

Post Graduate Diploma in Dietetics and Therapeutic Nutrition (PGDDTN)

Programme Code % PGDDTN

Programme Duration (in yrs.) Minimum: 1 Maximum: 3

Medium of instruction % English/Hindi

Assignment Work Essential

Year	Course Code	Title of the Course/ पाठ्यक्रम का भीर्क	Credits
One Year Course	PGDDTN-01	Principles of Food Science	4
	PGDDTN -02	Advance Public Nutrition	4
	PGDDTN -03	Clinical and Therapeutic Nutrition	6
	PGDDTN -04	Nutritional Biochemistry	4
	PGDDTN -05	Institutional Management in Dietetics	6
	PGDDTN -06	Food Safety and Quality Auditing	8

POST GRADUATE DIPLOMA IN DIETETICS AND NUTRITION (PGDDTN)

PAPER- ONE

PRINCIPLE OF FOOD SCIENCE

UNIT –1 INTRODUCTION TO FOOD SCIENCE AND SIMPLE SUGARS

Introduction ,Introduction to Food Science as a Discipline and Modern Developments, Carbohydrates in the Diet – Classification , Sugars : Chemistry, Functionality and their Role in Food Industry ,The Functional Role of Sugars in Foods ,Sweetener

UNIT –2 Food Polysaccharides and their Applications

Introduction , Characteristics and Functional Properties of Native and Modified Starches, Starches ,Modified starches, Food Hydrocolloids – An Introduction ,Classification of Hydrocolloids, Non-Starch Polysaccharides, Cellulose ,Carboxy methyl cellulose ,Hemicellulose ,Pectin ,Algal Polysaccharides ,Seed Gums Gum Arabic, Microbial Polysaccharides , Dextran

UNIT 3 LIPIDS

Introduction to Lipids, Classification and Composition, Classification of Lipids, Categories of Fats and Oils ,Functional Properties of Food Lipids ,Deep Fat Frying, Factors Affecting Process of Deep Fat Frying, Deteriorative Changes in Fats and Oils Autoxidation , Factors Influencing Lipid Oxidation ,Lipolysis Antioxidants – Preventing the Deteriorative Changes in Fats and Oils

UNIT-4 PROTEINS

Proteins – Classification, Composition and Biological Functions ,Classification, Composition , Food Sources of Proteins ,Functional Properties of Proteins : Hydration, Viscosity, Gelation and Texturization, Dough Formation , Emulsifying and Surface Properties of Proteins, Foaming Properties, Binding of Flavour and other substances ,Protein Concentrates, Isolates and Hydrolysates and their applications .

UNIT 5: VITAMINS AND MINERALS

Vitamins : Vitamin A (Retinol) ,Vitamin B Complex ,Vitamin B1 (Thiamine Hydrochloride), Vitamin B2 (Riboflavin) ,Vitamin B6 (Pyridoxine Hydrochloride) ,Vitamin B12 (Cyanocobalamin), Biotin , Folic Acid, Nicotinic Acid (Niacin) , Pantothenic Acid (Calcium Pantothenate), Vitamin C (Ascorbic Acid) ,Vitamin D (Calciferol – Vitamin D2) ,Vitamin E (DI- α -Tocopherol) ,Vitamin K (Menadione) ,Minerals : Classification of Minerals ,Nutritional and Functional Role of Minerals in Foods ,Bioavailability of Minerals ,Estimation of Minerals in Foods ,Effect of Processing on Mineral Content of Foods

UNIT 6 ENZYMES, PIGMENTS AND DIETARY FIBRE

Introduction to Enzymes : Classification of Enzymes , Structure of Enzymes Biotechnological Applications of Enzymes ,Enzyme Utilization in Industry ,Enzymatic Analysis in Foods ,Enzymatic Analysis in Foods ,Natural Pigments ,Natural Colours Used in Foods ,Novel Sources of Natural Colorants ,Stability of Natural Colorants in Foods , Stabilized Forms of Natural Colorants

UNIT 7: SOLS, GELS AND EMULSIONS

Introduction, Colloids, Colloidal systems and Applications of Colloidal Chemistry to Food Preparations, Classification of Colloidal Systems, Properties of Colloidal Systems, Definition and Properties of Solutions, Sols, Gels and Suspensions, Properties of Sols, Gels and its Properties, Suspensions, Foams, Antifoaming Agents, Emulsions

UNIT 8: PROPERTIES OF FOOD

Introduction, Introduction to Quality Attributes of Food, Gustation - the Sense of Taste., Chemicals Responsible for the Four Basic Tastes i.e. Sweet, Salt, Sour and Bitter, Factors Affecting Taste Quality, Texture in Foods, Objective Measurement and Evaluation of Food Texture, Theology of Foods, Colour, Functions of Colour in Foods, Measurement of Colour in Foods, Qualitative and Quantitative Analysis of Colour

UNIT 9: CHEMICAL, PHYSICAL AND NUTRITIONAL ALTERATIONS OCCURRING IN FOODS DURING PROCESSING AND STORAGE

Introduction, Food Processing in Perspective, Alterations Occurring in Fruits and Vegetables, Alterations Occurring in Milk and Milk Products, Alterations Occurring in Meat and Poultry, Alterations Occurring in Fish , Alterations Occurring in Egg, Alterations Occurring in Cereal, Cereal Products and Legumes, Alterations Occurring in Nuts/ Oil seeds and Spices

UNIT -10 INTRODUCTIONS TO FOOD PROCESSING

Introduction, Food Spoilage and Causes, Food Processing, Aims of Food Processing, Historical Development in Food Processing, Methods and Principles of Food Preservation, Traditional Methods of Food Processing

UNIT-11 METHODS OF FOOD PROCESSING

Introduction, Methods of Food Processing, Thermal Processing, Cooking, Blanching, Pasteurization, Commercial Sterilization, Canning, Dehydration, Expression of Moisture Content, Classification of Types of Water found in Foods, Mechanism of Drying, Drying Techniques and Methods, Preservation by Concentration, Methods of Concentration, Changes due to Concentration Process

UNIT 12 METHODS OF FOOD PROCESSING

Introduction, Freezing, Freezing Systems, Microwave Processing, A Look at Microwave Processing, Advantages of Microwave Heating, Microwave Food Processing Applications, Microwave vs. Conventional Heating, Irradiation, Fermentation, Types of Fermentation and Fermented Foods, Deep Fat Frying, Use of Salt, Sugar and Chemicals as Preservatives

UNIT 13: PRE AND PRIMARY PROCESSING – SOME BASIC CONCEPTS

Introduction, Production, Harvesting and Handling of Fresh Foods, Preparation of Raw Materials for Processing, Primary Processing, Cereals, Pulses, Oilseeds, Minimally Processed Fresh Foods

UNIT 14: PRODUCT DEVELOPMENT AND EVALUATION

Introduction, Need for the Product Development, Influencing Factors, Consumer Oriented Product Development, How to Develop a New Product, Statistical Experimental Methods, Modelling for Process and Recipe, Sensory Evaluation, Acceptance Tests, Sensory Evaluation during Product Life Cycle, New Products and Ingredients, Functional Foods, Shelf life, Major Modes of Food Deterioration, Evaluation of the Food Quality, Procedures for Determination and Monitoring of Shelf life.

PAPER TWO

ADVANCE PUBLIC NUTRITION

UNIT 1 CONCEPT OF PUBLIC NUTRITION

Introduction, Understanding the Terms: Nutrition, Health and Public Nutrition, Public Nutrition: - Concept, Scope and Future Projections, Health Care : Concept of Health Care, Levels of health Care, Primary Health Care, Health Care Delivery, Role of Public Nutritionists in Health Care Delivery

UNIT 2 PUBLIC NUTRITION: MULTIDISCIPLINARY CONCEPT

Multiple Causes of Public Nutrition Problems, Multidisciplinary Approach to Solving Nutrition Problems, Role of Agriculture in Nutrition, Distribution of Food Products, Storage of Food Products, Application of Science and Technology to Improve Food Supply, Food and Nutrition Security, Understanding the Concept of Food and Nutrition Security, Determinants of Food Security, India's Food Security System, Food Behaviour

UNIT 3 NUTRITIONAL PROBLEMS

Introduction, Protein Energy Malnutrition (PEM), Different Forms of PEM:- Kwashiorkor, Marasmus, Marasmic – Kwashiorkor, Sub-clinical PEM, Prevalence Causes, Consequences Treatment of PEM, Micronutrient Deficiencies:-Vitamin A Deficiency, Iron Deficiency Anaemia (IDA), Iodine Deficiency Disorders (IDD), Zinc Deficiency, Vitamin Deficiencies:-Beriberi, Ariboflavinosis (Riboflavin Deficiency), Pellagra, Folic Acid and B12 Deficiency, Scurvy, Rickets and Osteomalacia, Fluorosis, Lathyrism

UNIT 5 HEALTH ECONOMICS AND ECONOMICS OF MALNUTRITION

Structure, Introduction, Health Economics, Malnutrition and its Economic Consequences, Causes of Malnutrition, Consequences of Malnutrition, Indicators of Nutrition, Interventions in Malnutrition and Government Expenditure on Interventions, Economics in Nutrition, Food Security, Food Production, Food Pricing, Economic Evaluation of Malnutrition

UNIT 6 ASSESSMENT OF NUTRITIONAL STATUS IN COMMUNITY -I

Introduction, Nutritional Assessment -Goals and Objectives, Methods of Nutritional Assessment, Indirect Assessment of Nutritional Status, Age Specific Mortality Rates, Cause Specific Mortality Rates, Cause Specific Nutritionally - Relevant Morbidity Rate, Ecological Factors, Direct Assessment of Nutritional Status, Nutritional Anthropometry, Uses of Anthropometry, Common Measurements Used in Nutritional Anthropometry, Methods of Assessing Nutritional Status in Individuals, Determination of Nutritional Status using MUAC, Determination of Nutritional Status using Weight and Height, Methods of Assessment of Nutritional Status of Community

UNIT 7 ASSESSMENT OF NUTRITIONAL STATUS IN COMMUNITY -II

Structure, Introduction, Clinical Assessment, Training and Standardization, Clinical Signs of Nutritional Disorders, Biochemical Assessment, Biochemical Tests -An Overview, Biochemical Tests for Nutritional Deficiencies, Dietary Assessment, Family Diet Survey, Assessment of Dietary Intakes of Individuals, Qualitative Diet Surveys, Institutional Diet Surveys, Food Balance Sheets (FBS)

UNIT 8 NUTRITION MONITORING AND NUTRITION SURVEILLANCE

Introduction, Nutrition Monitoring, Objectives and Components of Nutrition Monitoring, Current Programmes of Nutrition Monitoring in India, Nutrition Surveillance System (NSS), Objectives of Nutrition Surveillance, Uses of Nutrition Surveillance System, Infrastructure for Nutrition Surveillance System, Key Indicators of Successful Nutrition Surveillance Programme, Computerization for Monitoring and Surveillance

UNIT 10 NUTRITION POLICY AND PROGRAMMS

National Nutrition Policy (NNP), Aims of the National Nutrition Policy, Nutrition Policy Instruments, National Policy Implementation, Nutrition Programmes:-Integrated Child Development Services (ICDS) Programmes, Nutrient Deficiency Control Programmes, National Prophylaxis Programme for Prevention of Blindness due to Vitamin A Deficiency, National Nutritional Anaemia Control Programmes, National Iodine Deficiency Disorders Control Programmes (NIDDCP), Supplementary Feeding Programmes, National Programme of Nutritional Support to Primary Education (Mid Day Meal Programme), Special Nutrition Programme (SNP), Pradhan Mantri's Gramodaya Yojana (PMGY), Balwadi Feeding Programme, Composite Nutrition Programme, Applied Nutrition Programme, Food Security Programmes, Public Distribution System (PDS) and the Targeted Public Distribution System (TPDS), Antyodaya Anna Yojana (AAY), Annapurna Scheme, National Food for Work Programme (NFFWP), Self Employment and Wage Employment Schemes, Sampoorna Gramin Rojgar Yojana, Swarna Jayanti Gram Swarozgar Yojana (SGSY)

UNIT 11 NUTRITION EDUCATION COMMUNICATION

Objectives of a Nutrition Education Communication Programme, Identifying a Target Audience, Designing Messages, Essential Elements of a Message Design, How we Design Persuasive and Coherent Messages?, Choosing the Media and Multi-Media Combinations, Face-to-Face or Interpersonal Methods, Mass Media Methods, Traditional Media Methods, Criteria for Selecting Methods, Development of a Communication Strategy.

PAPER THREE

CLINICAL AND THERAPEUTIC NUTRITION

UNIT 1 INTRODUCTION TO MEDICAL NUTRITION

Definitions and Role of Dietician in Health Care, Dietetics the Science and Art of Human Nutrition Care, Role of Dietician in Health Care, The Nutrition Care Process (NCP), Nutrition Assessment, Nutritional Diagnosis, Nutrition Intervention, Nutrition Monitoring and Evaluation, Documentation, Importance of Coordinated Nutritional and Rehabilitation Services, Patient Care and Counselling

UNIT 2 ADAPTION OF THERAPEUTIC DIETS

Therapeutic Diets, objectives of Dietary Adaptations for Therapeutic Needs, Normal Nutrition: A Base of Therapeutic Diet, Diet Prescription, Constructing Therapeutic Diets, Routine Hospital Diets, Normal or General

Diets, Liquid Diets, Soft Diets, Mode of Feeding, Oral Feeding, Tube or Enteral Feeding, Peripheral Vein Feeding.

UNIT 3 NUTRITION IN INFECTIONS

Introduction, Defence Mechanism in the Body, Nutrition and Infection, Metabolic Changes during Infection, Classification and Etiology of Fever and infection, Chronic Fever and infection, Tuberculosis, HIV (Human Immune Deficiency Virus) Infection and AIDS (Acquired Immune Deficiency Syndrome)

UNIT 4 MEDICAL NUTRITION IN CRITICAL CONDITION

Introduction, Nutritional Management of the critically ill, Special Feeding Methods in Nutritional Support, Enteral Nutrition.

UNIT 6 ALLERGY OF FOOD

Introduction, Adverse Food Reactions, Food Allergy (Hypersensitivity), Food Intolerance, Adverse Food Reactions-The Diagnosis Process, Treatment and Management of Adverse Food Reactions, Prevention of Adverse Food Reactions

UNIT 7 NUTRITION, DIET

Introduction, Cancer, Development of Cancer, Characteristics of Cancer, Identification of Cancer Cells, Etiological Risk Factors in Cancer, Genetic Factors, Environmental Factors, Carcinogenic Dietary Factors, Carcinogenic Non-dietary Factors, Stress Factors, Nutritional Requirements of Cancer Patients -General Guidelines, Dietary Management of Cancer Patients Cancer Prevention.

UNIT 8 NUTRITIONAL CARE IN WEIGHT MANAGEMENT

Introduction, Weight Imbalance -Prevalence and Classification, Guidelines for Calculating ideal Body Weight, Obesity, etiologic, Energy Balance, Metabolic Aberrations and Clinical Manifestations, Management of Obesity, Dietary and Lifestyle Modifications, therapeutically Management, Surgical Management, Preventive Aspects, Underweight, Etiologic, Metabolic Aberrations and Clinical Manifestations, Dietary Management

UNIT 9 NUTRITION IN CARDIOVASCULAR DISEASES

Introduction, Coronary Heart Diseases (CHD), Prevalence, Etiologic : Cardiovascular Risk Factors, Path physiology of CHD, Common Disorders of Coronary Heart is eases and their Management, Atherosclerosis: A Coronary Artery Disease, Hypertension (HT), Angina Pectoris, Myocardial infarction (MI), Congestive Cardiac Failure (CCF), Rheumatic Heart Disease (RI-ID), Prevention of Coronary Heart Diseases.

UNIT 10 NUTRITION IN METABOLIC DISEASES -I : DIABETES MELLITUS

Introduction, Diabetes Mellitus, Prevalence of Diabetes Mellitus, Classification and Etiologic of Diabetes, Factors Affecting Normal Blood Sugar Levels, Metabolic Aberrations and Symptoms, Diagnosis, Complications of Diabetes Management of Diabetes, Management of Diet, Food Exchange System, Glycemic Index (GI),

Sweeteners: Nutritive and Non-Nutritive Sweeteners, Dietetic Foods, Alcohol, Beneficial Effect of Some Foods: Supportive Therapy, Exercise and Drugs, Exercise, Drugs and Insulin, Education, Prevention

UNIT 11 METABOLIC DISEASES -11

Gout, Role of Protein and Purines, Etiopathology, Clinical Features and Complications, Management of Gout, Inborn Errors of Metabolism, Phenylketonuria (PKU), Tyrosinemia.

UNIT 12 NUTRITIONAL MANAGEMENT IN LIVER, GALL BLADDER AND GERIATRIC DISEASES

Introduction, Liver Diseases, Viral Hepatitis, Liver Cirrhosis, Hepatic Encephalopathy or Hepatic Coma, Nutritional Management of Liver Diseases, Dietary Recommendations for Viral Hepatitis, Dietary Recommendations for Liver Cirrhosis, Dietary Recommendations for Hepatic Encephalopathy, Gall Bladder and Biliary Tract Diseases, Pancreatic Diseases, Acute Pancreatitis, chronic Pancreatitis.

UNIT 13 NUTRITIONAL MANAGEMENT OF RENAL DISEASES I

Introduction, Physiology of the Kidney, Kidney Functions, Assessment of Kidney Function: Diagnostic Tests, Common Renal Diseases, General Principle of Dietary Management in Renal Diseases, Acute and Chronic Nephritis, Etiology, Clinical and Metabolic Manifestations, Dietary Management, Nephritic Syndrome, Etiology, Clinical and Metabolic Manifestations, Dietary management, Acute Renal Failure (ARF), Etiology, Clinical and Metabolic Manifestations, Dietary Management, Chronic Renal Failure (CRF), Etiology, Clinical and Metabolic Manifestations, Dietary Management, End Stage Renal Disease, (ESRD), Dialysis, Dietary Management during Dialysis.

UNIT 14 NUTRITIONAL MANAGEMENT IN NEUROLOGICAL DISEASES

Introduction, Common Neurological Disorders, The Central Nervous System (CNS) - Some Relevant Physiological Aspects, Neurological Diseases:- Feeding and Nutritional Issues - General Goals of Nutritional Care, Dementia:- Etiology and Clinical Features, Feeding and Nutritional Management.

UNIT 15 PEDIATRIC AND GERIATRIC NUTRITION

Introduction, Paediatric Problems and Nutritional Management, Congenital Heart Disease (CHD), Preterm /Low Birth Weight, Lactose Intolerance, Celiac Disease, Geriatric Nutrition, Physical and Physiological Changes, Nutritional Changes and Requirement, Nutritional Assessment, Health and Feeding Problems among Elderly, Nutrition Support-Parenteral/Enteral/Oral

PAPER 4

NUTRITIONAL BIOCHEMISTRY

UNIT 1 CARBOHYDRATES

Introduction, Introduction to Nutritional Biochemistry, Meaning and Importance of Nutritional Biochemistry, Development of Nutritional Biochemistry, Contemporary Interests in Nutritional Biochemistry, Chemistry of

Carbohydrates, Monosaccharide's, Isomerism of Monosaccharide's, Properties of Monosaccharide's, Oligosaccharides, Polysaccharides

UNIT 2 ENZYMES AND COENZYMES

Introduction, Introduction to Enzymes and Coenzymes, Nomenclature and Classification of Enzymes, Specificity of Enzymes, Mechanism of Enzyme Action, Enzyme Kinetics, Factors Affecting Enzyme activity, Enzyme Inhibition, Role of Enzymes and Coenzymes in Metabolism.

UNIT3 LIPID METABOLISM

Introduction, Lipid Metabolism, Oxidation of Fatty Acids, Lipid Metabolism - Metabolism of Triglycerides, Metabolism of Cholesterol, Lipoprotein Metabolism.

UNIT 4 AMINO ACID AND NUCLEOTIDE METABOLISM

Introduction, Amino Acid Metabolism, Transamination Reaction, Deamination Reaction, Urea Cycle, Metabolism of Carbon Skeletons of Amino Acids, Biosynthesis of Nonessential Amino Acids, Synthesis of Specialized Products from Amino Acids, Decarboxylation Reaction and Biogenic Amines, Non-protein Functions of Amino Acids, Nucleotide Metabolism, Purine .

UNIT 5 HORMONES

Introduction, The Endocrine System, Regulation of the Endocrine System, Mechanism of Hormone Action, The Target Cell Concept, Hormone Receptors, Classification of Hormones, Signal Transduction, Signal Generation, G Protein-Coupled Receptors (GPCR), Second Messenger, Biochemical Role of Hormones, Pancreas, Thyroid, Parathyroid.

PAPER 5

INSTITUTIONAL MANAGEMENT IN DIETETICS

UNIT1 PLANNING A FOOD SERVICE UNIT

Introduction, The Management Process, Planning: Steps in Planning, Types of Plan, Preparing a Planning Guide or Prospectus, Registration of the Unit, Application for a Licence, Rules Regarding Grading of Hotels and Restaurants, Systems Approach in Food Service.

UNIT 2 SETTING UP FOOD SERVICE UNIT

Introduction, Layout and Design: Definition, Factors Influencing Layout Design, Planning Team, Planning of a Layout: Various Phases, Gathering Information or Development of a Prospectus, Determining Work Centres, Equipment, Developing Overall Plan, Architectural Features, Evaluation of Plans, Energy and Time Management, Financial Status Analysis.

UNIT 3 ENTREPRENEURSHIP AND FOOD SERVICE MANAGEMENT

Introduction, A Conceptual Perspective of Entrepreneurship, Defining Entrepreneurship, Characteristics of Successful Entrepreneurs Creativity, Innovation and Entrepreneurship:- The Creative Process, The Process of Innovation Business Requirements for Food Products, What an Entrepreneur Needs to Consider, Government Requirements, Marketing, Developing the Business Plan, Determine the Resources Needed, Managing the Business Entrepreneurship Development and Training, Approaches to Entrepreneurship Development, The Selective Methods.

UNIT 4 FOOD MANAGEMENT: MENU PLANNING - FOCAL POINT OF ALL ACTIVITIES IN FOOD SERVICE ESTABLISHMENTS

Introduction, The Importance of Menu and Menu Planning in Food Service Organization, Definition and Functions of a Menu, The Need for Menu Planning, Knowledge and Skills Required for Planning Menu, The Types of Menu and its Applications, Types of Menus, Uses of Menus, Steps in Menu Planning and its Evaluation, Construction of Menu, Characteristics of a Good Menu, Display a Menu, Evaluation of Menu.

UNIT 5 FOOD MANAGEMENT STORAGE AND PURCHASE

Introduction, Purchasing: A Food Management Activity, The Market and the Buyer, The Buyer, The Vendor or the Supplier, Mode of Purchasing, Centralized Purchasing, Group Purchasing, Methods of Purchasing, Informal or Open Market Buying, Formal or Competitive Bid Buying, Other Types of Purchasing Methods, Identifying Needs and Amounts to Buy, Minimum Stock Level, Maximum Stock Level.

UNIT 6 FOOD MANAGEMENT: QUALITY FOOD PRODUCTION - PLANNING AND CONTROL

Introduction, Principles of Food Production, Food Production Systems Management, Menu, Ingredient Control, Production Forecasting, Production Scheduling, Production Control, Use of Standardized Recipes, Developing a Programme for Recipe Standardization, Safeguard in Food Production, Quality Control in Food Preparation and Cooking.

UNIT 7 QUANTITY FOOD PRODUCTION: KITCHEN PRODUCTION

Introduction, General Procedures Used in Institutional and Commercial Food Production, Collecting Ingredients, Selection of Food, Weighing and Measuring, Preliminary Treatment of Food, Food Production to Achieve Consumer Satisfaction, Basic Cookery Process and their Application to Quantity Production, Moist Heat Method, Dry Heat Method, Combination Method, Types of Equipments, Cooking Equipment, Mechanical Processing Equipment, Non-Cooking: Refrigeration Equipment.

UNIT 8 FOOD MANAGEMENT: DELIVERY AND SERVICE STYLES

Introduction, Different Types of Service in Food Service Establishments, Table and Counter Service, Self Service, Tray Service, Types of Service in a Restaurant, Silver Service, Plate Service, Cafeteria Service, Buffet Service, Summary of Service Styles, Specialized Forms of Service, Hospital Tray Service, Airline Tray Service, Rail Service, Home Delivery, Catering and Banquet, Floor/Room Service, Lounge Service.

UNIT 9 FOOD MANAGEMENT: TYPES OF FOOD SERVICE SYSTEMS

Introduction, Introduction to Food Service Systems, Types of Service Systems, Conventional, Commissary, Ready Prepared, Assembly Serve, Distribution and Service in Food Service System, Conventional Food Service System, Commissary Food Service System, Ready Prepared Food Service System.

UNIT 10 PERSONNEL MANAGEMENT: STAFF PLANNING AND MANAGEMENT Introduction, Staff Planning and Management, Approaches to Staff Management, Issues in Planning and Management, Steps in Planning, Staff Scheduling, Employment Process, Determining Staff Requirements, Establishing Policies for Recruitment, Outlining Procedures, Staff Recruitment and Selection, Staff Placement, Documenting Contract.

UNIT 11 ISSUES IN FOOD SAFETY

Introduction, Microbiology and Food Safety, Microorganisms in Foods, Growth of Bacteria and the Factors that Affect the Growth of Microorganisms, Control of Microbial Growth in Foods Food Borne Illness, Types of Food Borne Illnesses, Control of Food Borne Illnesses Modes of Disease Transmission, Routes of Disease Transmission, Source of Contamination Conditions that Could Lead to Food Spoilage, Categorization of Food on the Basis of their Shelf Life or Perish ability and Conditions that could Lead to Food Spoilage.

UNIT 12 ISSUES IN WORKER SAFETY AND SECURITY

Introduction, Personal Hygiene and Sanitary Practices, Health of Staff, Sanitary Practices, Sanitation Training and Education for Food Service Workers, Sanitation Training and Education, Types of Accidents, Precautions to Prevent Accidents, Sanitation Regulations and Standards, Control of Food Quality, Adulteration and Misbranding.

PAPER -SIX

FOOD SAFETY QUALITY AUDITING

UNIT 1 INTRODUCTION TO MANAGEMENT SYSTEMS

Introduction, ISO 9001:2000 Quality Management System-Requirements(Introduction to ISO 9001 1.2.2 ISO 9000), ISO 14001:2004 Environmental Management System-Requirements(Introduction to ISO 14001: 2004, How to Use ISO 14001, Your General Approach, Application, Structure and Interpretation), OHSAS 18001:2007 Occupational Health and Safety Management Systems Requirements(Introduction to OHSAS 18001: 2007, How to Use 18001 OHSAS 18001:2007, PDCA Methodology, Your General Approach), ISO/IEC 27001:2005 Information Technology-Security Techniques- Information Security Management System-Requirements(ISO and IEC, ISO/IEC 27001 vs. BS 7799-2, Introduction to ISO/IEC 27001, The PDCA Model, Your General Approach, The Process Approach.

UNIT 2 AUDITING

Introduction, Clause 1 – Scope of the Standard, Clause 2 – Normative References, Clause 3 – Terms and Definitions, Clause 4 – Principles of Auditing, Clause 5 – Managing an Audit Program(Audit Program Objectives and Extent, Audit Program Responsibilities, Resources and Procedures, Audit Program Resources, Audit Program Procedures, Audit Program Implementation, Audit Program Records, Audit Program Monitoring and Reviewing), Clause 6 – Audit Activities(Initiating the Audit, Conducting Document Review, Conducting on Site Activities, Roles and Responsibilities of Guides and Observers, Preparing Audit Conclusions, Preparing, Approving and Distributing the Audit Report) Clause 7 – Competence and Evaluation of Auditors(Personal Attributes, Knowledge and Skills).

UNIT 3 STANDARDIZATION AND ACCREDITATION

Introduction, International Accreditation Forum (IAF)(IAF an Organisation, Role of IAF, IAF Membership, IAF Programs, IAF Charter), International Laboratory Accreditation Cooperation (ILAC)(The International Laboratory Accreditation Cooperation (ILAC), ILAC's Role, ILAC Mutual Recognition Arrangement), Quality Council of India (QCI)(Introduction, Main Objectives of the QCI, Structure of QCI), National Accreditation Board for Testing and Calibration Laboratories (NABL)(National Accreditation Board for Testing and Calibration Laboratories, Why do Laboratories get Accreditation?, Benefits of Accreditation, Scope of Accreditation, Procedure for Accreditation), ISO/TS 22003:2007 Food Safety Management System-Requirement for Bodies Providing Audit and Certification of Food Safety Management Systems, The International Organisation for Standardization (ISO) Published ISO/TS

22003:2007, ISO 22000, ISO Guide 65: General Requirements for Bodies Operating Product Certification Systems (Certification of a Product, The Certification System), ISO/IEC 17020:1998 General Criteria for the Operation of Various Types of Bodies Performing Inspections, ISO/IEC 17021:2006 – Conformity Assessment-Requirements for Bodies Providing Audit and Certification of Management Systems, ISO 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories

BLOCK-2 UNIT 4 ISO 9001:2000 - AN OVERVIEW

Introduction, ISO 9000 (History of ISO 9000, Quality Management Principles), ISO 9000:2005, Quality Management Systems: Fundamentals and Vocabulary, Terminology of Quality Management Systems, ISO 9001:2000, Quality Management Systems: Requirements (Steps for Implementing Quality Management Systems, Benefits), ISO 9004:2000, Quality Management Systems: Guidelines for Performance Improvements (Relationship with ISO 9001:2000, Self-assessment Model).

UNIT 5 ISO 9001:2000 – STRUCTURE

Introduction, Documentation Structure of ISO 9001: 2000(Quality Manual, Mandatory Procedures, Standard Operating Procedures (SOPs), Process Definition Documents, Work Instructions, Miscellaneous Documents, Formats and Records), ISO 9001:2000 Clauses.

UNIT 6 CLAUSE WISE INTERPRETATION OF ISO 9001:2000

Introduction, Clause-wise Explanation of ISO 9001:2000, Clause 1: Scope, Clause 2: Normative Reference, Clause 3: Terms and Definitions, Clause 4: Quality Management System, Clause 5: Management Responsibility, Clause 6: Resource Management, Clause 7: Product Realization, Clause 8: Measurement, Analysis and Improvement

UNIT 7 ISO 9001:2000 - CASE STUDIES

Introduction, Enterprise Sector-wise Case Studies, Engineering Job Work Organisation, Software Development Organisation

UNIT 8 ISO 22000:2005 - AN OVERVIEW

Introduction, Key Features of ISO 22000:2005, What Does ISO 22000 Bring to the HACCP Method, System Components, Communication between Participants in the Food Industry, ISO 22000: A Passport for Exporting?, Why do Companies Commit themselves to an ISO 22000 Approach?, Who Should Use ISO 22000:2005?, ISO 22000 can be used by, Why to Use ISO 22000:2005?, ISO 22000 and HACCP, Codex Alimentarius, Commodity Standards, HACCP, ISO Family, ISO 22000 is Fully Compatible with ISO 9001:2000, Key Elements and Benefits of ISO 22000

UNIT 9 ISO 22000:2005 – STRUCTURE

Introduction, Economic Loss due to Food Borne Illness, ISO 22000: 2005 Clauses, FSMS Documentation Structure(Food Safety Manual, Mandatory Procedures, Standard Operating Procedures (SOP)/ Work Instructions, HACCP Pre-steps Related Documents, HACCP Principles Related Documents, Miscellaneous Documents, Formats and Records), Food Safety Team Structure.

UNIT 10 CLAUSE-WISE INTERPRETATION OF ISO 22000: 2005

Introduction, Clause-wise Explanation of the Standard, Clause 1: Scope, Clause 2: Normative References, Clause 3: Terms and Definitions, Clause 4: Food Safety Management System, Clause 5: Management Responsibility, Clause 6: Resource Management, Clause 7: Planning and Realization of Safe Products, Clause 8: Validation, Verification and Improvement of the FSMS

UNIT 11 ISO 22000:2005-CASE STUDIES

Introduction, Implementation in a Typical Food Industry.

Programme outcome: (PO)

PO1: To provide comprehensive and essential practical guidance on all aspects of dietetics from the promotion of health to the management of diseases.

PO2: To develop a knowledge base in key areas of nutrition/dietetics and food service management such as clinical nutrition and therapeutic diets, quantity cooking, institution food administration, public nutrition, nutrition epidemiology, biochemistry, food microbiology and physiology

PO3: To impart necessary expertise to enable learners to function as dietitians, diet counsellors and nutrition and health communicators provide practical, field level experience in institutional food administration and dietetics cater to the needs of persons employed in government and non-government institutions engaged in providing health/dietetic care and food service,

PO4: To equip individuals to start their own food service unit, leading to entrepreneurship. Undertake Standard Microbiological and Chemical analysis of Food Products.

COURSE OUTCOME: PGDDTN-01 Principles of Food Science

PO1: Introduction to Food Science and Simple Sugars,

Lipids, Proteins, Vitamins and Minerals,
Enzyme, Pigments and Dietary Fibre,

CO2: Soils, Gels and Emulsions Chemical,
Physical and Nutritional Alterations Occurring in Foods During Processing and Storage
Introduction to Food Processing

CO3: Methods of Food Processing – I
Methods of Food Processing – II
Pre and Primary Processing – Some Basic Concepts
Product Development And Evaluation

Mapping of CO to PO

Course outcome (CO)	Programme outcome (PO)			
	PO1	PO2	PO3	PO4
CO1	X			X
CO2	X	X	X	X
CO3	X	X	X	

COURSE OUTCOME: PGDDTN -02 Advance Public Nutrition

CO1: Concept of Public Nutrition: Multidisciplinary Concept, Nutritional Problems-I, Nutritional Problems-II

CO2: Health Economics and Economics of Malnutrition
Population Dynamics
Assessment of Nutritional Status in Community Settings -I
Assessment of Nutritional Status in Community Settings –II

CO3: Nutrition Monitoring and Nutrition Surveillance
Nutrition Policy and Programmes
Review of National Nutrition Programmes

Strategies to Combat Public Nutrition Problems – I
 Strategies to Combat Public Nutrition Problems – II

CO4: Programme Management and Administration
 Conceptualization and the Process of Nutrition Education
 Nutrition Education Communication Programme: Formulation
 Nutrition Education Communication Programme: Implementation
 Nutrition Education Programme : Evaluation.

Mapping of CO to PO

Course outcome (CO)	Programme outcome (PO)			
	PO1	PO2	PO3	PO4
CO1	X		X	X
CO2	X	X	X	X
CO3	X	X	X	
CO4	X	X		

COURSE OUTCOME: PGDDTN -03 Clinical and Therapeutic Nutrition

CO1: Introduction to Medical Nutrition Therapy
 Adaptation of Therapeutic Diets
 Nutritional Management of Infections and Fevers
 Medical Nutrition Therapy in Critical Care

CO2: Nutrition During Stress
 Nutritional Management of Food Allergies and Food Intolerance
 Nutrient and Drug Interaction
 Nutrition, Diet and Cancer

CO3: Nutritional Care in Weight Management
 Nutritional Management of Eating Disorders
 Nutritional Management of Coronary Heart Diseases
 Nutritional Management of Metabolic Diseases-I : Diabetes Mellitus
 Nutritional Management of Metabolic Diseases II – Gout And Inborn Errors of Metabolism
 Nutritional Management of Gastrointestinal Diseases and Disorders

CO4: Nutritional Management in Liver, Gall Bladder and Pancreatic Diseases
 Nutritional Management of Renal Diseases
 Nutritional Management of Neurological Disorders
 Paediatric and Geriatric Nutrition -Special Considerations

Mapping of CO to PO

Course outcome (CO)	Programme outcome (PO)			
	PO1	PO2	PO3	PO4
CO1	X	X		X
CO2	X	X	X	X
CO3			X	
CO4			X	

COURSE OUTCOME: PGDDTN -04 Nutritional Biochemistry

CO1: Carbohydrates, Lipids and Proteins, Vitamins, Enzymes and Coenzymes

CO2: Digestion, Absorption and Transport of Carbohydrates, Proteins and Lipids.

CO3: Antioxidants, Vitamins and Minerals, Hormones, Inborn Errors of Metabolism.

PGDDTN -05 Institutional Management and Dietetics

CO1: Understand the process of planning, organizing and controlling the management of food and other resources in institutions.

CO2: latest advances in nutrition and food science and food challenges in next millennium.

Mapping of CO to PO

Course outcome (CO)	Programme outcome (PO)			
	PO1	PO2	PO3	PO4
CO1	X		X	X
CO2	X	X		X
CO3	X	X	X	

PGDDTN -06 Food Safety and Quality Auditing

CO1: Management Systems: Auditing and Accreditation, Introduction to Management Systems, Auditing, Standardization and Accreditation.

CO2: ISO 9001:2000: ISO 9001:2000 - An Overview, ISO 9001:2000 – Structure, Clause wise Interpretation of ISO 9001:2000, ISO 9001:2000 - Case Studies.

CO3: ISO 22000:2005: ISO 22000:2005 - An overview, ISO 22000:2005 – Structure, Clause wise Interpretation of ISO 22000:2005, ISO 22000:2005 - Case Studies.

CO4: Laboratory Quality Management System: An Overview and Requirements of ISO 17025, Requirements Specific to Food Testing Laboratories - Physical and Chemical Parameters, Requirements Specific to Food Testing Laboratories - Biological Parameters, General Topics: Related to Food Testing Laboratories.

CO5: Retailer Standards: BRC Food and BRC/IOP Standards - An Overview, International Food Standard (IFS), SQF 1000 and SQF 2000, Global GAP and India GAP.

Mapping of CO to PO

Course outcome (CO)	Programme outcome (PO)			
	PO1	PO2	PO3	PO4
CO1	X			X
CO2	X	X	X	
CO3		X	X	X
CO4				