BRANCH X E

M.Sc. DIETETICS AND FOOD SERVICE MANAGEMENT

The PG programme in Food Service Management and Dietetics aims to improve the health of people through nutrition. The mission is to provide students with a broad educational background in the science of food and nutrition and food service management. Nutrition and Dietetics is a vital growing field and the opportunities and possibilities in this field are endless. The field of nutrition & dietetics is a multi dimensional field with practical application in our day-to-day lives. With its dynamic and interesting curriculum, this course aims at producing versatile candidates in the field of nutrition and dietetics.

Programme Information

The subjects covered in the post graduate programme are many with Dietetics, Human Physiology, Statistics, Public Health Nutrition, Research Methodology, Food Microbiology, Food Lay Out, Equipments, Food Service Management etc., with Project/dissertation and Internship. The students undergo internship training as a part of their course curriculum in Hospitals and Star Hotels. Thus the programme covers the core subject that has been designed to build and enhance skills of students to meet industry requirements and succeed in the professional environment.

Job Prospects

- The field of Nutrition and Dietetics is expanding, with a projected 21 percent increase in jobs for dietitians and nutritionists through 2014.
- Nutritionists & dieticians could find employment in Food Service and Processing Industry, Hospitals, health clubs, hotels, Catering departments of star hotels, research labs of food manufacturers, health departments of government etc.
- They can also work as consultants or do private practice. Moreover they could find openings in the mass media where top priority is given to disseminating vital information on healthy living.
- Have wider scope in Government sponsored Nutrition programmes and projects in improving health and nutrition both at the National and International level.
- As research assistants /associates in institutes undertaking research programmes in Dietetics, Food Science, Nutrition and health.
- They can work as teaching faculty in higher education and also in Higher Secondary schools offering Home Science at plus two levels.

- There is a great demand in the global nutrition & food industry for highly knowledgeable and competent food scientists.
- Have limitless entrepreneurial opportunities in Quantity Food Production.
- As Nutrition and Food experts in hotels and other catering industries.

Eligibility for Admission:

For admission to the PG programme in Dietetics and Food Service Management, the applicant must have passed B.Sc. programme with specialization in Family and Community Science (Home Science)/Food Service Management and Dietetics/Clinical Nutrition and Dietetics/Food Science and Quality Control/B.Sc. Nursing .Weightage will be given to the above mentioned qualifying degrees (20%).

In addition to the above criteria BSc. Graduates in Zoology, Microbiology, Food Microbiology, Chemistry, and Biotechnology with PG Diploma in Nutrition and Dietetics/Open Course in Nutrition for wellness /Dietetics are also eligible.

DIETETICS AND FOOD SERVICE MANAGEMENT

COURSE OUTLINE TOTAL CREDITS-80

SEMESTER	COURSE CODE	TITLE OF COURSE	TEACHING HOURS/ WEEK	CREDIT	TOTAL CREDIT
`I	HSDF1CTO1	Nutrition and diet in Health	5	4	18
	HSDF1CTO2	Applied Human Physiology	5	4	
	HSDF1CT03	Food Facilities Layout and Equipment	5	4	
	HSDF1CTO4	Advanced Food Science	5	4	
	HSDF1CPO5	Advanced Food Science Practical	5	2	
II	HSDF2CTO6	Dietetics	5	4	18
	HSDF2CT07	Biochemical Changes in Diseases.	5	4	
	HSDF2CT08	Nutrition in Special Conditions	5	4	
	HSDF2CT09	Research Methods & Statistics	5	4	
	HSDF2CP10	Dietetics Practical and Internship	5	2	
III	HSDF3CT11	Food Service Management	5	4	18
	HSDF3CT12	Quantity Food Preparation & Food Service Techniques	5	4	
	HSDF3CT13	Hospitality Administration	5	4	
	HSDF3CT14	Scientific Writing and Project formulation	5	4	
	HSD3CP15	Food Service Management Practical and Field Experience	5	2	
IV	HSDF4ETO1	Public Health Nutrition	5	4	26
	HSDF4ET02	Food Microbiology and sanitation	5	4	
	HSDF4ETO3	Nutrition in Sports and Fitness	5	4	
	HSDF4ET04	Entrepreneurship Management	4	4	
	HSDF4EP05	Public Health Nutrition Practical and Field Work	6	3	
	DISSERTATION			4	
	VIVA-VOCE			3	

Elective 6 -Nutrition Education and Dietetic Counseling Elective 7 ñ Nutrition in Critical Care

Elective 8 - Nutrition in Emergencies and Disasters Elective 9- Sensory Evaluation.

SEMESTER ñ 1

NUTRITION AND DIET IN HEALTH

Course Code: HSDF1CT01

Teaching hours: 5hrs/week

CORE

Credit: 4

Objectives:

- To Understand the basic principles of nutrition and the role of nutrition in different conditions
- To Develop competency in planning diets to meet the nutritional requirements of different socio- economic levels
- To Gain knowledge about the methods of assessment of nutritional problems and their implications.

Course outline

Module1: Nutrition and Health

Nutrition- Definition,Types. Nutrients - Macro and Micro Nutrients- Functions and its role in maintaining nutritional status. Health- definition, Vital link between nutrition and health, Scope of Nutrition.. Concept of adequate nutrition and malnutrition, Assessment of Nutritional Status.

Module 2: Recommended Allowances

ICMR recommended allowances for Indians. Approaches for deriving nutritional requirements and Recommended Dietary Allowances. Concept of reference man and woman, Reference body weights ,Basis for requirements for energy,protein,fats,minerals and vitamins.Adult reference man and reference woman. Different food groups, ICMR ñ Five food group ñDietary guide lines and basic principles of meal planning.

Module 3:Nutrition in Pregnancy

Nutritional status and general health, physiological adaptations in pregnancy, effect of nutritional status on pregnancy outcomeñ the nature of weight gain. , storage of nutrients in normal pregnancy, RDA and basis for requirements during pregnancy. Diet during pregnancy, complications of pregnancy with dietary implications, adolescent pregnancy, exercises during pregnancy

Module 4:Nutrition in Lactation

Physiological adjustments during lactation, hormonal controls &reflex action, lactation in relation to growth and health of infants, problems of breast feeding, nutritional components of colostrum and mature milk, special foods during lactation, nutritional requirements and its basis during lactation, diet during lactation.

Module 5: Nutrition in Infancy

Nutritional status of the infants- growth of infants, growth monitoring, nutritional requirements, basis and recommended dietary allowances for the infants, breast- feeding Vs. formula feedings, weaning foods suitable for infants, feeding the premature infants.

Module6: Nutrition in Pre- School Age

Growth and development of pre school children, need and health care of pre-school children, food habits and nutrient intake of pre- school children. Nutritional problems in pre-school period. requirements, basis and recommended dietary allowances.supplementary foods.

Module 7: Nutrition During School Age

Physical growth, nutritional status of school age children, food habits and nutritional requirements, basis and recommended dietary allowances. Packed lunch.

Module 8: Nutrition During Adolescence

Physical, physiological and psychological changes in adolescents, nutritional needs and requirements and RDA of adolescents, food habits and promotion of desirable eating habits in adolescents, changes needed to prevent malnutrition in adolescents, habits and disorders affecting food intake.

Module 9: Nutrition for the Adult

Nutrition for the adult, food trends and patterns, nutritional requirements and basis for deriving RDA .work efficiency, dietary guidance, nutrition related risk factors, reference man and woman.

Module 10: Nutrition for the Elderly

Physiological and psychological changes during old age, nutritional requirements, factors affecting food intake, common nutritional problems in old age.

Related Experience

Planning diets to meet the nutritional requirements for the following stages in life at different incomes levels.

- Pregnancy
- Lactation ,Weaning .
- Infancy
- Pre-school age
- School age
- Adolescence
- Adulthood
- Old age

References:

- Bamji S.M., Rao N.P., and Reddy V.(1998): (editors) Textbook of Human Nutrition. Oxford & IBH Publishing Co., New Delhi.
- Davidson, passmore., Brock J.K.(1993) Human Nutrition & dietetics, F & S Livingston Ltd., Edinburgh & London.
- Gopalan, C., Rama Sastri, B.V., and Balasubramanian S.C.,(2010): Nutritive Value of Indian Foods, National Institute of Nutrition, ICMR .
- Joshi A.S., Nutrition and Dietetics 2nd edition Tata MaGraw ñ hill Publishing Company, New Delhi.
- Mahan L.K & Sylvia Escott-Stump. (2008) Krauseís Food Nutrition & Diet Therapy,12th edition, Saunders Company.
- Reddy V., Rao P.,GowrinathSastry, J.P and kasinath K.C.(1993): Nutrition Trends in India, National Institute of nutrition.
- Robinson C. H., Lawler M.R., Chenoweth W.L., Garwich A.E(1986): Normal and Therapeutic Nutrition, 17th edition, Mac Milan publishing Co., New York .
- Shills M.E.,Olson J.,Shike,M and Roos,C .(1998):Modern Nutrition in Health and Disease 9TH Edition. Williams and Williams A Beverly Co. London
- Srilakshmi B.(2002): Nutrition Science, New age international P.Ltd. Publishers, New Delhi.

APPLIED HUMAN PHYSIOLOGY

Course Code: HSDF1CTO2

Teaching hours:5hrs/week

CORE

Credit:4

Objectives:

- To learn the different physiological systems in our body and its functions.
- To gain knowledge about nutritional physiology.

Course Outline

Module 1: Elementary Composition of Human Body

Proximate principles ñ Proteins, Lipids, Fats, Carbohydrates, Enzymes and Co-enzymes.

Module 2: Blood

Introduction to haematology, Functions of blood, Functions of plasma proteins, Erythrocytes, Haemoglobin, Iron, Important indices of RBC andHb, Leucocytes/ WBC ñ Functions and blood groups. Blood Transfusion ñ Medical ethics, Importance of stem cells, Scientific and potential use of stem cells.

Module 3: Cardiovascular System

Anatomical consideration of heart and CV system, cardiac cycle, Heart sounds, ECG and its interpretation, heart rate and regulation, Blood pressure ñ Significance and physiological variations, Haemorrhage, Compensatory changes after haemorrhage, Cardiovascular modification during exercise, Pacemaker, Heart block, Ventillation, Ca++ Channel blockers.

Module 4:Respiratory System

Functional anatomy, Non respiratory functions of the lungs, resuscitation and its methods.

Module 5: Digestive System

Anatomy, Composition and functions of salivary, gastric, intestinal & pancreatic secretions, Functions of bile salts, Mechanism of secretion of digestive juices and its regulation, movements of stomach. Small intestine- villi, defecation, emesis. Liver ñ anatomy and physiology, fatty liver, Jaundice and Liver function tests. Gastro intestinal hormones and related issues.

Module 6: Excretory System

Structure and functions of kidney, Reabsorption, Structure of nephron, GFR, Regulation of reabsorption and common kidney disorders.

Module 7: Nervous System

General aspects of neurology, Synapse conduction, Types of transmission, at synapse and reflex action.

Module 8: The Musculo-Skeletal System

Structure and functions of bone, Cartilage and connective tissue. Disorders of the skeletal system. Types of muscles ,structure and function.

Module 9: Endocrinology

Endocrine secretions, glands, role and regulatory function of endocrine, site of secretions, regulation of secretions.Nutrigenomics ñ concepts and principles, applications, Epigenetics.

Related Experience

1. Demonstration of measuring BP using sphygmomanometer
2. Blood analysis for:
   a. Haemoglobin
   b. Creatinine
   c. Glucose
   d. Urea
   e. Serum proteins

3. Urine analysis for
   a. Albumin

b. Sugar
c. Creatinine
d. Urea
e. Vitamin C

References

- .Best, H. And Taylor, B (1991)íThe Physiological Basis for Medical Practiceí, 8th Edition, The Williams and Wildins Company.
- Berne, M.R.,(1998):Physiology.Amazon.UK.
- Burke and Taylor (1986) The Living Body, Saunders Company
- Chatterjee C C (1987) ëHuman Physiologyí, Volume I and II, Medical Allied Agency
- Guyton J. E (1991), ëTextbook of Medical Physiologyí, WB Saunders Publications, Philadelphia
- Michael J Gibney (2003) Ian A MacDonald, Helan M Roche, Nutrition and Metabolism, Blackwell Publishing.
- Samson and Wright (1989), ëApplied Physiologyí, Tandon Publications.

FOOD FACILITIES, LAYOUT AND EQUIPMENT

Course Code: HSDF1CT03

Teaching hours: 5hrs/week

CORE

Credit: 4

Objectives:

- To gain knowledge and develop skills in handling food service equipment.
- To apply knowledge in space allocation of food plants.

Course Outline

Module 1: Introduction to Food Service and Food Service Institutions.

A brief introduction on the above concepts.

Module 2: Equipment in Food Service

Classification in equipment, factors affecting the selection and use of equipment in food service institutions-Electrical and non-electrical equipments used for food storage, food preparation and service. Dish washing, & laundering equipments,holding and modular equipments.

Module 3: Materials Used

Base materials, materials used for finishes ñ materials used for accessory parts. Strength and limitations of materials.

Module 4: Food Plant

Layout and Space allocation of food plant according to different capacities- Restaurants, dietary kitchen, cafeterias, banquet space. Flow of traffic - receiving food, preparing food, storage and serving, removing soiled utensils to dishwashing area, hand washing. Traffic of guest- entrances and exit.

Module 5: Kitchen Planning

Planning kitchen in relation to equipment, different work centers and sizes in relation to equipment**.**Modular kitchens

Module6: Lighting and Ventilation

Lighting suitable for different food plant-Restaurants, Dietary kitchen, Cafeterias, banquet space.Ventilation-purpose, types suitable for different food plants.

Module7: Finishes

Finishes used for equipment, walls and floors.

Module 8: Catering Systems

Traditional, cook chill and cook freeze systems.

Related Experiences

- Assessment of the medium and heavy duty equipments commonly used in the food service establishments of the locality.
- Visit to various food service establishments to study the layout and equipments commonly used there.

Reference:

- Dennis L.Foster (1995), ëAn Introduction to Hospitalityí, McGraw Hill International Edition.
- Dennis, R. Lillicrap, Jnan, A.Cousins (1993), ìFood and Beverage Serviceí, Older and Stoughten Publishers Ltd, England, IV Edition.
- Jack D. Ninemeier (1995), ëFood and Beverage Managementí, 2nd Edition, American Hotel and Motel Association, U.S.A.
- Khan, M.A. (1987): Food Service Operations, AVI Publishing Inc Westport, Connecticut.

- Marian C. Spears(1995), Food Service Organistioní, IIIrd Edition, Prentice Hall Inc., USA
- Mohini Sethi and Surjeet Malhan (1993), ëCatering Management- An Integrated Approachí, 2nd Edition, Wiley Publication, Mumba
- Sudhir Andrews (1997), ëFood and Beverage Service- Training Manualí, 23rd Reprint, Tata McGraw Hill Publishing Co.
- Taylor, E. and Taylor J. (1990): Mastering Catering Theory. Mac Millan Press Ltd. London.
- West B.B and Wood L.(1988): Food service Institutions, 6th edition, Mac Millian Publishing Co.

ADVANCED FOOD SCIENCE

Course Code: HSDF1CT04

Teaching hours: 5hrs/week

CORE

Credit: 4

Objectives:

- Understand the principles and chemistry of food.
- Apply the principles of food chemistry in practical cooking

Course Outline

Module 1: Physico ñChemical changes

- Physico- chemical changes in relation to cookery
- Gelatinization of flours, starch as thickening agent, gluten formation, retrogradation, gluten formation
- Stages of sugar cookery- fondant, fudge
- Denaturation of protein
- Properties of colloids, emulsions, stabilizers
- Enzymatic and non enzymatic browning

Module 2: Acceptability testing

- Evaluation of food by sensory and objective methods
- Factors affecting acceptability of food
- Selection of taste panel

Module 3: Study of cereals and cereal products

- Wheat- Classification and grading. Wheat Flour- Constituents, Processing, Functions and behavior of flour components in dough, flour improvers

- Rice- Quality classification, processing, parboiling
- Corn- Processing of corn flakes
- Malting, popping and puffing of cereal grains
- Bakery Products
- Extruded Foods

Module 4: Legumes, oilseeds and nuts

- Selection and grading
- Anti-nutritional factors
- Edible flours- protein concentrates and protein isolates
- Novel proteins
- Germination ,fermentation
- Uses of oil seed meal
- Processed infant weaning foods

Module 5: Processing of perishable foods

- Fruits and vegetables- Constituents, pigments, role of pectic substances, fruit preservation
- Meat , Egg, Poultry and Seafoodís- Selection, composition and cooking methods
- Milk and milk products- Constituents in milk, processing of milk and milk products

Module 6: Beverages and spices

- Classification, grading and composition
- Active compounds and pigments
- Spices and condiments

Module 7: Fats and Oils

- Classification, physical and chemical properties
- Rancidity, reversion- changes during fat storage
- Anti-oxidants and synergists
- Changes during frying and trans fatty acids. Role of fat in the development of cakes and salad dressings.
- Use of fats and recent developments

Module 8: Functional foods

Definition and classification

- Antioxidant nutrient and free radical scavenging
- Commonly consumed functional foods and their action
- Pre-biotics and Pro-biotics- Definition, chemistry ,sources, bio- availability, effect on human health and application in risk reduction of diseases (non-digestible carbohydrates- oligosaccrides, dietary fibre,resistant starch, gums.)

Module 9: Food Adulteration

Type and pattern of adulteration, food laws and standards

Module 10: Food Additives

Definition of food additives; acids, bases, buffer systems and salts, chelating agents, antimicrobial agents, sweeteners, stabilizers and thickeners, fat replacers, firming texturizers, appearance control and clarifying agents. Flavour enhancers, sugar substitutes, sweeteners, antioxidants, Anticaking agents, bleaching agents, protective gases.

References

- Fox B.A.(1997): Food Science, Nutrition and Health, Edward Arnold, London, VI Edition.
- Many S.N., and Shadaksharaswamy, M.N.(1998) Foods- Facts and principles, wileyEstern Ltd., New Delhi.
- Peckham, C.G and Graves H.J.,(1979): Foundation of food preparation, Mac Milan publishing Co., New Delhi.
- Potter, N., Hotchkiss, H.J. (1996): Food Science (5^{th}ed) CBS Publishers and Distributors. New Delhi.
- Srilakshmi,B.(1997) Food Science, New Age International (p) Ltd, Chennai.
- Sumati,R .(1997):Food Science New Age International (p) Ltd. Publishing House.
- Swaminathan M. (1999): Handbook of Food and Nutrition. The Banglore Printing and Publishing Co.Ltd.

ADVANCED FOOD SCIENCE - PRACTICAL

Course Code: HSDF1CP05

Teaching hours: 5hrs/week

CORE

Credit: 2

Objectives:

- To apply the theoretical knowledge of food chemistry in practice.
- To develop insight on the practical aspects of experimental cookery.

Course Outline

Module 1: Physico Chemical Changes in Cookery

a) Gelatinization of starch

b) Gluten formation and baking quality of gluten.

c) Stages of sugar cookery.

Module2: Cereal Cookery

a) Effect of mechanical action and ingredients (milk, fat and hot and hard water) in development of gluten.(variations in chappathis).

b) Development of bread.

Module 3: Pulse Cookery

a) Effect of fermentation in the development of batters - development of idli /dosa batters with variation in the cereal pulse ratio.

b) Development of recipes using sprouted greengram.

Module4: Milk Cookery

a) Development of paneer and khoa.

b) Development of ice creams.

Module 6: Egg Cookery

a) Factors affecting formation of egg white foams (beating time, vessel temperature,acid,fat,salt, water, sugar)

b) Development of cakes.

Module7: Sugar Cookery

a) Development of recipes with the different stages of sugar cookery.

Module8: Food Preservation Methods

a) Demonstrate the different stages of jam preparation.

b) Blanching

C) Preparation of pickles squashes and jellies.

Module9: Fat Cookery

a) Determination of smoking point.

b) Iodine value

c) Preparation of an emulsion- mayonnaise.

Module10: Subjective Evaluation of Food Quality

a) Sensitivity tests

b) Acceptability of a new product

c) To know likes and dislikes