation, Irritable Bowel Syndrome, Haemorrhoids.

Unit 8: Etiology, Symptoms, diagnostic tests and management of

Malabsorption Syndrome, Celiac sprue, Tropical sprue. Intestinal brush border deficiencies (Acquired Disaccharide Intolerance), Protein losing enteropathy.

Unit 9: Anemias

Pathogenesis and Dietary Management: Nutritional Anemias, Sickle cell Anemias, Thalassemia, resulting from Acute Haemorrhage.

Unit 10: Diseases of the Liver, Exocrine Pancreas and Biliary System.

Liver function tests and Nutritional care in Liver disease in the context of results. Dietary care and Management in – Viral Hepatitis, Cirrhosis of Liver, Hepatic Encephalopathy, Wilson's disease. Dietary care and management in diseases of Gall Bladder and Pancreas – Cholelithiasis, cholecystitis. Cholecystectomy, Pancreatitis etc.

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Unit 11: Quality assurance: food quality, total quality management

Unit 12: Computer aided record maintenance and Management.

UGHN

Skill Enhancement Courses

UGHN.120

CATERING MANAGEMENT

Unit 1: Type of instructions offering Hospitality Services.

Unit 2: Hospitality functions: role of housekeeping in hospitality industry.

- housekeeping in relation to Commercial and welfare Section.

Unit 2: Management of housekeeping department- layout of housekeeping department

- planning organisation, communication of house keeping activities

- coordination with other departments.

- roles/ responsibilities of personnel in the the housekeeping department.

Unit 4: Administrative policies: personnel management- recruitment training handling personal evaluation, distribution of jobs, job schedules, job analysis.

- procurement policies come buying techniques commerce stores stock control..

- cost control: inventory management, budget process of controlling expenses, safety e

commerce security and sanitation: safety fire fighting, first and eighth safety e e pest control, sanitation standard.

- uniforms types of selection distribution and control.

Unit 5: Hostess training.

Unit 6 Energy and water management: power requirements, flashing system, water control taps, water wastewater circulation.

Unit 7: Communication system: public address system, intercom system, music and television.

Unit9: Maintenance: repair and redecoration programs.

UGHN.121

POLICIES PROGRAMS AND INTERVENTIONS

Unit 1: Current situation in India with regard to National and regional level rural urban: food availability, mortality, morbidity and illness, nutritional problems economic status, population and infrastructure available environmental sanitation women and children: situation. poverty line its significance.

Unit 2: Need for policies- factors leading to current problems/ situation(cultural economic, commercial/ market forces, laws and regulations).

Unit 3: Policies existing in the country- agriculture, food, health, nutrition, development policies which have in their perspectives and goals- improvement of Health and nutritional status. factor take when policies..

Unit: 4: Nodal Ministries and departments at Central and state level responsible for formulation and implementation of policy.

Unit 5: Programs and schemes available in various sectors with the aim of improving health and nutritional status of the population- agriculture, food, nutrition, health, economic water environment and its relation to health.

Unit 6: Objectives of each programs/ schemes, focus and target groups- coverage principles,/Philosophy/ intervention strategies. mode of implementation, operationalization. for selection of target group and benefit through the scheme/ program. current status, success and games in focus, coverage operational hurdles and deficiencies there of.

Unit 7: Legislations- role of improve improving health and nutritional status.

Unit 8: Nutritional plan of action - state plan of action, goal to improve health and nutritional status.

Unit 9 : Case studies of intervention used in other countries or within country to improve health and nutritional status.

- Unit 1:** Dieticians as part of the medical team and outreach services.
- Unit 2:** Medical history assessment-techniques of obtaining relevant information for patient profiles.
- Unit 3:** Dietary diagnosis and tests for nutritional status – Correlating clinical and dietary information.
- Unit 4:** Patient education and counselling- assessment of patient needs, Establishing rapport, counselling relationship, resources and aids to counselling.
- Unit 5:** Aesthetic attributes of diets.
- Unit 6:** Follow up visits and patients' education.

Contents

- 1. Role of Women n National Development.**
- 2. Women in Family and Community**
 - Demographic changes, menarche, marriage, fertility, morbidity, mortality, life – expectancy, sex ratio, aging and widowhood, female-headed families.
- 3. Women and work**
 - Environmental stress, production activities, nutrition, health and gender, living conditions, occupational health, health facilities.
- 4. Women's nutritional requirements and food needs.**
- 5. Women and Society**
 - Women's role, their resources and contribution to family and community and effect on nutritional status.
 - Effect of urbanisation on women.
 - Impact of economic policies, industrialization, and globalization on women.
- 6. Women and Health**
 - Health facilities
 - Disease patterns and Reproductive health
 - Gender and health
 - Health seeking behaviour
 - Women – pregnancy and lactation
 - Safe motherhood
 - Care of at-risk mothers

- Family planning
- Women and aging – Special concerns in developed and developing societies: menopause, osteoporosis, chronic degenerative diseases, neurological problems.
- Women and AIDS

7. Women and Nutrition

- Situation of women in global, national and local context. Improving the nutritional and health status. Interventions throughout the life cycle.

8. Policies and Legislations

- CEDAW (Convention on Elimination of all forms of Discrimination Against Women), Women's Right to Life and Health (WRLH).

9. Empowerment of Women

- Role of Education and various national schemes.

UGHN: 124

ECONOMICS OF FOOD

UNIT 1 : HOW DO WE SPEND OUR MONEY

Introduction, Food Expenditure, Factors Influencing Food Expenditure, Income, Food Price and Quantity, Food Budgeting, Preparation of Food Budget

UNIT 2: HOW DO WE PLAN FOR GROWING OUR FOOD

Introduction, Classification of Foods Based on the Source, Foods from Land (Food Crops), Foods from Animals (Livestock), Foods from Water (Fish), Kitchen Garden.

UNIT 3 : PUBLIC DISTRIBUTION SYSTEM

Introduction, Working of the Public Distribution System (PDS) ,Fair Price Shops, Food Subsidies

UNIT 4: PROTECTION OF FOOD SUPPLIES

Introduction, Sources of Food Spoilage, Food Standards, Importance of Grading, Grading of Food grains, Food Standards set by the Government, Food Laws Enactment of Laws Concerning Procurement and Trading in Food, Government Operations

- UNIT 5: FOOD ADULTERATION AND PRECAUTIONS

- Introduction, Food Adulteration and its Dangers, Adulteration, Methods of Adulteration and its Dangers, Adulteration in Food grains, Adulteration in other Commodities, Precautions against Adulteration, Packed Foods, Familiar Shops, Buying from Co-operatives, Other Types of 'Purchase

- UNIT 6: CONSUMER EDUCATION

- Introduction, Agencies Providing Consumer 'Education, Consumer

- Protection Organisations, Mass Media, Extension Agencies,
- Consumer Protection Cells, Voluntary Agencies
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- edule for children, adult and for foreign travel, problems encountered-
importance of cold chain, role of individual, family and community in promoting
health.
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UGHN.125

NUTRITION IN EMERGENCIES AND DISASTERS

1. Natural/Manmade disasters resulting in emergency situations:

- Famine, drought, flood, earthquake, cyclone, war, civil and political emergencies
- Factors giving rise to emergency situation in these disasters.
- Illustration using case studies from Indian subcontinent.

2. Nutritional problems in emergencies in vulnerable groups

- Causes of malnutrition in emergency situations
- Major deficiency diseases in emergencies
- Protein – Energy Malnutrition
- Specific deficiencies

3. Communicable diseases: Surveillance and treatment.

- Control of communicable diseases in emergencies – Role of immunization and sanitation.

4. Assessment and surveillance of Nutritional status in emergency affected population

- Scope of assessment of malnutrition in emergencies
- Indicators of malnutrition. Clinical signs for screening acute malnutrition
- Anthropometric assessment of nutritional status. Indicators and cut-offs indicating seriously abnormal nutrition situation: Weight-for –height based indices, MUAC, social indicators.
- Organisation of nutritional surveillance and individual screening.

5. Nutritional Relief and Rehabilitation

- Assessment of food needs in emergency situations.
- Food distribution strategy – Identifying and reaching the vulnerable group Targeting Food Aid
- Mass and Supplementary Feeding
- Therapeutic Feeding
- Special foods/rations for nutritional relief
- Local production of special foods
- Local foods in rehabilitation
- Organisation of mass feeding/general food distribution.

Feeding centres,

- Transportation and food storage,
- Sanitation and hygiene,
- Evaluation of feeding programmes.
- Household food security and nutrition in emergencies
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UGHN – 126

Nutritional assessment and surveillance

Unit 1: Nutritional status and surveillance: meaning objectives and importance.

Unit2: Direct nutritional assessment of human groups: clinical science, nutritional anthropometry, biochemical tests, biophysical methods.

Unit 3: Diet surveys: need and importance methods of dietary survey interpretation- concept of consumption unit intra and their individual distribution in family. adequacy of diet with respect to RDA, concept of family food security.

Unit 4: Clinical signs: need and importance, identifying signs of PEM Vitamin A deficiency and Iodine Deficiency. interpretation of descriptive list of clinical signs.

Unit 5: Nutritional anthropometry: need and importance, standards for reference, techniques for measuring height, waist chest and arm circumference, interpretation of these measurements and use of growth chart.

Unit 6: Rapid assessment procedure- Need and importance technique, interpretation.

Unit 7: Secondary sources of Community Health data: sources of relevant vital statistics, importance of Infant, child and maternal mortality rates, epidemiology of nutritionally related diseases.

Unit 8: Social logical factors in the etiology and prevention of malnutrition: food production and availability, cultural influences, socio-economic factors, food consumption, conditioning infections, Medical and educational services, psychological, emergency/ disaster conditions example.famine, floods.war.

Unit 9: Surveillance systems: international national regional and community.
