PGDHFS

Post Graduate Diploma

In

Dietetics & Hospital Food Service

Syllabus

2014-2015

National Council for Hotel Management & Catering Technology

A-34, Sector-62, Institutional Area, Noida, U.P.

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Course Title	:	Post Graduate Diploma in Dietetics & Hospital Food Service
Admission standard	:	Graduate in Home Science
Duration	:	Two Semesters – 17 weeks each
Teaching Hours	:	30 per week
Internship	:	03 months (12 weeks x 6 days)
Selection Procedure	:	Merit
Medium of Instruction	:	English
Maximum Age	:	25 years as on 1st July of year of admission
Reservation	:	As per Government of India Policy

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Salient Features

1. Run-thru' Scheme:

In view of the semester system of the program students will be permitted to join the second semester even if they have failed to clear the examinations of the first semester. Similarly, students will be permitted to go on Internship after the completion of second semester even if they have failed subject(s) only in the subsequent examination.

2. Mid-Term Examinations:

Mid Term examinations will be held at institute level and will comprise 30% of the overall assessment while computing Term End results. In view of the semester system, institute will conduct three internal examination; first, after completion of five weeks of study; second, after ten weeks of study and third, after fifteen weeks of study of 50 marks each. Marks for the best two internal examinations (50 x 2 = 100) would be forwarded to the National Council and would constitute performance in Mid-term Examination. These marks must reach the National Council prior to the commencement of term end examinations. Absent in any examination would be considered as 'Zero'.

3. Detained Students:

Students who are detained in the first semester or second semester,whether on account of shortage in attendance or for any other reasons will be required to repeat that semester as a regular student in the following year and will not be allowed to pursue second semester or Industrial Training, as the case may be.

4. Examination Fee:

A one- time examination fee of Rs.1000/- per semester shall be payable. No examination fee is required for repeater candidates. However, such candidates will necessarily have to fill up the Examination Form to register for the examination.

5. Internship:

Since students for this program do not have any exposure in the industry, it becomes difficult for them to understand depth of the subjects being taught. Students would, therefore, familiarize themselves with the hospital environment through an industrial exposure of twelve weeks after the second semester. The intern will familiarize themselves with diet counselling and therapies prevalent in large modern hospitals. The student will on completion bring with him/her a certificate from the hospital where he/she has undergone this exposure.

6. Maximum Chances:

No candidate will be allowed to be on the rolls of any institute if she fails to clear the whole or any part of each semester of the course within three academic years i.e. a student admitted for 2014-15 academic year, will have to clear all the subjects by April 2017 term end examinations. Failure to clear the subject(s) in the third year will result in the candidate being out of system.

POST GRADUATE DIPLOMA IN DIETETICS & HOSPITAL FOOD SERVICE

OBJECTIVES:

This course is planned to prepare qualified dieticians to work efficiently in hospital and health care settings in terms of:

a. Diet Counselling
b. Planning and preparation of Normal and Therapeutic diets.
c. Application of the Principles of Nutrition in planning and preparation of diets for vulnerable age groups in society
d. Management of diet kitchens
e. Organisation of food services within the hospital and
f. Teaching dietetics and related subjects to trainee dieticians and other members of the healthcare team (nursing staff etc.)
g. Entrepreneurship as a carrier
h. Food safety expert in catering establishment.

Lectures by Specialists need to be organized to help students maximize learning potential through exposure to the expertise of these specialists.

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Teaching and Examination Scheme

SEMESTER I

S.No	Subject code	Subject	Hours per week		Term-End Marks	
			Th.	Pr	Th.	Pr.
1	DHFS11	Human Physiology	2	-	50	--
2	DHFS12	Applied Biochemistry	2	3	50	50
3	DHFS13	Therapeutic Dietetics -1	4	4	100	100
4	DHFS14	Nutritional Perspective In Community-1	4	2	100	50
5	DHFS15	Nutrition Industry Management-1	2	3	50	50
6	DHFS16	Food Safety in Food Service Establishment	2	2	50	50
		TOTAL	**16**	**14**	**400**	**300**
		SEMESTER TOTAL	**30**		**700**	

HUMAN PHYSIOLOGY- DHFS 11

TOPIC	HOURS
1. Cell & Blood Unicellular &Multicellular Organism Structure of cell. Tissue and their functions Blood Composition Erythropoesis and Blood group Anemia Homeostasis The Immune System	05
2. Cardiology Structure and functions of blood vessels Structure of Heart- Cardiac Cycle and Cardiac Output Blood Pressure and factors affecting it Heart rate and control mechanism Hypertension- types and mechanisms of development	03
3. Respiratory System Structural plan of Respiratory System Mechanism of respiration ,vital capacity Chloride shift Control of respiratory mechanism Brief outline of common respiratory diseases	03
4. Digestive system Structure and functions of GI tract Digestion and absorption of Protiens , fats and carbohydrates. Brief outline of GI tract, disorders and physiologic changes.	03
5. Nephrology Dialysis Kidney Transplant	03
6. Regulation of body homeostasis Homeostasis Body fluids Measurement of body fluid volume Transport across cell membrane Solute- solvent interaction	03
7. Endocrinology Endocrine system- Pituitary Gland, Thyroid Gland, Parathyroid gland, Pancreas, Adrenal gland, Pineal gland , Thymus gland	05
8.Reproduclive System Physiology of reproduction Physiology of pregnancy & Lactation Disorders of reproductive System Contraceptives	05

APPLIED BIOCHEMISTRY- DHFS 12

Theory	Hours
1. Carbohydrates and its metabolism Chemistry of CHO- Monosaccharides, Disaccharrides and polysaccharides Metabolism- Glycolysis, glycogenolysis, glycogenesis, , Regulation of Blood glucose level	05
2. Lipids and its metabolism Chemistry of lipids Metabolism- Oxidation of fatty acids, Lipogenesis, Ketosis, Biosynthesis and regulation of cholesterol	05
3. Proteins and its metabolism Chemistry of proteins Metabolism-Urea cycle Transamination , Deamination	05
4. Integration of metabolism of macronutrients Tissue specific metabolism Supply of metabolic fuels in both the fed and starving states Metabolic interrelationship between adipose tissue, the liver and extra hepatic tissue	05
5. Enzymes Introduction to enzyme and coenzymes Nomenclature Mechanism of enzyme action Role of enzymes and coenzymes in metabolism	05
6. Hormones Classification Biochemical Role of Hormones	05

THERAPEUTIC DIETETICS PART I – DHFS 13

UNIT-1 INTRODUCTION TO NUTRITION AND DIETETICS

1.1 Introduction

1.2 Definitions and Role of Dietician in Health Care

1.2.1 Dietetics the Science and Art of Human Care

1.2.2 Role of Dietician in Health Care

UNIT-2 NUTRITION CARE PROCESS FOR PATIENTS

2.1 Definition

2.2 Stages of the NCP

2.2.1 Nutrition Assessment

2.2.2 Nutrition Diagnosis

2.2..3 Nutrition Intervention

2.2.4 Nutrition Monitoring and Evaluation

2.2.5 Documentation

UNIT -3 THERAPEUTIC DIETARY ADAPTATION

3.1 Introduction

3.2 Types of Dietary Adaptation for Therapeutic Needs

3.3 Therapeutic Diets

3.3.1 Routine Hospital Diets

3.3.2 Liquid Diets

3.3.3 Soft Diets

UNIT -4 NUTRITION SUPPORT THROUGH SPECIAL FEEDING METHODS

4.1 Introduction

4.2 Special Feeding Methods in Nutrition support

4.3 Enteral Nutrition

4.3.1 Types of Enteral feeding

4.3.2 Various Enteral Feeds / Formulas

4.3.3 Administration

4.4 Parenteral Nutrition

4.4.1 Types of parenteral Nutrition

4.4.2Parenteral Nutrition Solutions

UNIT- 5 NUTRITIONAL INTERVENTION FOR INFECTIONS AND FEVER

5.1 Introduction

5.2 Nutrient and Immune response

5.3 Nutrition and Infection

5.4 Metabolic Changes during Infection

5.5 Classification and Etiology of Fever/ Infection

5.6 Typhoid

5.7 Chronic Fever/ Infection

5.7.1 Tuberculosis

5.7.2 HIV (Human Immune Deficiency Virus) Infection and AIDS (Acquired Immune Deficiency Syndrome)

UNIT -6 NUTRITIONAL CARE FOR WEIGHT MANAGEMENT

6.1 Introduction

6.2 Weight Imbalance - Prevalence and Classification

6.3 Guidelines for Calculating Ideal Body Weight

6.4 Obesity

6.4.1 Etiology

6.4.2 Energy Balance

6.4.3 Health Hazards of Overweight and Obesity

6.5 Management of Obesity

6.5.1 Dietary and Lifestyle Modification

NUTRITIONAL PERSPECTIVES IN COMMUNITY- PART I – DHFS14

Unit 1: Introduction to Community Nutrition

Primary Health Care, health system in India, Role of Community Nutritionist, Demography, Demographic Transition

Unit 2: Meal Planning

Fundamental of Meal Planning, Exchange list in Meal planning , One Serving Portion of Foods

Chapter 3: Nutrients

Carbohydrates: Classification on basis of degree of polymerization, Dietary fibre, components of dietary fibre, effects of dietary fibre, resistant starch, glycemic index

Proteins: Classification(chemical nature and amino acid content), Methods of determining protein and amino acid content in foods(PER, Digestibility coefficient, BV, NPU and NPR), Nutritional requirements at various stages of life, Methods of improving protein quality in diet

Fats: Classification, Essential fatty acids, Functions, Nutritional requirements at various stages of life, Choice of fat and oil for cooking, Tips to reduce fat intake

Vitamins: Fat soluble (A,D,E,K), Water soluble(thiamine, niacin, riboflavin cyanocobalamine, C), functions, food sources , RDA

Minerals: calcium, phosphorous, sodium, potassium, chlorine- functions, food sources, RDA

UNIT 4: Nutrition through life cycle

Adulthood: reference man and woman, nutrient needs and RDA, diet and feeding pattern

Pregnancy and lactation: physiological changes, complications during pregnancy, physiology of lactation, nutrient needs and RDA, diet and feeding pattern

Infancy: growth and development, growth monitoring, nutrient needs and RDA, diet and feeding pattern, complimentary feeding, nutrition for low birth weight babies

Childhood and adolescent: growth and development, nutrient needs and RDA, diet and feeding pattern

Elderly: changes associated with ageing, nutrient needs and RDA, diet and feeding pattern

NUTRITION INDUSTRY MANAGEMENT – DHFS15

Unit 1- INTRODUCTION

Institutional Food Management, development of food service management

Unit 2- Approaches to management

Classical, Neo Classical, Scientific Management, Qualitative, Management by Objective, System Approach, Behavioural Approach, Contingency Approach, JIT, TQM

Unit 3: Principles and Function of Management

Principles, functions- Planning, Organising, Directing, Coordinating, Controlling, Evaluating

Unit 4: Management of Resources

Money- ways of raising money, Space, Material, Staff, Time, Energy

Unit 5: Financial management

Scope of Financial management, Financial accounting, Management accounting, Costing and Budgeting, Cost Components, Cost Control Techniques, Types of Budget, Pricing- Factors affecting Pricing

Unit 6: New Product Development

Factors influencing Product development, How to develop a New Product , Statistical Experimental methods, Modelling for Process and Recipe, Sensory Evaluation during Product life cycle, Functional Foods, Shelf life of food

UNIT -7 NUTRITIONAL INTERVENTION CARE IN DIABETES MELLITUS

7.1 Introduction

7.2 Diabetes Mellitus

7.2.1 Prevalence of Diabetes Mellitus

7.2.2 Classification and Etiology of Diabetes

7.2.3 Factors Affecting Normal Blood Sugar Levels

7.2.4 Metabolic Aberrations and Symptoms

7.2.5 Diagnosis

7.2.6 Complication of Diabetes

7.3. Management of Diabetes

7.3.1 Management of Diet

7.3.2 Food Exchange System

7.3.3 Glycemic Index (GI)

7.5 Exercise and Drugs

7.5.1 Exercise

7.5.2 Drugs and Insulin Therapy

7.6 Prevention

UNIT – 8 NUTRITIONAL CARE IN CARDIOVASCULAR DISEASES

8.1 Introduction

8.2 Coronary Heart Diseases (CHD)

8.2.1 Prevalence

8.2.2 Etiology: Cardiovascular Risk Factors

8.2.3 Pathophysiology of CHD

8.3 Common Disorder of Coronary Heart Diseases and their Management

8.3.1 Dyslipidaemia

8.3.2 Atherosclerosis : A Coronary Artery Disease

8.3.3 Hypertension (HT)

FOOD SAFETY IN FOOD SERVICE ESTABLISHMENT – DHFS16

Unit 1: Introduction of Food microbiology, safety and hygiene

1. Food Microbiology definition & basic concept

2. History of Food Microbiology

3. Role of Microbiology in Biotechnology – Genetically modified food like tomatoes, maize, golden rice, edible vaccines (Hepatitis B).

4. Role of Microbiology in fermented food – Sauerkraut, Cucumber pickle, Tempeh, Soya sauce, Cheese, Dahi & Yogurt, Butter, Idli, Vada, Dosa, Bhatura, Dhokla.

5. Economically important fermented product – Beer, Wine, Antibiotics, Amino acids & Vitamins

6. Personal Hygiene

7. Health status of Food handler

Unit 2: Food hazard and its prevention

1. Food Safety & importance of safe food

2. Factors affecting food safety – Physical, Chemical & Biological hazards.

3. Microorganisms in food – Bacteria (structure of bacterial cell & growth curve), Fungi (structure of Fungi & their classes), Virus (general structure), Parasites (Amoeba, Giardia, Trichinella)

4. Control of micro-organisms & food preservation

5. Methods of food preservation – Physical method & Chemical method

Unit-3: Food Adulteration

Definition, Common adulterant, Classification of adulterant, Harmful Effects, Method for detection of same adulterants

Unit-4: Food Laws National & International

Food safety and standard Act, National Legislation, Voluntary Based product certification, Regulation related to Genetically modified food, International agreement in the area of food Standard & quality control: Codex

Unit-5: Food Quality Assurance

GMP, TQM, Risk Assessment, HACCP and ISO 22000

Unit-6: Food packaging

Packaging Significance & function, Classification of packaging material, Packaging methods, Biodegradable material & environmental issues, Labelling requirement and bar-coding

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SEMESTER II

S.No	Subject code	Subject	Hours per week		Term-End Marks	
			Th.	Pr.	Th.	Pr.
1	DHFS21	Therapeutic Dietetics-II	4	4	100	100
2	DHFS22	Nutritional Perspective in Community-II	4	3	100	50
3	DHFS23	Nutrition Industry Mgt.-II	2	3	50	50
4	DHFS24	Sports Nutrition	4	--	100	--
5	DHFS25	New Product Development Research	--	6	--	100
		TOTAL	**14**	**16**	**350**	**300**
		SEMESTER TOTAL	**30**		**650**	
		INTERNSHIP	12 Weeks X 6 Days		**100**	

GRAND TOTAL : SEM-1 + SEM-2 + INTERNSHIP
: 700+650+100
: 1450

Aggregate pass Marks i.e. 45% of 1450= 653
Passing criteria : 40% marks in Theory
: 50% marks in Practical
: 50% marks in NPD Research and internship
: 45% marks in aggregate

THERAPEUTIC DIETETICS - DHFS 21

Sl. No.	Topic	Hours
1.	**Nutritional care in Gastro intestinal disorders** **Introduction** **Oesophagitis** Etiology, Symptoms and complication, Nutritional Management.	14
	Gastro oesophageal reflux disease (GERD) Etiology, Symptoms and complications, Nutritional management	
	Hiatus hernia Introduction, Symptoms, Nutritional management.	
	Dyspepsia Etiology and symptoms, Nutritional Management	
	Gastritis Etiologies and symptoms, Nutritional Management	
	Peptic ulcers Types of ulcers, Etiology Factors affecting gastric acid secretion, Symptoms, Nutritional management.	
	Diarrhea Acute and chronic diarrhea, functional and organic diarrhea, causes of diarrhea, Nutritional Management of both acute and chronic diarrhea,	
	Constipation Types of constipation, Etiology and symptoms, Nutritional Management of constipation	
	Mal absorption Syndromes Causes of Mal absorption syndromes, Celiac Disease/Gluten sensitive Enteropathy, symptoms and Nutritional management, lactose Intolerance, Etiology, symptoms and Nutritional Management, Crohn's disease – symptoms and Nutritional Management,	
2	**Nutritional care in Diseases of the liver, gall bladder and pancreas** Functions of the liver, Etiology of liver disorders	10
	Jaundice Types of jaundice	
	Viral hepatitis Etiology and symptoms, Nutritional management	
	Liver Cirrhosis Etiology, Symptoms and complication, Nutritional management	
	Hepatic encephalopathy Etiology, Clinical Symptoms and the four clinical stages of hepatic encephalopathy, Nutritional management	
	Diseases of the Gall Bladder Etiology, symptoms and nutritional Management of chole cystitis chopelitheasis–	
	Pancreatitis Acute and chronic Nutritional Management,	

3	**Nutritional care in Renal Disease** Risk factors and general causes of kidney disease function, General principles of dietary management in renal diseases, Common renal diseases	12
	Glomerulonephritis Etiology, Clinical symptoms , Nutritional Management	
	Nephritic syndrome Etiology, Symptoms, Dietary Management	
	Acute renal failure (ARF) Etiology, Symptoms, Dietary Management	
	Chronic Renal failure (CRF) Etiology, Symptoms , Dietary Management	
	ESRD Dialysis Nutritional Management	
4	**Nutrition and Cancer** Incidence, Carcinogenesis Process, Risk Factors and Etiology, Metabolic Changes During Cancer, Clinic Manifestation of Cancer, Nutritional Management,	12
	Cancer Therapies Chemotherapy, Radiation, Therapy, Surgery, Cancer Prevention	
5	**Nutritional care in pre and post operative stages** Preoperative Nutritional care, Post operative nutritional care	10
6	**Eating Disorders** Definitions of some eating disorders,	10
	Anorexia nervosa Diagnostic criteria for anorexia nervosa, Etiology, Clinical features, Nutritional and Psychological Management	
	Bulimia nervosa Diagnostic criteria, Etiology, Symptoms, Nutritional and Psychological Management	

NUTRITIONAL PRESPECTIVE IN COMMUNITY –DHFS 22

Sl.No	Topic	Hours
1	**Nutritional problems** PEM- vulnerable groups, impact of malnutrition on nation development, causes of malnutrition, classification, clinical symptoms, biochemical changes, etiology, treatment and prevention IDD- prevalence, symptoms, etiology, treatment and prevention, National Iodine Deficiency Disorder Control Programme, Vitamin A deficiency- clinical signs and classification, prevalence criteria, etiology, treatment and prevention, National Prophylaxis Programme Iron deficiency anemia Clinical signs, etiology, treatment and prevention National Nutritional Anaemia Control Programme, Food allergy, Inborn errors of metabolism,	24
2	**Nutritional Status Assessment** Direct Methods- clinica- signs and symptoms of deficiency disorders, advantage and disadvantage Biochemical- various indices, advantage and disadvantage Anthropometric measurement- weight, height, MUAC, skinfold thickness, Head Circumfernce, Chest Circumference, precautions to be taken during measurements, instruments to be used, reference standards- ICMR Standards) Dietary Assessment – 24 hr Recall, FFQ, food balance sheet, food Records, Weightment method advantages and disadvantages.	12
3	**Combating public nutrition problems** Strategies to combat public nutrition problems - Diet or food based strategies- dietary diversification. Horticulture Interventions, Food fortification, Nutrition Education, Supplementation, Immunization, Supplementary feeding program, indirect assessment –Mortality rates, ecological variables food consumption practices, health care facilities	24
4	**Nutrition Communication for behavior change objectives of CBC** Communication Method – Individual, Group, Mass setting objectives of a NED communication program Identifying target audience designing messages designing an effective training program – training the change agent , training strategy , training guidelines, plan for training program assessment of training	8

NUTRITION INDUSTRY MANAGEMENT- DHFS-23

S.No	Topic	Hours
1	**Entrepreneurial Skills** Definition of entrepreneur, Characteristics of successful entrepreneur, Process of creativity and innovation, Business requirements for food products – government requirement, marketing , Business plan, managing business entrepreneurship development and training , merchandising skills.	8
2	**Principles of Cooking** Menu planning, function of a menu, planning menu on basis of situation and customer- boarding school, conference and canteen, essentials of menu card, Menu design, Types of menu – A1a carte, Table d hote Combination menu, Occasional menu , Single use, Du juor, Cyclic menu, Construction of menu, Food production process – Preliminary treatment of food, Cooking techniques – Moist Heat Dry Heat Combination methods , Effective use of leftovers.	8
3.	**Service management** Styles of service – formal- banquet, restaurant, buffet, semiformal, - informal – self service mechanic of waiter service, types of service in a restaurant, presentation and display of food.	9
4.	**Standardization of recipes** Production forecasting, scheduling, control, use of standardization recipes types of food – natural, Processed Convenience Restaurant, substitute, RTE, Qualitative and Quantitative Aspects of food.	9

SPORTS SCIENCE NUTRITION –DHFS 24

Sl.No.	Topic	Hours
1	**Introduction of sports science** Definition, nature, scope; Role and involvement of different disciplines; Historical to contemporary perspectives	6
2	**Exercise and Physiology** Definition; Acute responses and chronic Adaptations; Kinds of exercise; Neuroendocrine; Metabolic and Hemodynamic responses; Energy concepts-ATP,CP, aerobic and anaerobic pathway; Muscle fiber types; Respiratory and cardio vascular systems in exercise; Thermoregulation and Evaporation	12
3	**Physical Fitness and Physiological Measurement** Training Principles and practices; Introduction to fitness-skill and health related fitness; Fitness tests, performance and physiological measurements	10
4	**Nutrient metabolism and requirements** Principles of nutrition: Macro and micro nutrient requirements: Energy intake and sports performance; fuelling and recovery phases; carbo loading and fuel usage	8
5	**Diet during phases of training** Nutrition for optimal sports performance-pre and post; Diet during phases of training exercise meals;	8
6	**Fluid balance and Hydration** Sweating and fluid loss; Dehydration and performance; Hydration requirements; fluid intake and electrolyte Replacement in athletes	8
7	**Ergogenic Aids and Latest Trends in Sport Nutrition** Ergogenic aids: Introduction; Types and functions; labeling claims and advertisements; Functional Foods	8
8	**Sports injuries and special consideration** Injuries: chronic and acute; Hard and soft tissue injuries; Causes and treatment; Female athlete triad and nutrition treatment guidelines	8