

FPN – HCT 3.2: PUBLIC HEALTH NUTRITION

Theory

52 hours

Objectives:

- To reduce the incidence of mortality, morbidity, malnutrition and school drop outs
- To enhance the capability of the mother to look after the normal health and nutritional needs of the child through proper nutrition and health education.\
- To improve overall nutritional status of the vulnerable group
- To overcome specific nutritional deficiencies among mothers and children
- To help to achieve better nutrition through indirect schemes

UNIT I

8 hours

Scope of community nutrition. Economic, social and cultural factors influencing food habits, food fallacies and fads. Malnutrition among vulnerable groups. Assessment of nutritional status- Direct and indirect methods-anthropometry, dietary, clinical, biochemical and vital statistics. Indicators of Health and Nutrition (ICMR, TMR, MMR)

UNIT II

15 hours

Nutritional problems prevalent in India and measures to combat. Food security – definition, national and household food security, factors affecting food security system. Objectives and functions of national, international agencies and voluntary organizations related to public health nutrition.

UNIT III

15 hours

Nutritional policy and programs- National nutrition policy-need for nutrition policy, policy strategies-and their implementation. Nutrition programs, National Anemia prevention Prevention of night blindness, National Iodine prophylaxis program. ICDS. National nutrition surveillance system. Food for work etc.

UNIT IV

14 hours

Nutrition intervention Definition, importance, methods of nutrition intervention and their impact evaluation. Nutrition education-Rationale, planning, Execution and evaluation
Food adulteration - adulterants and methods of detection. Food laws in India and consumer protection.

Practicals

1. Study of existing diet and nutritional practices

2. Assessment of nutritional status of an individual/community by using anthropometry and dietary survey.
3. Orientation to a) Preparation of schedule B) Survey work C) Analysis of data D) Writing of report.
4. Visit to local health centre to identify clinical signs and symptoms of nutritional problems.
5. Identification of adulterants in common foods.
6. Visit to an ICDS Block. Development of audio visual aids- radio script; popular article; chart/posters leaflets etc.
7. Study tour to community nutrition related NGO'S and other institutes.
8. Planning, implementation and evaluation of nutrition education for a target group.

Learning outcomes:

- Students will be able to interpret and apply nutrition concepts to evaluate and improve the nutritional health of communities.
- Determine and translate nutrient needs into menus for individuals and groups across the lifespan, in diverse cultures and religions, and for different income levels.
- Plan a community intervention based upon a needs assessment
- Advocate for a public policy related to nutrition programs or health care

References:

1. Textbook of Community Nutrition Hardcover – 2007 by Salil& Rita S RaghuvanshiSehgal (Author)
2. Textbook OF Community Nutrition ,Suryatapa Das
3. IGNOU Nutrition For The Community (ANC 1) In English Medium Including Solved Question Papers (Hardbinding, Expert pannel of Neeraj Publication)

FPN – HCT 3.3: NUTRACEUTICALS AND FUNCTIONAL FOODS

Theory

52 hours

Course objectives:

The relationship between diet and chronic disease prevention is one of the final frontiers in 21st century agriculture. In view of heightened interest in the foods as medicine on chronic disease prevention, the time and information is appropriate to offer a functional foods course for the purposes as follows:

1. Integrate the nutritional science, food science, regulatory principles, and nutrient metabolism to understand and explain functional foods, nutraceuticals, and dietary supplements.
2. Evaluate the biochemical basis, technologies, legal requirements, and clinical assessment in available or potentially available products.

UNIT I: NUTRACEUTICALS

14 hours

Definition, History, Market Trends, Sources. Classification of nutraceuticals based on chemical nature and mechanism of action. Phytochemicals as nutraceuticals – Isoprenoids, polyphenolics, glucocyanovates, phytosterols, dietary fiber Animal products and microbes (prebiotics and probiotics) as nutraceuticals. Significance and relevance of nutraceuticals in the management of disease and disorders – CVD, cancer, diabetes, obesity, osteo arthritis, immune enhancement, endurance, performance and mood disorders. Application of nutraceuticals in Indian and International market. Basis of claims for a compound to be called as nutraceutical, safety (adverse effects and toxicity), regulatory issues of nutraceuticals.

UNIT II: FUNCTIONAL FOODS

12 hours

Evolution and Definition of functional foods. Legal status in different countries and Types of foods categorized as functional foods. Health benefits of functional foods and future promises in Indian diet. Development of biomarkers to indicate efficacy of functional ingredients. Safety and Regulatory aspects of functional foods. Dietary Fibre, Oligosaccharides, Resistance starch, Omega 3 fatty acid, Conjugated Linoleic Acid.

UNIT III: PROBIOTICS AND PREBIOTICS:

12 hours

Probiotics – definition, types, Health benefits of probiotics in gastrointestinal health, cancer, and other diseases. Recent advances in probiotics – Lactobacillus, Lactobacillus casei, L. casei strain shirota, Challenges and regulatory issues related to probiotics. Prebiotics – definition, types, Health benefits of prebiotics, Recent advances in prebiotics – galacto-oligosaccharides (GOS), functional disaccharides, (lactulose, lactitol and lactose), Resistant starch (RS) Prebiotic ingredients in foods.

UNIT IV: PHYTOCHEMICALS AND ANTIOXIDANTS

14 hours

Definition, mode of action. Classification of Phytochemicals: I. Terpenoids, II .Carotenoids - Carotene, Leutein, zeaxanthin, Lycopene III. Poly Phenols: A. Non Flavonoid polyphenols, B. Flavonoids - Flavanols, Flavanol, (Catechin) Flavan-3-ol, Flavones, Flavanones, Anthocyanidins, Phytoestrogens (isoflavonones), C. Other Poly Phenols: Curcumin, Tannins, Lignan and Resveratrol IV. Sulphur containing Compounds: Sulphides and Glucosinolates. ANTIOXIDANTS: Formation of Free Radicals, Reactive Oxygen Species and oxidative Stress., Antioxidant Definition and Mechanism of action, Classification Of antioxidants: Endogenous and Exogenous, Role of endogenous antioxidants- Super Oxide Dismutase (SOD), Catalases, Glutathione, Reductase, Peroxidases- Glutathione Peroxidase in protecting cells. Role of Exogenous antioxidants- Retinol, β -carotene, Ascorbic acid and Tocopherol in prevention of Cancer, CVD, Ageing and Inflammation

Learning outcome: Students shall

1. Explain the regulatory basis of functional food products on India, EU and U.S. market
2. List the types of functional foods available for health benefits
3. Demonstrate the knowledge of the scientific basis and technologies available to suggest potential new functional food products

REFERENCE BOOKS:

1. Text Book of Human Nutrition- AnjanaAgarwal, ShobhaAUdipi,Jaypee Brothers Medical Publishers (P) LTD.
2. Food Science, B. Srilakshmi, Sixth Edition, New Age International Publishers.
3. Text book of Human Nutrition – Mahtab S Bamj, N PrahladRao, Vinodini Reddy, Second. Edition, Oxford and IBH Publishing Co.Pvt.Ltd.
4. Orientation for Food Professionals a hand book – PV SuryaprakashRao.
5. Hand book of Nutraceuticals and functional foods, second editin.CRC press- Wilman REC.
6. Functional Foods - Concept to Product (2000) - Gibson GR and Williams CM.
7. Functional Foods: Designer Foods, Phrama Foods (2004) - Goldberg I.
8. Dietary supplements: Toxicology and clinical Pharmacology – Cuppj and Tracy TS, Humana.

FPN- OET - 3.6: NUTRITION AND HEALTHY LIFESTYLE

Theory

52 Hours

Course Objectives

- To interpret and apply nutrition concepts to evaluate and improve the nutritional health of communities and to understand the triad of health, hygiene and nutrition.
- To interpret and apply nutrition concepts of balance diet and modified diet which will focus on disease conditions to evaluate and improve the nutritional health of individuals.
- To assess the nutritional status of an individual and the community based on different indicators. To identify and apply food principles to food and nutrition systems.
- To integrate the knowledge and skills of food labeling in food safety and nutrition security with professional issues affecting the nutrition and/or dietetics.

UNIT I

10 hours

Food, Nutrition, Health and Hygiene – Interrelationships - Concepts, Dimensions, Determinants, Inter-relationship

Nutrients in Food: Types, functions, sources, deficiency/toxicity of macro and micronutrients

Conserving and enhancing nutritive value of food: concept, conserving food nutrients, germination and fermentation, supplementation and combination, fortification

UNIT II

15 hours

Balanced Diet: Concept, food pyramid, dietary guidelines, minimum dietary diversity

Food Selection for health and fitness: concept, food groups and selection from each food group, nutrient profiling of packaged foods, HFSS food

Meal planning and minimizing food wastage: concept, principles, advantages and factors affecting food planning, RDA, portion size, minimizing food wastage

UNIT III

15 hours

Assessment of Nutritional Status: Concept and type of assessment, anthropometry, biochemical, clinical and dietary assessment

Lifestyle for health and wellness: Dietary, physical activity and exercise, sleep, stress, addiction

Personal Hygiene: Concept, WASH, GHP

Common Health Problems: Concepts – Disease, Infectious and non-infectious diseases, prophylaxes, immunity, causes and preventive measures, infectious diseases, non-infectious diseases

UNIT IV

12 hours

Food Labels: understanding and interpreting – concept, mandatory and non-mandatory labeling requirements, interpreting food labels

Food Safety: concept, food quality, food contamination, food spoilage, health hazards, safe handling of food

Learning Outcomes: Students shall

- Determine and translate nutrient needs into menus for individuals and groups across the lifespan, in diverse cultures and religions, and for different income levels.
- Will develop the capacity to collect pertinent information for comprehensive nutrition assessments based on different indicators at individual and community level.
- Summarize health promotion and disease prevention theories and guidelines and explain the role of food and nutrition in promotion of a healthy lifestyle
- Will able to read and understand the concept of food labeling and can understand the flaws in effective nutrition labeling practiced in the food items.
- Will learn about the basics of food safety and safe handling of food to reduce the contamination of food at different production level from farm to the fork.

REFERENCES

1. Debby Newslow, 2013, Food Safety Management Programs: Applications, Best Practices and Compliance (1st Edition). CRC Press Publication.
2. Mahtab S. Bamji, Kamala Krishnaswamy and G. N. V. Brahmam, 2016, Textbook of Human Nutrition, Oxford and IBH Publisher.
3. ShakuntalaManay, N. and Shadaksharaswamy, M. Foods: Facts and Principles (3rd Edition).
4. Srilakshmi, B. (2018), Food Science (7th Edition), New Age International (P) Limited, New Delhi.
5. Srilakshmi, B., 2018, Nutrition Science, New Age International Publication.
6. Norman G. Mariott and Robert B Gravani, 2006, Principles of Food Sanitation (5th Edition), Springer Publiher.
7. Srilakshmi, B. (2014), Dietetics (7th Edition), New Age International (P) Limited, New Delhi.
8. SunetraRoday, 2011, Food hygiene and Sanitation with Case Studies (2nd Edition), Tata McGraw Hill Education Pvt. Ltd.

FPN – OET 4.5: INDIAN TRADITIONAL FOODS

Theory

52 hours

Objectives

- To create understanding on historical and cultural perspectives of Indian foods
- To enlighten on the traditional methods of food processing
- To acquire basic information on the traditional foods of different regions of India

UNIT I

17 hours

Historical and cultural perspectives

Food as source of physical sustenance, food as religious and cultural symbols; Importance of food in understanding human culture - variability, diversity, from basic ingredients to food preparation; Impact of customs and traditions on food habits, heterogeneity within cultures (social groups) and specific social contexts - festive occasions, specific religious festivals, mourning etc. Kosher, Halal foods; foods for religious and other fasts.

UNIT II

18 hours

Traditional methods of food processing

Traditional methods of milling grains – rice, wheat and corn – equipments and processes as compared to modern methods; Equipments and processes for edible oil extraction, paneer, butter and ghee manufacture; Comparison of traditional and modern methods; Traditional methods of food preservation – sun-drying, osmotic drying, brining, pickling and smoking.

UNIT III

17 hours

Traditional food patterns

Typical breakfast, meal and snack foods of different regions of India; Popular regional foods; Regional foods that have gone Pan Indian / Global; Traditional fermented foods, pickles and preserves, beverages, snacks, desserts and sweets, street foods;

Learning outcomes

After completion of the course, the students will able to

- Describe the significance of Indian foods in adding flavor to tradition and culture
- Able to list the foods of different regions of India

Textbooks and Reference Materials:

1. Taylor, S. C., 2005, Food Culture in India. Greenwood Press.
2. Ruth, N. D., 2001, Indian Food Science: A Health and Nutrition Guide to Traditional Recipes. East West Books.

FPN – SCT 1.6.2: NUTRITION AND PHYSICAL FITNESS

Theory

52 Hours

OBJECTIVES

Integration and application of principles of sound nutrition and physical activities to optimize the physiological, psychological, and social lifelong development of the individual and use of scientific principles and current technological advances to help assess and evaluate physical fitness, body composition, dietary patterns, energy expenditure, and their interrelationships.

Unit I: INTRODUCTION TO PHYSICAL FITNESS

16 hours

Definition and Components- Health related and Skill related. Assessment of Physical Fitness: Anthropometry, Body composition, Cardio-respiratory, endurance, muscular fitness, musculoskeletal flexibility Benefits of physical fitness on wellness dimensions, Healthy life style: strategies ,factors that promote life style change, Nutrition, Exercise, Physical Fitness and Health – their interrelationship, Factors affecting Physical Work Capacity and Work Efficiency. Alternative system for health and fitness: Ayurveda, Yoga , Meditation, Vegetarianism.

Unit II: EFFECTS OF EXERCISE:

12 hours

Sports Physiology, Types of exercises and its impact on fitness, Effect of exercise on musculoskeletal system, Muscle fatigue , prevention and recovery, Effect of exercise on cardiac cycle, cardiac output, blood pressure, Athlete heart, Index of training, importance of heart rate monitoring, Effect of exercise on respiratory system,

Unit III: DIETARY INTAKE AND OPTIMAL EXERCISE PERFORMANCE:

12 hours

Nutritional Requirement of sports person as compared to normal active person. Factors affecting fuel utilization, Energy substrate for activities of different intensities and duration, aerobic and anaerobic activities. Carbohydrate as a energy source for sports and exercise. Role of fat as energy source for sports and exercise, Protein and amino acid requirements for sport and exercise. Important micronutrients for exercise. B complex vitamin and specific minerals, Exercise induced oxidative stress and role of antioxidants. Fluid balance in sports : importance , symptoms and prevention of dehydration,

Unit IV: SPORT SPECIFIC NUTRIENT REQUIREMENT

12 hours

Sport specific requirement of nutrient: diet manipulation. Pre game and Post game regime, Special Nutrition for Female Athlete, Menstrual problem of female athlete, athlete triad, Chronic dieting and eating disorder- sports anaemia. Dietary supplements and ergogenic aids (nutritional. Pharmacological and physiological).

LEARNING OUTCOMES:

Upon successful completion of the course students shall be able to:

1. Explain how the principles of fitness and nutrition (such as body composition, energy intake, energy expenditure, and the acute and chronic physical changes related to exercise and nutrition) complement each other in helping to develop physiological well-being and overall health.
2. Explain how the principles of fitness and nutrition (such as setting realistic short-term behavior change goals and the relationship of exercise and diet to stress reduction) complement each other in helping to develop psychological well-being and overall health.
3. Identify some of the social and cultural influences on food habits and exercise/activity patterns.

BOOKS RECOMMENDED

1. Bamji S.M., Rao N P and Reddy V.1998. Text book of Human Nutrition. Oxford and IBH publishing C. New delhi.
2. Fink H.H.,Mikesky E.A and Burgoon A.L.2012.Practical Applications in sports Nutrition.3 rd ed. Jones and Barlett Learning, USA.
3. Burke Louse and Deakin Vicky (2006) Clinical sports Nutrition.
4. Ira Wolinsky (Ed) (1998): Nutrition in Exercise and Spots,3rd Edition, CRC Press.

SUGGESTED REFERENCES FOR ADDITIONAL READING

1. Mahan, L. K &Ecott- Stump, S. (2000): Krause's Food, Nutrition and Diet Therapy
2. Shils, M.E., Olson,J.A., Shike,N. and Ross, A. C(Ed) (1999): Modern Nutrition in Health & Disease,9th Edition, Williams& Wilkins.
3. Mc Ardle, W.Katch, F. and Katch, V.(1996) Exercise Physiology. Nutrition and Human Performance, 4th edition, Williams and Wilkins, Philadelphia.
4. Gibney J.M. Macdonald A. I and Roche M. H.2003. Nutrition and Metabolism. Blackwell publishing.
5. Nutrition for Health, Fitness and Sports, eight edition, by Melvin Williams, 2007, McGraw-Hill.

FPN – SCT 2.6.1: TECHNICAL WRITING SKILLS

Theory

Course Objectives

- This course enables to identify and model effective scientific and technical writing which are frequently required in a variety of careers.
- To develop effective communication strategies for a variety of audiences/ target groups such as professional peer audience and public audiences.
- To demonstrate the effective writing skills for scientific journal or dissertation and the communication principles encouraged by professional writers.
- To improve the ability of reading and understanding of scientific research papers and review articles together with research design and analytical measures taken in a research.

UNIT 1: Technical writing communication 13 hours

- Various forms of scientific writings- Dissertation, Original Research Article, Technical papers, review papers, manuals, and Reports
- Theoretical basics and grammar of writing introduction, and methodology in a paper
- Theoretical basics and grammar of writing results, and discussion in a scientific paper
- Basics of Meta analysis and systemic review process of the scientific journals.
- Citation and reference styles (APA, Vancouver, Harvard, Chicago, MLA, etc)

UNIT 2: Research- Types and measures

13 hours

- Definition, scope and role of biostatistics, biomedical and social research in the life sciences, Need for research and challenges in life science research
- Data: Types of data and its presentation, Level of measurements
- Types of research and techniques
- Statistical measures: Measures of central tendencies, Measures of dispersion, different types of distributions (Standard, Binomial, Poisson) and basics of probability theory.

UNIT 3: Research- Designs and Measures

13 hours

- Research process/steps
- Different types of research design (Cross-sectional study, Case-control study, Cohort study, Ecological studies, Observational studies, Randomized control trial, etc)
- Basics on vital statistics (Prevalence, incidence, Mortality and Morbidity rates)
- Ethical issues in biomedical research

UNIT 4: Data Collection

13 hours

- Sampling fundamentals and designs: Define population, sample, characteristics of a good sample design; Sampling design and methods: (probability and Non probability); Sample size and errors in sampling

- Methods of data collection: Quantitative methods (interview method, observation method and questionnaire method) and Qualitative methods (case study and focus group discussion)

Practicals

1. Word format and structure of theses, technical papers, reviews, manuals

1. Various parts of thesis and research communications (title page, authorship contents page, preface)
2. Various parts of thesis and research communications (introduction, review of literature, material and methods, experimental results and discussion)
3. Writing of abstracts, summaries, précis, citations etc
4. Commonly used abbreviations in the theses and research communications
5. Illustrations, photographs and drawings with suitable captions
6. Pagination, numbering of tables and illustrations
7. Writing of numbers and dates in scientific write-ups
8. Editing and proof-reading
9. Writing of a review article

Learning Outcomes

- Participate actively in writing activities that model effective scientific and technical writings that use appropriate formats and conventions derived from individual disciplines.
- Understand how to apply scientific information and knowledge in practical documents related to nutrition research
- Design and produce a scientifically sound research project appropriate to the student's major and/or career interests.
- Write scientific papers according to professional guidelines.
- To know the different types of technical writing communications, data collection and research designs and measures.
- To be familiar with writing chapters/ parts of a thesis and dissertation where they can collect, analyze, document and report research clearly

Suggested Reading:

1. Creswell, W. J., 2014, Research design: qualitative, quantitative, and mixed methods approaches. Fourth Edition, Sage Publication.
2. Kothari, C. R. And Garg, G., 2014, Research methodology: methods and techniques. Third edition, New age international publication.
3. Sharma, S.D., A Text book of Scientific and Technical Writing. Vikas publication, Delhi.

FPN – SCT 2.6.2: MATERNAL AND CHILD NUTRITION

Theory

52 Hours

Course Objectives

- Describe the role of maternal and child nutrition in the lifelong health of the population.
- To understand the physiological and metabolic adaptations of pregnancy and lactation. Access to the resources for assessment, assurance, and policy development for maternal and child nutrition
- This course provides a comprehensive introduction to the nutritional requirements and assessment of the nutritional needs during pregnancy, lactation, infancy, and childhood at the individual and community level.
- Evaluate the effectiveness of nutrition and other programs and interventions aimed at improving maternal and child nutrition in low-income countries.

UNIT I – Maternal Nutrition

14 hours

- Importance of maternal nutrition
- Current scenario of maternal and child nutrition in India, Vital Statistics
- Physiological and psychological changes during pregnancy
- Nutritional needs during pregnancy
- Factors affecting the outcome of pregnancy
- Pregnancy in special conditions
 - Adolescent pregnancy
 - Pregnancy and AIDS
 - Intrauterine Growth Retardation (IUGR)
 - Congenital malformations
 - Foetal Alcoholic Syndrome
 - Gestational Diabetes Mellitus
 - Pregnancy Induced Hypertension
- Complications of Pregnancy and its management

UNIT II: Lactation

12 hours

- Development of mammary tissues and role of hormones
- Physiology of lactation
- Nutritional needs of lactating mothers
- Composition of human milk
- Effect of nutritional status of lactating mother on quantity and quality of breast milk
- Breast feeding: factors affecting breast feeding, Breast feeding support and counseling, role of BPNI in promotion of breast feeding in India, World Breast Feeding Week

UNIT III – Infancy

12 hours

- Growth and development during infancy
- Immunization Schedule
- Nutrition requirements during infancy
- Food requirements and modification of foods for infants
- Pre-term, LBW infants: implications for feeding and management
- Weaning and **Recent guidelines in infant feeding and complimentary feeding**

UNIT IV – Childhood

14 hours

- Growth and development of children
- Growth monitoring using growth charts
- Nutritional requirements of pre-school and school going children
- Nutritional challenges and nutrition for child with special need
- Overview of maternal and child nutrition policies and programmes in India

Practicals

1. Planning and evaluation of balanced diet for pregnant and lactating mothers
2. Preparation of a database on prevailing supplementary and weaning practices: planning, collecting data, analyzing data, writing report;
3. Preparation of low cost complementary foods;
4. Analysis of weaning/complementary foods for its nutrient content
5. Collection and analysis of immunization practices followed by mothers
6. Assessment of nutritional status of pre-school children using growth charts
7. Planning and Preparation of nutri-rich, low cost packed lunch for school children
8. Development of educational materials for pregnant and lactating mothers
9. Evaluation of ongoing maternal and child nutrition programmes of India
10. Visit to local hospitals (OBG dept.) and Anganwadi centers

Learning outcomes

- To know the importance of maternal nutrition, factors affecting the pregnancy outcome as well as the complications during pregnancy.
- To have knowledge of physiological and metabolic adaptations during pregnancy and lactation.
- Will know the growth and development and feeding practices of infant and childhood.

- To be scientifically knowledgeable about the nutritional requirements during pregnancy, lactation, infancy and childhood.

Suggested Reading

1. B. Srilakshmi, 2014, Dietetics (7th Edition). New Age International Publishers, New Delhi
2. Joshi Shubhangini, A., 2017, Nutrition and Dietetics. McGraw Hill Education Publication.
3. Judith E. Brown, 2016, Nutrition Through the lifecycle (6th Edition). Wadsworth Publishing house.
4. Judith Sharlin and Sari Edelstein, 2010. Essentials of Life Cycle Nutrition. Jones and Bartlett Learning.
5. Jyotsana Gupta, 2008, Child Nutrition. Rajat Publications, New Delhi.

FPN – SCT 3.5.3: NUTRITION EDUCATION AND COUNSELING

Theory

52 hours

Objectives:

1. To reinforce specific nutrition-related practices or behaviors to change habits that contributes to poor health.
2. Helps to learn new information about nutrition and to develop the attitudes, skills and confidence that they need to improve their nutrition practices.

UNIT I

10 hours

Nutrition education: Definition, objectives and importance

Nutrition Counseling: Definition, concept, the role of clinical dietitian,

Nutritional problems and identification of target groups. Imparting nutrition education through different communication techniques for individuals, group and mass contact programmes. Developing messages for imparting nutrition education.

UNIT II

15 hours

Factors to be considered for counseling: Nutritional and health conditions, including body care, skin, hair, face, hands, feet etc. Psychological conditions, food allergies, aging, gender related and other problems. Techniques for development of nutrition educational material and aids. Nutrition counselling for vulnerable groups and geriatrics. Counselling for dietary management of underweight, over weight, fever, diabetes, CVD, GIT, Liver and renal disorders. Nutrition and diet counselling for arthritis, cancer and gout. Planning effective counselling and nutrition education for selected groups.

UNIT III

15 hours

Assessment component: Methods of interview – verbal and nonverbal techniques. Counseling models – data analysis (dietary, biological, environmental, behavioral data).

Planning component: Designing of counseling plans – goals & objectives, classifying objections, resource planning – client care plan and designing evaluation instruments.

Implementation component: counseling the client/patient – client concurrence, co-ordination of care plans-the provision of learning experience.

Evaluation component: Measuring the success of performance of client and evaluating the counseling process.

UNIT IV

12 hours

Hands on experience: Preparation of counseling aids for any two disease conditions and conduct counseling sessions

Learning outcomes:

Students will be able to demonstrate a variety of communication strategies in nutrition and food education emphasizing information technology

- Produce oral and written communications for a group education session
- Interview individuals for diet histories
- Counsel individuals

References

1. Text book of Dietetics, B srilaksmi
2. Charley, H. (1982): Food Science (2nd edition), John Wiley & Sons, New York.
3. Potter, N. and Hotchkiss, J.H. (1996): Food Science, Fifth edition CBS Publishers and Distributors, New Delhi.
4. Belitz, H.D. and Grosch, W (1999) Food Chemistry, (2nd edition), Springer, New York.
5. Abers, R.J. (Ed) 1976) Foams, Academic Press, New York.

FPN – SCT 4.4.1: FOOD QUALITY, SAFTY AND CERTIFICATION

Theory

52 hours

Course objectives:

1. To provide fundamental theoretical concepts on food safety systems; technical knowledge for identifying food safety problems and give solutions and to build confidence among the students to handle the food safety projects in food industries industries.
2. More exposure and awareness on food safety systems in Food industries
3. They can easily identify the sources for food standards, regulations and specifications prescribed by different certificate bodies
4. They can implement strong control systems through different techniques

UNIT I

10 Hours

Concept and meaning of Food quality and food Safety, Importance of quality control and assurance, food laws and regulations. National and international food laws, Governing bodies. Application and specifications for food standards, food products, additives, preservatives, colouring agents, emulsifiers, stabilizers and antioxidants, Natural toxins.

UNIT II

15 Hours

Methods/techniques for assessment of quality of different foods. Safety aspects of water and beverages such as soft drinks, tea, coffee, cocoa, Safety assessment of food contaminants and pesticide residues

UNIT III

15 Hours

Quality assurance - Total quality management: GMP, GHP, GLP, GAP, sanitary and hygienic practices. Hazard analysis and critical control point: quality manuals, documentation and audits. Nutritional labeling, bar coding, meaning and importance

UNIT IV

12 Hours

Food adulteration: common adulterant in food; simple screening, detection techniques and control of food adulteration. Municipal health services, Prevention and control of food, water and air borne diseases.

Practicals

1. PFA, FPO, Agmark, BIS and HACCP for common foods: Cereals and flours, Pulses, nuts and oilseeds, Fruits and vegetables, Oil, butter, ghee, vanaspati and other fats, Milk and milk products, Sugar, jaggery and miscellaneous foods, Meat, fish and poultry, Eggs

3. Physical and chemical methods/techniques for assessment of food quality.
4. Quality evaluation of processed foods with cereal, pulse, vegetable, fruit, milk, milk products, meat, fish and poultry as main component by chemical and sensory methods
5. Market survey of processed foods with reference to food labeling
6. Visit to Consumer Forum/Food Quality Laboratory
7. Food adulteration tests for different foods

Learning outcome: Students shall

1. Develop a HACCP plans for different food industries
2. Learn HACCP certification
3. Understand laws and regulations governing food safety principles (FSMA, HACCP)
4. Understand industry food safety requirements and certifications: organic, halal, kosher etc.
5. Understand auditing, and different auditing schemes, and be able to complete internal (first party) audits

References

1. Handbook of Analysis and Quality Control for Fruit and Vegetable Products (English, Hardcover, Ranganna S.)
2. Quality Control in the Food Industry, Volume 2 edited by S Herschdoerfer