SCHOOL OF APPLIED HUMAN SCIENCES

KENYATTA UNIVERSITY

DEPARTMENT OF FOOD, NUTRITION AND DIETETICS

DIPLOMA IN FOOD, NUTRITION AND DIETETICS

AUGUST 2014

DIPLOMA IN FOOD, NUTRITION AND DIETETICS

1. PREAMBLE

In Sub-Saharan Africa, disease and malnutrition are high and there is need for feasible and effective intervention programmes. In view of this, the government in its policy framework has recognized the role of health and nutrition in the well being of the population and incorporated them into its development programmes. Nutrition and health has therefore become a very important aspect of development, necessitating the training of professionals in the field of nutrition.

2. RATIONALE

The emerging nutrition and health problems pose a need to offer specialized training in the area of nutrition and health in order to offer appropriate advice and services. Currently, Sub-Saharan Africa needs more trained expertise in this area to serve the diversified public health and nutritional needs and, therefore, the need for this programme. Through teaching, research and service the department will train manpower that has the capacity to deal with emerging nutrition and health demands and hence bridge the existing programmes militating against optimal nutrition and health.

3. VISION

To train highly qualified professionals in field of Food, Nutrition and Dietetics for improved livelihoods.

4. MISSION

The mission of the programme is to provide qualified professionals in the area of Food, Nutrition and Dietetics through teaching, research and community outreach.

5. OBJECTIVES

The objectives of the programme are to;

1. Train students in planning, implementation and evaluation of Food, Nutrition and Dietetics related programmes with emphasis in emergency situations
2. Equip students with knowledge and skills on nutrition assessment and diagnosis to make appropriate recommendations for intervention.
3. Enable the students recognize importance of collaboration with stakeholders in nutrition related programmes such as government ministries and non-governmental organizations.
4. Offer training that serves as a foundation for further studies and research.
5. Offer training that equip students with innovative and entrepreneurial skills in area of food, nutrition and dietetics.

6. ENTRY REQUIREMENTS

6.1 Candidate must satisfy the minimum entry requirement for Kenyatta University for diploma courses of mean KCSE grade C

6.2 In addition candidates must have a grade of C in English, Biology/ Biological Sciences and Chemistry/ Physical sciences and C- in any of the following subjects Physics, Mathematics, Home Science or Agriculture

6.3 A mean grade C- with a certificate in Nutrition and Dietetics from a Kenya Nutritionists and Dieticians Institute (KNDI) recognized institution, and must be registered by KNDI or by equivalent bodies for international students.

7. DIPLOMA STRUCTURE

7.1 The Department of Food, Nutrition and Dietetics shall offer Diploma in Food, Nutrition and Dietetics in line with Kenya Nutritionists and Dieticians Institute.

7.2 In order to graduate with a Diploma in Food Nutrition and Dietetics, the candidate must have done and passed 42 core units including practicum. First Level 14 units, Second Level 14 units and Third Level 14 units. The student should study a minimum of 2970 hours. A theory unit will consist of 15 weeks, 3 hours per week, 45 hours in total per semester. A practical unit will be 5 hours a week, 72 hours in total per semester.

7.3 The programme shall be offered in the following modes of study: Full Time and Institutional Based Programme (IBP).

7.4 In order to qualify for KNDI registration, graduates are required to undertake a 6 month internship, after graduation.

8. DURATION

The Diploma in Food, Nutrition and Dietetics programme for fulltime students shall be offered for 6 semesters. A practicum of a minimum of 3 months shall be undertaken upon successful completion of the course work before a student can graduate.

9. EXAMINATION

9.1 University regulations shall apply.

9.2 All units shall be examined at the end of the semester/session in which they are taken comprising of at least two CATs constitute 40% and examination of 60%.

9.3 Evaluation Criteria:

Final grading shall be as follows:

Distinction	(70% and above)
Credit 1	(60 -69%)
Credit 2	(50 – 59%)
Pass	(40 – 49%)
Fail	below 40%

DIPLOMA IN FOOD NUTRITION AND DIETETICS COURSE STRUCTURE

Year I		
Semester I		
Course Code	**Course title**	**Hours**
HFN 021	Introduction to Information Communication Technology	72 hours
HFN 022	Basic Mathematics	45 hours
UCU 100	Communication Skills	45 hours
HFN 024	General Microbiology and Parasitology	72 hours
HFN 025	Introduction to Food, Nutrition and Dietetics	45 hours
HFN 026	Physical Sciences	72 hours
HFN 027	Principles of Human Nutrition	45 hours
Semester II		
Course Code	**Course title**	**Hours**
HFN 028	First Aid	72 hours
HFN 029	Introduction to Nutrition and Behavioral Sciences	45 hours
HFN 030	Human Anatomy and Physiology	72 hours
HFN 031	Introduction to Nutrition Epidemiology	45 hours
HFN 032	Principles of Primary Health Care	45 hours
HFN 033	Life Skills	72 hours
HFN 034	Introduction to Food Microbiology	72 hours
Year II		
Semester I		
Course Code	**Course title**	**Hours**
HFN 035	Introduction to Organic Chemistry	72 hours
HFN 036	Nutrition in the Lifecycle	45 hours
HFN 037	Introduction to Nutritional Anthropology	45 hours
HFN 038	Food Security	72 hours
HFN 039	Communicable and Non-communicable Diseases	45 hours
HFN 064	Foundations of Food Preparation	72 hours
HFN 065	Nutrition Assessment and Surveillance	72 hours
Semester II		
Course Code	**Course title**	**Hours**
HFN 066	Introduction to Maternal and Child Nutrition	45 hours
HFN 067	Diet Therapy I	45 hours
HFN 068	Principles of Food Processing Preservation And Storage	90 hours
HFN 069	Basic Biochemistry	45 hours
HFN 070	Introduction to Nutrition in Emergencies	45 hours
HFN 071	Introduction to Basic Biostatistics	45 hours
HFN 072	Nutrition and HIV/Aids	45 hours
Year III		
Semester I		

Course Code	Course title	Hours
HFN 073	Food Hygiene and Safety Legislation	45 hours
HFN 074	Nutrition Education	72 hours
HFN 075	Nutrition Intervention	45 hours
HFN 076	Nutrition Information Systems	45 hours
HFN 077	Legal Aspects in Food, Nutrition and Dietetics	45 hours
HFN 078	Meal Management and Service	72 hours
HFN 079	Diet Therapy II	45 hours
Semester II		
Course Code	**Course title**	**Hours**
HFN 080	Diet Therapy III	45 hours
HFN 081	Community Partnership, Programme Planning and Evaluation	45 hours
HFN 082	Entrepreneurship in Foods, Nutrition and Dietetics	45 hours
HFN 083	Principles of Dietetics	45 hours
HFN 084	Introduction to Research Methodology	45 hours
HFN 085	Principles of Nutrition Counseling	72 hours
HFN 086	Practicum	480 hours

CONTACT HOUR DISTRIBUTION

Code	Unit Name	ID	Lecture hrs	Practical hrs	Total Semester Contact Hours plus two hours Exams	Total no of Weeks	Total Hours
HFN 021	Introduction to Information Communication Technology	PT	2	3*	72	15	45 hours
HFN 022	Basic Mathematics	T	3	-	45	15	45 hours
UCU 100	Communication Skills	T	3	-		15	45 hours
HFN 024	General Microbiology and Parasitology	PT	2	3*	72	15	45 hours
HFN 025	Introduction to Food, Nutrition and Dietetics	T	3	-	45	15	45 hours
HFN 026	Physical Sciences	PT	2	3*	72	15	45 hours
HFN 027	Principles of Human Nutrition	T	3	-	45	15	45 hours
HFN 028	First Aid	PT	2	3*	72	15	45 hours
HFN 029	Introduction to Nutrition and Behavioral Sciences	T	3	-	45	15	45 hours
HFN 030	Human Anatomy and Physiology	PT	2	3*	72	15	45 hours
HFN 031	Introduction to Nutrition Epidemiology	T	3	-	45	15	45 hours
HFN 032	Principles of Primary Health Care	T	3	-	45	15	45 hours
HFN 033	Life Skills	PT	2	3*	72	15	45 hours
HFN 034	Introduction to Food Microbiology	PT	2	3*	72	15	45 hours
PT = Practicals T= Theory	*Laboratory practical per week; ** Health facility practical per week; *** Field work per semester						
Note: A unit is defined as an equivalent of 1 lecture or 2 hours of tutorial or 3 hours practical. Each unit will be offered as 3 hours minimum							

Code	Unit Name	ID	Lecture hrs	Practical hrs	Total Semester Contact Hours plus 2 hours Exams	Total no of Weeks	Total Hours
HFN 035	Introduction to Organic Chemistry	PT	2	3*	72	15	45 hours
HFN 036	Nutrition in the Lifecycle	T	3	-	45	15	45 hours
HFN 037	Introduction to Nutritional Anthropology	T	3	-	45	15	45 hours
HFN 038	Food Security	PT	3	40***	72	15	45 hours
HFN 039	Communicable and Non-communicable Diseases	T	3	-	45	15	45 hours
HFN 064	Foundations of Food Preparation	PT	2	3*	72	15	45 hours
HFN 065	Nutrition Assessment and Surveillance	PT	3	40***	72	15	45 hours
HFN 066	Introduction to Maternal and Child Nutrition	T	3	-	45	15	45 hours
HFN 067	Diet Therapy I	T	2	6**	45	15	45 hours
HFN 068	Principles of Food Processing Preservation And Storage	PT	2	3*	72	15	90 hours
HFN 069	Basic Biochemistry	T	3	-	45	15	45 hours
HFN 070	Introduction to Nutrition in Emergencies	T	3	40***	45	15	45 hours
HFN 071	Introduction to Basic Biostatistics	T	3	-	45	15	45 hours
HFN 072	Nutrition and HIV/Aids	T	3	-	45	15	45 hours
PT = Practicals T= Theory		*Laboratory practical per week; ** Health facility practical per week; *** Field work per semester					
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HFN 073	Food Hygiene and Safety Legislation	T	3	-	45	15	45 hours
HFN 074	Nutrition Education	PT	2	3**	72	15	45 hours
HFN 075	Nutrition Intervention	T	3	40***	45	15	45 hours
HFN 076	Nutrition Information Systems	T	2	3*	45	15	45 hours
HFN 077	Legal Aspects in Food, Nutrition and Dietetics	T	3	-	45	15	45 hours
HFN 078	Meal Management and Service	PT	3	3*	72	15	45 hours
HFN 079	Diet Therapy II	T	2	6**	45	15	45 hours
HFN 080	Diet Therapy III	T	2	6**	45	15	45 hours
HFN 081	Community Partnership, Programme Planning and Evaluation	T	3	-	45	15	45 hours
HFN 082	Entrepreneurship in Foods, Nutrition and Dietetics	T	3	-	45	15	45 hours
HFN 083	Principles of Dietetics	T	2	3*	45	15	45 hours
HFN 084	Introduction to Research Methodology	T	3	-	45	15	45 hours
HFN 085	Principles of Nutrition Counseling	PT	2	3*	72	15	45 hours
HFN 086	Practicum	P		8	480	12	480 hours
	Total Number of Hours				**3029**		
PT = Practicals T= Theory	*Laboratory practical per week; ** Health facility practical per week; *** Field work per semester						
Note: A unit is defined as an equivalent of 1 lecture or 2 hours of tutorial or 3 hours practical. Each unit will be offered as 3 hours minimum							

COURSE DESCRIPTIONS

YEAR I, SEMESTER I

HFN 021: Introduction to Information Communication Technology (NEW)

Introduction to computers and operating system; history of computers. Terminology used in computing. Personal Computer; major hardware and software components, specifications of Personal Computers. Creating files, folders and storage devices. Fundamentals of Microsoft Office; applications in Word, Excel spreadsheet, Database Management Systems, graphics (Adobe Photoshop) and multimedia. Database administration and security. Internet application; electronic mail; searching; moving files; the World Wide Web and Internet Explorer. Computer networks; LAN, WAN and Wi-Fi, Bluetooth. Computer and society; security issues, computer viruses, use and misuse of computers. Computer language. Creating computer applications. Adopting to emerging trends in computer technology. Practicals; 3 hours per week practical experience in a computer laboratory.

Course objectives:

By the end of this course the learner should be able to:

- Explain basic computer terminologies and application of computers in modern society.
- Apply computer skills in performing basic tasks using Microsoft Office.
- Access educational materials in their area of study using the internet.

References

1. Wang, W. and Perker R. C (2000). Office 2000 for windows. New York: Microsoft.
2. Connie M. and Dolores W (2009). Computer literacy basic: A comprehensive guide to IC3 basics series course technology.
3. Walters E.G (2000) The Essential Guide to Computing: The Story of Information Technology Prentice Hall

HFN 022: Basic Mathematics (NEW)

Introduction; quadratic functions and equations, surds, logarithms and indices. Permutations and combinations. Series; finite, infinite, arithmetic, geometric and binomial (positive integral index only) including applications to compound interest, approximations, remainder theorem and its application to solution of factorial and polynomial equations. Trigonometry; trigonometric functions including their graphs and inverses in degree and radian measure. Sine and cosine formulae. Statistics; collection and representation of data and measures of central tendency and variability by graphical calculation methods. Probability; classical and axiomatic approaches to probability, compound events, conditional probability, tree diagrams and binomial distribution.

Course objectives:

By the end of this course the learners should be able to:

- Perform basic mathematical calculations.
- Apply appropriate mathematical skills in solving problems in food, nutrition and dietetics.

- Use appropriate statistical techniques to solve related problems in food, nutrition and dietetics.

References

1. Barnett, R.A, Ziegler M.R, Byleen K.E (2010). College Mathematics for Business, Economics, Life Sciences and Social Sciences. 12th ed. Barnett.
2. Gay M.E (2010) Basic College Mathematics (4th Edition) Pearson; 4th ed
3. Bittinger M.l (2005) Basic Mathematics, 10th Edition (Bittinger Developmental Mathematics Series) Addison Wesley; 10th ed
4. Tussy A.S, Gustafson R.D, Koenig D (2010). Basic Mathematics for College Students Cengage Learning; 4th ed.

HFN 023: Communication Skills (NEW)

Reading skills; skimming, scanning, intensive and critical reading, interpretation of non-verbal information, content tables and indices. Listening skills; in lectures, predicting structure of a lecture, understanding gist, recognizing change of topic and following tutorial discussions. Library skills; accessing library collections and utilizing library help services. Collecting and abstracting information; note-taking, note-making, classification and storage of information. Speaking skills; in tutorials, presenting a paper, seeking clarification and explanation, giving and justifying opinions and agreeing. Writing skills; analyzing tasks, planning, drafting and editing various types of writing, quoting and paraphrasing, indicating references, footnotes and bibliographies. Study techniques; planning work, organizing, storing and retrieving information, preparing for and writing examinations.

Course objectives:

By the end of this unit, the learner should be able to:

- Understand the importance of effective communication
- Comprehend the concepts and methods of effective communication
- Communicate effectively in a given situation
- Store and retrieve information
- Appreciate the barriers to communication

References

1. McKay M, Davis M, Fanning P(2009) Messages: The Communication Skills Book New Harbinger Publications; 3rd ed
2. Becker E.F, Wortmann J (2009) Mastering Communication at Work: How to Lead, Manage, and Influence McGraw-Hill; 1st ed
3. Liptak J.J Leutenberg E (2008) The Communication Skills Workbook Whole Person Associates, Inc; Spi edition

HFN 024: General Microbiology and Parasitology (NEW)

Historical background. General characteristics and classification of bacteria, microorganisms, fungi and viruses. Microbial growth patterns. Isolation and identification of bacteria, fungi and viruses. Microbial physiology and micro-organism as pathogens to man. Food-borne eukaryotic parasites. Helminthes, arthropods; morphology, classification, identification and life cycles of parasites and hosts/parasite relationships. Uses of micro-organism in food production, processing and preservation and introduction to food biotechnology. Practicals; 3 hours per week practical in a laboratory.

Course objectives:
By the end of this course the learner should be able to:-

- Explain the role and significance of micro-organisms and parasites in food.
- Describe the intrinsic and extrinsic parameters of foods that affect microbial growth.
- Culture, isolate and classify micro-organisms and parasites in food.

References

1. Greenwood D. et al.2002. Medical microbiology.6th ed. Churchill Livingstone
2. Willey J, Sherwood L, Woolverton C (2008)Prescott's Principles of Microbiology McGraw-Hill Science/Engineering/Math; 1 edition
3. Larry R , Janovy J (2008) Foundations of Parasitology McGraw-Hill; 8th ed

HFN 025: Introduction to Food, Nutrition and Dietetics (NEW)
Introduction to food, nutrition and dietetics as a profession. History of nutrition and dietetics. Career opportunities, roles, responsibilities in the field of nutrition and dietetics for diploma holders. The relationships within the profession and interrelationships with other health professions. Contemporary issues in food, nutrition and dietetics. Food, nutrition and dietetics inter and intra professional relationships with other discipline**.**

Objectives:
By the end of the course the learner will be able to:

- Understand the field of food, nutrition and dietetics.
- Understand the history of nutrition
- Identify career opportunities available in the field of food, nutrition and dietetics.
- Learn the professional conduct of nutritionists and dieticians.

References:

1. Capenter, K.J (2003). A short history of nutritional sciences: Part 1, 2 and 3. *American Journal of Nutritional Sciences*. 133:975-984;638-645;3023-3032.
2. Carpenter E (2008) Understanding the Basics of Nutrition Book Surge Publishing
3. Tree .G (2013)Kick Start your Nutrition Career Essentials for Health; 1st ed

HFN 026: Physical Sciences (NEW)
Introduction; measurements and unit conversions. Laws governing motions. Gravitational interactions. Electromagnetic interaction and application of the laws of force. Motion and forces in fluids. Energy conservation. Waves and their properties. Properties of light. Physical properties of matter. Atoms and Molecules. Bonding in metals, alloys and ionic compounds. Covalent and intermolecular bonding. Introduction to radioactivity. Practicals; 3 hours per week in a laboratory.

Course objectives:
At the end of this course the learner should be able to:

- Identify and address their physical science concepts and alternate concepts (misconceptions).
- Attain a general understanding of the basic principles of physics and chemistry.
- Integrate the principles of physics and chemistry into discussions of their practical applications in everyday life including the environment.
- Demonstrate familiarity with general scientific terminology and materials.

References:

1. Hewitt P.G, Suchocki J.A. (2002) Conceptual Physical Science Explorations. Boston, Massachusetts: Addison Wesley,
2. Tillery.B (2011) Physical Science McGraw-Hill Science/Engineering/Math; 9th ed.
3. Shipman, J. Jerry D.W, Todd A, (2009) Introduction to Physical Science Cengage Learning; 12th ed.
4. Hewit P.G, Suchocki J.A, Hewit L.A (2011). Conceptual Physical Science. Addison-Wesley; 5th ed

HFN 027: Principles of Human Nutrition

Overview of nutrition as a science. Human nutrition concepts and basic principles of nutrition and dietetics with emphasis on different foods, nutrients and their functions. Macronutrients; proteins, lipids, carbohydrates and dietary fibre. Micronutrients; vitamins and minerals. Digestion, absorption, bioavailability and metabolism. Deficiency diseases; manifestations of nutritional deficiency states, short-term and long-term consequences of dietary deficiencies or excesses. Importance of good nutrition. Recommended dietary standards (RDA and RDI). Common nutrition problems; national and global perspectives of nutrition problems, nutrition disorders and their manifestation.

Course objectives:

By the end of this course the learner should be able to:

- Define human nutrition concepts and basic principles of nutrition and dietetics.
- Describe the human dietary requirements
- Describe the nutrition disorders

References:

1. Eastwood, M (2010). Principles of Human Nutrition. Blackwell Publishing 2nd ed.
2. Gibney, M.J., Lanham, S.A., Cassidy, N.A., Vorster, H.H (2009). Introduction to Human Nutrition. 2nd ed. Wiley-Blackwell.
3. Dennis M.M, Robert E.C (2013) Advanced Human Nutrition Jones & Bartlet.
4. Geissler. C, Powers,H (2010) Human Nutrition Churchill Livingstone 12th ed.
5. Whitney E.N, Rolfe S.R (2012) Understanding Nutrition Cengage Learning; 13th ed.

YEAR I, SEMESTER II

HFN 028: First Aid (NEW)

Overview of first aid. Roles and responsibilities of a first aider. The first aid box. Principles of first aid. First aid situations; shock, loss of consciousness, drowning, difficulty in breathing, cuts, infected wounds, burns, broken bones, dislocations, strains and sprains, poisoning, bites and

stings, constipation, stomach problems, emergency problems of the gut, appendicitis and peritonitis. Care of the sick; home based nutritional and psychological support. Link between hospital and home care. Post first aid care. Practicals; 3 hours per week in the skills laboratory.

Course objectives:
By the end of the course, the learner should be able to:

- Handle an emergency and monitor a conscious victim for life- and non life-threatening conditions.
- Prioritize care for life-threatening injuries or sudden illnesses.
- Manage different types of emergencies and injuries.
- Practice basic precautions to reduce the risk of disease transmission and control.

References:

1. Hubbard J (2013) Living Ready Pocket Manual – First Aid: Fundamentals for survival Living Ready.
2. Tao L, Krause K (2011) First Aid Basic Science 2/E (VALUE PACK) First Aid USMLE McGraw-Hill Medical; 2nd ed
3. Tao L, Krause K (2011) First Aid for the Basic Science, General Principles, McGraw-Hill Medical; 2nd ed

HFN 029: Introduction to Nutrition and Behavioral Sciences (NEW)
Introduction to nutrition behavior and psychology; Concepts in nutrition and behavior; brain-behaviour connections; Short-term effects of nutrition on behavior. Effects of the following on brain functioning and the central nervous system; dietary supplements, dietary sugar, caffeine and alcohol. Chronic and acute forms of under nutrition; B vitamins and minerals. Behavioral aspects of overweight and obesity. Eating disorder; aneroxia nervosa, bulimia nervosa, fad diets and binge eating**.**

Course Objectives:
At the end of the course, the students should be able to:

- Describe the effects of nutrition on behaviour.
- Describe the effects of nutrient deficiencies on behaviour.
- Identify nutrition disorders that cause behaviour change.

References:

1. Antony R. P. (2007). *The Science of Social Influence. Advances and future progress*. Psychology Press
2. Gerd B., Michaela W. Gert B. (2002.) *Attitudes and Attitude Change*. Psychology Press
3. Furnham A (2005). *The Psychology of Behaviour at Work* (2nd Ed). Psychology Press
4. O'neal P.W (2007) Motivation of Health Behaviour Nova series 1st ed.
5. Cooper J.O, Heron T.E, Heward W.L (2007) Applied Behaviour Analysis Pearson; 2 ed

HFN 030: Human Anatomy and Physiology
Basic functional structure of the human body as a primate. Functions of the body in relation to nutrition for the following body tissues; epithelial, connective, muscular, nervous, blood and lymph. Physiology of organs and systems; skeletal, muscular, respiratory, circulatory, digestive, endocrine systems and special tissues. Practicals; 3 hours per week in human anatomy and physiology laboratory.

Course objectives:
By the end of the course unit, the learner should be able to:

- Describe the anatomy and physiology of the skeletal, muscular, nervous, endocrine and cardiovascular and lymphatic systems.
- Identify and describe the cell as the basic building block of the body
- Describe the relationship between the functions of different body system in health and Disease.

References:

1. Valerie C. S., Tina S. (2003). Essentials of anatomy and physiology. Philadephia: F.A. Davis Company.
2. Frank H. N, Hansen J.T (2002). Atlas of human anatomy. 3rd ed. ICON Learning Systems
3. Marieb E.N and Hoehn K(2012) Human Anatomy & Physiology Pearson; 9th ed
4. Page M. (2001) Human Body: An Illustrated Guide to Every Part of the Human Body and How It Works DK ADULT; 1st ed.
5. Martini F.H, Nath J.L Bartholomew E.W (2011) Fundamentals of Anatomy & Physiology Benjamin Cummings (9th Edition

HFN 031: Introduction to Nutrition Epidemiology
Definition of epidemiology and epidemiological concepts. Disease occurrence and progression. Measurement of morbidity, mortality and fertility. Sources of epidemiological data. Measures of morbidity, mortality and fertility. Disease causal models; the Person-Time-Place model and Host-Agent-Environment model. Population screening. Epidemiological study designs.

Course objectives:
By the end of this unit the learner should be able to:

- Explain the principles and techniques of epidemiology
- Calculate incidence, prevalence and other outcomes of diseases
- Analyze disease outbreaks and progression

REFERENCES:

1. Willet W. (2012) Nutrition Epidemiology ; Monographs in Epidemiology and Biostatistics. Oxford University Press. 3rd Ed
2. Rotham K J, Greenland S, Modern (2008) Epidemiology Lippincott Williams & Wilkins; 3rd ed .
3. Woodward M (2013) Epidemiology: Study Design and Data Analysis, Chapman and Hall/CRC. 3rd Ed.

HFN 032: Principles of Primary Health Care (NEW)
Definition of Primary Health Care (PHC). Goal of PHC. Key elements of PHC. Origin, organization, strategies, implementation, achievements and constraints. Alma Ata Declaration. Approaches of PHC. Financing and reforms in PHC; community strategy, Community Based Health Care (CBHC) and World Health Organization's goal of health for all. Millennium Development Goals (MDGs). Community resource persons/volunteers roles and training;

Community Health Workers (CHWs) and Community Health Extension Workers(CHEWs). Community-based health services; Bamako Initiative and community-based distribution of contraceptives. Child health; the aims and principles of Extended Programme of Immunization (EPI), cold chain management, the preventable childhood diseases, the vaccines, the national immunization schedule, the Integrated Management of Childhood Illnesses (IMCI) concept and application, Integrated Management of Acute Malnutrition (IMAM), Prevention of Mother to Child Transmission (PMCT) and Baby Friendly Hospital Initiatives (BFHI). Roles of traditional health. Case studies of PHC implementation; Kenya, Uganda, Tanzania, South Africa, Nigeria and Ghana. Field trips; 6 hours per week hands on experience in primary health care in a health facility.

Course objectives:
By the end of this course unit, the learner should be able to:

- Explain the concept of primary health care.
- Apply PHC knowledge and skills in nutrition and dietetics
- Plan, implement and evaluate community projects or programmes

References:

1. Scutchfield F.D, Keck W (2011) Principles of Public Health Practice, Cengage Learning; 3rd ed
2. Kaufman M (2006) Nutrition in Promoting the Public's Health: Strategies, Principles, and Practice Jones & Bartlett Learning; 1st ed
3. Teutsch S.M, Thacker S.B, (2010) Principles and Practice of Public Health Surveillance Oxford University Press; 3 edition

HFN 033: Life Skills (NEW)
Health relationships. Communication and effective interpersonal skills. Foundations for health lifestyles and nutrition. Awareness of and appreciation for human diversity. Gender stereotypes. Self esteem and assertiveness. Personal responsibility and accountability. Respectful and ethical behaviors. Personal money/resource management plan. Time management techniques. Positive health and wellness behaviors. Sexual exploitation, rape and gender violence. Effective coping skills for managing stress. Signs and symptoms of emotional ill health, suicide, and depression in self and others and management techniques. Effective anger and conflict resolution strategies. Employability skills. Practicals; 3 hours per week in the skill laboratory.

Course objectives:
By the end of this course the learner should be able to,

- Demonstrate understanding of the life skills principles and techniques
- Apply life skill education in leadership and management
- Apply life skill education in entrepreneurship

References:

1. Pestalozzi T (2013) Life Skills 101: A Practical Guide to Leaving Home and Living on Your Own Stone wood Publications; Updated 5th ed
2. Leutenberg E.A,Liptak J.J, Edward D (2009) The Practical Life Skills Workbook Whole Person Associates, Inc; Spi Wkb edition

3. Williams P,Thomas J.L (2005) Total Life Coaching: 50+ Life Lessons, Skills, and Techniques to Enhance Your Practice . . . and Your Life W. W. Norton & Company

HFN 034: Introduction to Food Microbiology

Definition of terms. Role and significance of microorganisms in food. Intrinsic and extrinsic factors affecting microbial growth. Incidence and types of micro-organisms in foods. Control of microbial growth factors. Microbial contamination in; meat and meat products, poultry and sea-foods, fruits and vegetables, dairy and cereal products. Storage of various food products. Food poisoning. Common food borne illnesses; symptoms, prevention, and control. Determination of micro-organisms in food: examination of bacteria; methods of sampling microorganism; isolation, identification and enumeration of indicator microorganisms. Food borne parasites; sign and symptoms, prevention and control. Practicals; 3 hours per week in a food microbiology laboratory.

Course objectives:

By the end of this course the learner should be able to:

- Classify food borne microorganism
- Apply microbiological principles in identification of microorganisms
- Apply microbiological principles in culturing, enumeration and control of microorganisms

References:

1. Cowan M.K (2012) Microbiology Fundamentals: A Clinical Approach McGraw-Hill Science/Engineering/Math; 1st ed
2. Willey J, Sherwood L , Woolverton C (2008)Prescott's Principles of Microbiology McGraw-Hill Science/Engineering/Math; 1 edition
3. Montville J.L,Mathews K.R,Kniel K.E (2012 Food Microbiology: An Introduction ASM Press; 3rd ed

YEAR II, SEMESTER I

HFN 035: Introduction to Organic Chemistry

Functional group chemistry; hydrocarbons, alcohols, aldehydes, ketones, carboxylic acids, esters, thiols, phenols, ethers, amines and amides. Structure of biomolecules; amino acids, proteins, sugars and lipids. Chemistry related to characteristics and occurrence of nutrients and essential elements of diets. Functional group analysis and inter-conversions. Stereochemistry; nucleophilic substitution, elimination reactions and addition reactions. Tests for simple organic compounds. Practicals; 3 hours per week chemistry laboratory

Course objectives:

By the end of the course the learner should be able to:

1. Identify the main functional groups that constitute food nutrients, such as hydrocarbons, alcohols, alkylharides, ketones, carboxylic acid, amines and amino acids.
2. Draw and name the general structures of basic organic compounds and their functional groups
3. Explain some reactions processes of the main functional groups
4. Identify the functional groups that make food nutrients-carbohydrates, proteins, vitamins, lipids.
5. Explain some characteristics of these food nutrients.

References:

1. McCurry J.E (2011) Organic Chemistry Cengage Learning; 8th ed
2. Smith M.B (2010) Organic Chemistry: An Acid - Base Approach CRC Press; 1st ed
3. Wade G.L (2012) Organic Chemistry Prentice Hall; 8th ed

HFN 036: Nutrition in the Lifecyle

Introduction to lifespan. Factors that determine individual's nutritional needs. Importance of preconception nutrition in men and women. Nutritional requirements and deficiency diseases in; pregnancy, lactation, infancy, early childhood, late childhood, adolescence, adulthood and old age. Obesity among young children. Non food based interventions to maternal nutrition. Emerging issues affecting nutrition in lifecycle; policy, eating habits, globalization and technology. Emphasis on nutrition needs of vulnerable groups; how to meet these needs and the challenges faced in meeting the needs in resource poor settings.

Course objectives:

By the end of the course the learner should be able to:

- Describe the factors that influence individual nutritional needs.
- Describe the nutrient needs during the different stages of the lifecycle.
- Explain the diseases associated with deficiencies during the various stages.
- Identify emerging issues affecting nutrition in the lifecycle.

References:

1. BrownJ E,Isaacs J., Krinke B, lechtenber E (2013) Nutrition through the Life Cycle Cengage Learning; 5th ed
2. Sharlin J, Edelstein S (2010) Essentials Of Life Cycle Nutrition Jones & Bartlett Learning; 1st ed
3. BrownJ E (2007) Nutrition through the Life Cycle Wadsworth Publishing; 3rd ed

HFN 037: Introduction to Nutritional Anthropology (NEW)

Sociology of food and nutrition; evolutionary and behavioral. Social and cultural perspectives in nutrition; food taboos, cultural notions, personhood, kinship, sharing and morality. Human behaviour in food acquisition; preparation and consumption. Clinical and social significance of the human diet and nutrition. Anthropological methodologies in nutritional studies; social cultural processes and nutrition, cultural and ideational systems, physiological adaptation, population genetics, and nutrition, Applied research for nutrition programs. Evolutionary perspectives on human diet; biological plasticity, human growth and development, hunter gatherer nutrition, social factors that determine the patterns of nutrition diseases within and across population. The politics of food. Field trips; 40 hours per semesters, 5 hours per week of nutrition anthropology projects in the community.

Course objectives:

By the end of the course, learners should be able to:

- Describe the role of culture as a diet determinant
- Describe nutritional behaviour and practices of the different cultures
- Discuss various food taboos and social factors that influence lifestyle diseases
- Demonstrate ability to influence eating habits in different cultures

References:

1. Antony R. P. (2007). The science of social influence, advances and future progress. Psychology Press
2. Gerd B., Michaela W. and Gert B. 2002. Attitudes and Attitude Change. Psychology Press
3. Dufour D.L , Goodman A.H, Pelto G.H 2012 Nutritional Anthropology: Biocultural Perspectives on Food and Nutrition Oxford University Press; 2nd ed
4. Scott S, Duncan C.J (2002) Demography and Nutrition: Evidence from Historical and Contemporary Populations Wiley-Blackwell

HFN 038: Food Security (NEW)

Definition of food security. Dimensions of food security. Measurement of food security at regional, national, county, household and individual levels. Right to food and food sovereignty; Gender and food and nutrition security. Causes of food insecurity. Effects of food insecurity. Actions to improve food security. Food security chain; production, processing, storage, marketing, distribution, import and export. Global and regional challenges of food security; Global trends in food production, trade and economic implications. Crosscutting issues; economic, cultural, social and political factors. Case studies in food security. Field trips; 40 hours per semester for conducting nutrition food and nutrition security projects/surveys**.**

Course objectives:

By the end of the course, the learners should be able to:

- Explain the meaning of food security at regional, national, county, household and individual levels.
- Describe the factors affecting food security at different levels.
- Describe the actions to improve food security
- Discuss global factors that impact on food security

References:

1. FANTA/USAID (2006) Household Dietary Diversity Score (HDDS) for measurement of Household Food Access: Indicator Guide VERSION 2
2. FANTA/USAID (2007) Household Food Insecurity Access Scale (HFIAS) for Measurement of Food Access: Indicator Guide VERSION 3 August 2007
3. FANTA/USAID (2007) Months of Adequate Household Food Provisioning (MAHFP) for Measurement of Household Food Access: Indicator Guide. June 2007
4. GoK (2003). Kenya's Special Programme for Food Security. Concept One. Ministry of Agriculture and Livestock Development: Agricultural Extension, Nairobi Government Printer.

HFN 039: Communicable and Non-communicable diseases (NEW)

Definition of terms. Principles of prevention and control of diseases. Levels of diseases prevention. Types of diseases; contact diseases, vector-borne diseases, airborne disease, respiratory, muscular-skeletal disease, pancreatic diseases, diseases of the gall-bladder, diabetes mellitus, renal diseases, cancer, gastrointestinal diseases, cardiovascular diseases renal diseases and hepatic diseases. Etiology and manifestation. Relationship between nutrition and disease. Emerging and re-emerging diseases**.**

Course objectives:

By the end of this course the learner should be able to:

- Distinguish between communicable and non-communicable diseases

- Describe the causes, consequences and solutions of communicable and non-communicable disease
- Identify regions prone to various communicable and non-communicable diseases in developing countries.

References:

1. Government of Kenya, (2006). Kenya National Guidelines on Nutrition and HIV. Ministry of Health.
2. Ogola E.N. et al. (2006). Medicine, non-communicable diseases in adults. 2nd ed. Nairobi Kenya: AMREF
3. Grodner M. Anderson S. L. and DeYoung S. (2000). Foundations and clinical applications of nutrition; A nursing approach. Mosby. 2nd ed.

HFN 064: Foundations of Food preparation

Introduction to food production. Definition of terms used in food and beverage production. Reason for cooking for invalids. Methods of cooking. Types of fuel used in food and beverage production. Selection, production and use of foods and their products for invalids. Poultry, eggs, milk, meat, fish, vegetables, fruits, cereals, legumes, nuts, fats and oils. Effect of heat on the nutritional value, flavour, texture and colour of food during preparation and cooking. Purchasing, preparation and cooking of various foods. Practicals; 3 hours a week in a food laboratory.

Course objectives:

By end of the course learners should have developed/acquired:

- Knowledge about basic principles of food preparation.
- Knowledge about properties of foods and their function in food preparation.
- Ability to utilize various properties of different foods in food preparation
- Ability to demonstrate skills in proper food handling, preparation, presentation and maintenance of high sanitation standards.

References:

1. Dittmer, P. (2003). *Principles of food, beverage, and labor cost controls*.7th ed. New York. Chichester : Wiley.
2. Lillicrap, D (2006). Food and Beverage Service. 7th ed. London Hodder Arnold
3. Hope S. W. (2010). *Diabetes Meal Planning Made Easy*. American Diabetes Association;(4th Ed.).Alexandria Virginia.
4. Indrani (2008). *Nursing Manual Of Nutrition And Therapeutic Diet*. Jaypee Brothers Medical Publishers (p) Ltd. 8180611205

HFN 065: Nutrition Assessment and Surveillance

Nutritional assessment; nutritional surveys, surveillance and screening. Nutritional assessment indices; reference distribution, reference limits and cut off points. Methods of nutritional assessment; socio-demographic, dietary, biochemical, clinical and anthropometric. Types of nutritional surveys; assessment of lactation, complementary feeding, dietary intake, growth monitoring, pregnancy monitoring and operational assessment. Principles of nutrition surveillance; Theory and methodology of programme and system planning, monitoring and evaluation. Field trips; 40 hours per semester exposure to nutrition assessment and surveillance programme/projects.

Course objectives:
By the end of the course the learner should be able to:

- Describe the different methods of nutritional assessment.
- Analyze and disseminate nutritional status assessment data.
- Plan, conduct and use nutritional assessment for various programs.

References:

1. Gibson R.S (2005) Principles of Nutritional Assessment Oxford University Press; 2nd ed
2. Charney. P, Malone A.M, (2004) ADA Pocket Guide to Nutrition Assessment Amer Dietetic Assn; 2nd ed
3. Lee. R, Nieman D, (2012) Nutritional Assessment McGraw-Hill Science/Engineering/Math; 6th ed
4. Boyle M.A, Holben D.H, (2012) Community Nutrition in Action: An Entrepreneurial Approach Cengage Learning; 6th ed
5. Ministry of Health and Sanitation (2008) Guidelines for Nutrition Assessments in Kenya. Kenya National Bureau of Statistics., GoK

YEAR II, SEMESTER II

HFN 066: Introduction to Maternal and Child Nutrition
Introduction to maternal and child nutrition. Nutrition during pre conception period, pregnancy and lactation. Special nutritional needs at various stages of growth and development, pregnancy and lactation. WHO national guidelines on maternal nutrition and health. IMAM and infant young child feeding. Exposure to facility with MCH. WHO growth standards. Nutrient Supplementation in pregnancy and childhood child growth monitoring.

Course objectives:
The leaner should be able to

- Understand importance of child health in relations to disease and nutrition
- Describe nutritional requirements during pre-conception, pregnancy, lactation, complementary feeding and preschool periods
- Describe intervention programmes to improve maternal and child health.
- Promote child health through prevention of childhood diseases

References:

1. Eastwood, M (2010). Principles of Human Nutrition. 2nd ed. Blackwell Publishing,
2. Shanti G (2004) *Nutrition and child care A practical guide* (2nd Ed): New delhi Jaypee Publishers
3. Swinney, Bridget; Anderson, Tracey (2002) *eating expectantly: A practical and tasty guide to prenatal nutrition (3rd Ed).* London: Vermilion.

HFN 067: Diet Therapy I (NEW)
Introduction. Definition of terms. Therapeutic diets. Normal diet. Modified diets. Roles of nutritionists and dietitians. The care process; phases of the care process. Drug–nutrient interaction introduction. Nutritional supplements. Functional foods and nutraceuticals. Enteral and parenteral nutrition. Nutritional therapy in diseases of infancy and child hood; Hospitalized

children, Low Birth Weight (LBW) infants, failure to thrive, colic, functional infant vomiting, constipation, diarrhea, cleft lip and palate. Malabsorption problems; Inborn errors of metabolism, lactose intolerance, food allergies, gastrointestinal diseases and disorders. Management of underweight, overweight and obesity. Field trip; 6 hour per week field health facility visit for hands on experience on diet therapy.

Course objectives:
By the end of this course the learner should be able to:

- Describe the basic concepts of diet therapy.
- Recognize special dietary needs for patients and clients with different disorders and use the appropriate nutritional care to manage them
- Evaluate patients / clients response to nutritional care and modify accordingly
- Apply the knowledge, skills and attitudes learned in a clinical setting

Reference:

1. DeBruyne K.L, Pinna. K, Whitney. N.E (2011) Nutrition and Diet Therapy Cengage Learning; 8th ed
2. Nix S (2012) Williams' Basic Nutrition & Diet Therapy, 14e (LPN Threads) Mosby; 14th ed
3. Howard H. Mason, Herbert Swift Carter, Paul E. Howe (2007), Nutrition And Clinical Dietetics. Kessinger Publishing, 1432509489

HFN 068: Principles of Food Processing, Preservation and Storage
Quality of raw food materials. Introduction to food processing and preservation techniques; energy input (heat, irradiation, microwaves, pressure), temperature reduction (chilling, freezing), water removal (concentration, evaporative drying, freeze drying), biological methods (acid and alcohol fermentation, malting) chemical methods (additives, smoking). Nutrient loss in food processing, preservation and storage. Packaging and storage. Practicals; 3 hours a week in a food laboratory.

Course objectives:
By the end of the course the learner should be able to:

- Identify different types of food spoilage
- Identify sources and causes of food contamination and spoilage.
- Identify appropriate methods used in preventing food contamination and spoilage
- Perform particular processing and preservation operations.

References:

1. Lelieveld, Huub (2003). Hygiene in Food Processing: Principles and Practice. Woodhead Publishing Limited
2. Ahvenainen, R. 2003. Novel Food Packaging Techniques. Woodhead Publishing, Limited
3. Lelieveld H. 2005. Improving Hygiene in the Food Industry. Woodhead Publishing, Limited.
4. Thurmond David L. 2006. Handbook of Food Processing in Classical Rome: For Her Bounty No Winter. Brill Academic Publishers.

HFN 069: Basic Biochemistry
Introduction to biochemistry and metabolism. Structure and functions of biomolecules; carbohydrates, lipids, proteins and nucleic acids. Metabolism of carbohydrates, proteins and

lipids. Regulation of metabolism. Role of vitamins and trace elements in metabolism. Enzymes classification and functions.

Course objectives:
At the end of this course students should be able to;

- Understand the metabolism of major nutrients.
- Understand the role of enzymes in nutrient metabolism and in provision of energy.
- Understand the mechanism of protein synthesis.
- Understand the role of hormones in nutrient metabolism and regulation.
- Explain the disorders of abnormal metabolism and hormones disturbances.

References:

1. Lehninger A.L(.2007). Principles of Biochemistry.. New Yok: Worth Publishers 1st ed
2. Chatterjea M.N and Shinde R (2002) Medical Biochemistry. New Dehli, India: Jaypee Brothers Publishers. 8th ed.
3. Harvey R.A, Ferrier D.R, (2010) Biochemistry (Lippincott's Illustrated Reviews Series) LWW; 5th ed

HFN 070: Introduction to Nutrition in Emergencies
Definition of concepts. Types of emergencies, Emergency situations and food, nutrition and dietetics. Rapid assessment of nutrition situation, food security in emergencies. Human Rights based approach to nutrition programming. Types of assessments to nutrition situations, food security and health emergencies. Nutrition and health interventions, planning, implementation, monitoring and evaluation during emergencies. Indicators of nutrition and health. SPHERE minimum standards for Food and Nutrition. Field trip; 40 hours per semester of practical experience in an emergency setting.

Course objectives:
By the end of this course, the learner should be able to:

- Discuss the types, phases and consequences of disasters/ emergencies
- Discuss the food and nutrition emergency responses
- Discuss the roles of key stakeholders in humanitarian assistance.

References:

1. W.H.O (2004) Food and nutrition needs in emergencies. World Health Organization
2. W.H.O (2004) Infant Feeding in Emergencies World Health Organization Module 2 Version
3. W H O; (2000) The Management of Nutrition in Major Emergencies World Health Organization 2nd ed

HFN 071: Introduction to Basic Biostatistics New)
Introduction to statistics concept. Uses of statistics. Scales of measurement; nominal, ordinal, interval, ratio. Data processing; types of data, classifying data, organization of data. Data presentation; tables, graphs, charts. Measures of occurrence. Measures of central tendency. Sampling. Measures of regression and correlation. Tests of significance; Chi – square, t-test and f-test. Probability and the normal distribution; the rules of probability, normal distribution, normal distribution tables, variations of the normal distribution, shapes of distribution / skewness. Vital statistics.

Course objectives:
By the end of the course the learner should be able to:-

- Explain concepts in biostatistics.
- Collect, organize and present data in a scientific way.
- Apply various measures of central tendency and dispersion, the concepts of correlation, regression.

References:

1. Fritz J.T, Sincich T. (2000) Statistics, , Prentice Hall 8th ed
2. Gupta C.B, Gupta V, (2001) An Introduction to Statistical Methods, Vikas Publishing House PVT Ltd.
3. Kuzma. J, Bohnenblust. S, (2004) Basic Statistics for the Health Sciences McGraw-Hill Humanities/Social Sciences/Languages; 5th ed

HFN 072: Nutrition and HIV and AIDS
Relationship between Nutrition and HIV/AIDs, Nutrition and effects during different stages of HIV and AIDS progression. Breastfeeding recommendations for HIV and AIDS mothers. Nutrition effects and implications for HIV and AIDS in different physiological states. Nutrition in maintenance of the immune system. Use of Anti Retro Viral drugs and Food Supplements for HIV/AIDs positive persons.

Course objectives:
By the end of this course, students should be able to:

- Describe relationship between nutrition and HIV/AIDS
- Describe the aims of nutritional care and support for PLWHAs
- Describe the link between HIV/AIDS and food security as well as effective nutritional care in food insecurity situations
- Outline nutritional care and support in different physiological states i.e. pregnancy, lactation and adolescents
- Explain nutrient ARVs/drug interactions

References:

1. HIV/AIDS.(2004) A guide for Nutrition care and support.FANTA
2. PMTCT (2004) Training Manual
3. Kenya National Guidelines on Nutrition and HIV/AIDS 2006
4. GOK, (2008) Nutrition Training Manual
5. Anderson J.L (2014) HIV and AIDS: Symptoms, Testing, Treatment, Risk Factors, Preventions, Nutrition, Marriage, Having Children, Legal Issues Create Space Independent Publishing Platform
6. Pribram V (2010) Nutrition and HIV Wiley-Blackwell; 1st ed

YEAR III, SEMESTER I

HFN 073: Food Hygiene, Safety and Legislation (NEW)
Introduction to food safety and hygiene. Food contamination. Types of hazards in foods; physical, biological, and chemical. Nutritional safety; food poisoning and food borne illnesses; preventing food borne illnesses; Preventing food contamination; Food handling; Personal

hygiene; washing hands; cross contamination; raw and cooked food; design requirements of food contact surfaces; hygiene of premises and facilities; hygienic design of the premises and equipment; Principles of hazards analysis and critical control point (HACCP); Inspection of food facilities.

Course objectives:
By the end of the course the learner should be able to:

- Describe food borne illnesses and the associated hazards.
- Demonstrate hygienic food handling procedures.
- Carry out inspection of food facilities.

References:

1. Satin M (2008). Food Alert: The Ultimate Sourcebook for Food Safety 2nd ed. Facts on File, Inc.
2. Mark C. (2008). Food Industry Quality Control Systems. CRC Press
3. Forsythe S. J., Hayes P. R. (2000). Food Hygiene Microbiology and HACCP 3rd ed. Aspen Publication Inc.

HFN 074: Nutrition Education
Concept of nutrition and health education. Good eating and nutrition. Learning; (cognitive, psychomotor and affective domains. Nutrition and health education models. Principles of nutrition and health education. Designing effective nutrition and health education messages. Development, implementation and evaluation of health and nutrition programmes. Channels used in communicating nutrition and health education messages, their merits and demerits. Stakeholders in nutrition and health education and their roles. Field trips; 3 hours per week of conducting nutrition education to a target audience in community or health facility setting.

Course objectives:
At the end of the course, the student should be able to:

- Describe the characteristics and explain the advantages and limitations of the different approaches used in nutritional education
- Describe the steps and criteria in development of education training programs
- Discuss the role of stakeholders in provision of nutrition education
- Evaluate nutrition education programmes.

References:

1. Tones K, Tilford S, (2001) Health Promotion: Effectiveness, Efficiency and Equity Cengage Learning; 3rd ed
2. Nutrition Education Series, Issues 16 and 10 UNESCO Publications.
3. Contento (2011) Nutrition Education 2nd Edition Jones and Bartlett Publishers, Inc; 2nd ed
4. Pattanaik A (2004) Nutrition Education APH Publishing Corporation

HFN 075: Nutrition Intervention
Current common nutrition/health problems and international benchmarks . Basic methodologies in assessment of nutrition. Early warning system (EWAS). Common nutrition and health interventions at individual, community and household levels. Factors to consider in the diagnosis, planning, implementation and evaluation of intervention programmes. Role of

stakeholders in nutrition and health interventions. Strategies in behavior change and communication (BCC). Field trips; 40 hours per semester practical experience in nutrition intervention programmes/projects.

Course objectives:
At the end of the course the leaner should be able to

- Identify common nutrition and health problems
- Describe the role of stakeholders in provision of intervention programme
- Describe the evaluation process of different interventions

References:

1. Scientific Affairs and Research (2006) Nutrition Diagnosis and Intervention: Standardized Language for the Nutrition Care Process. American Dietetic Association; 1st ed.
2. Lefevre,P, Kolsteren P, Wael M.P, Byekwaso F, Beghin. I, (2000). Comprehensive Participatory Planning and Evaluation. Antwerp: Nutrition Unit of Institute of Tropical Medicine.
3. Green J, Tones K,(2010) Health Promotion: Planning and Strategies SAGE Publications Ltd; 2nded

HFN 076: Nutrition and Health Information Systems
Description of nutrition and health information system. Role of nutrition and health information in managing health activities. Identification of health information needs. Healthcare indicators; morbidity, mortality, birth rate, death rate and life expectancy. Functional levels in healthcare information system. Sources of health information; Forms and tools used to collect different sets of data such as growth monitoring. Policies and procedures for data collection, analysis, presentation, reports, storage, retrieval, dissemination and utilization**.** Legal and ethical aspects of hospital system; coding, confidentiality, access, protection and security of information. Practical; 3 hours per week experience in a health facility setting.

Course Objectives:

- Describe the routine and non-routine data collection methods in health and nutrition programme/service.
- Develop a set of data collection instruments for health and nutrition programme.
- Explain the set up of management of health and nutrition information systems.
- Explain surveillance of health and nutrition status of the community.
- Explain the level and ethical aspects of health care (hospital) system.

References:

1) Green A (2007) An Introduction to Health Planning for Developing Health Systems Oxford University Press; 3rd ed
2) Icon Group International (2009) Health Care Management: Webster's Timeline History, 1701 - 2007 ICON Group International, Inc.
3) Wager K.A, Lee F.W, Glaser J.P (2013) Health Care Information Systems: A Practical Approach for Health Care Management Jossey-Bass; 3rd ed.

HFN 077: Legal Aspects in Foods, Nutrition and Dietetics (NEW)

Introduction to law; Meaning of law, Sources of laws in Kenya, Arms of government and Court hierarchy. The law of tort; The meaning and scope; Tort and crime; Tort and contract; Torts and vicarious liability; Torts related to dietetics; Defenses under the law of tort; Remedies under the law of tort. Criminal law; The meaning and scope; Types of contracts; Essentials of valid contracts; Capacity to enter into a contract; Breach of contracts; Remedies; Termination; Consumer protection; Public health and safety legislations; Nutritionist and Dietician's Act; Dangerous Drugs Act; Food, Drugs and Chemical Substances Act; Radiation Protection Act; Public Health Act; Pharmacy and Poisons Act; The Trade Licensing Act; Bio-safety Act and other related acts. Intellectual property right; emerging legal issues in nutrition; Nutrition policy

Course objectives:

By the end of this course unit, the trainee should be able to:

- Explain the sources of law in Kenya
- Describe the organization of the judiciary
- Demonstrate competency in interpreting public health and safety legislation.

Reference:

1. GoK (2007).The Nutritionists and Dieticians Act, Government Printer.
2. May S.G, O'reilly J.T (2011) The Executive's Guide to New Food Safety Laws: How the Food Safety Modernization Act Impacts Your Business West, Aspatore Books; 1 edition)
3. Bartley D.C (2010) Adulteration of food: statutes and cases dealing with coffee, tea, bread, seeds, food and drugs, margarine, fertilisers and feeding stuffs, &c., &c., including the Food and Drugs Act, 1899. Gale, Making of Modern Law

HFN 078: Meal Management and Planning (NEW)

Introduction to meal planning. Economic, aesthetic, nutritional and managerial considerations in meal planning and service. Kitchen management and equipment for meal preparation production, service and food storage. Food and beverage service and etiquette. Introduction to food service; the service area, table appointments and methods of service. Introduction to the food pyramid and food exchange list. Meal planning for the family, special groups, institutions and special occasions. Practicals; 3 hour per week sessions in a food laboratory.

Course objectives:

By the end of the course the learner should be able to:

- Describe the processes of food selection, preparation and service in different situations.
- Plan meals for different age groups
- Describe the stages in menu planning, implementation for institutional settings.

References:

1. Hope S. W (2010). Diabetes meal planning made easy. American diabetes association. 4th ed. Alexandria, Virginia.
2. Mary T. Becki V. (2005). Cooking among friends: Meal planning and preparation delightfully simplified. Cooking Among Friends, LLC.
3. Sacket L, Pestka J, Gisslen W (2010) Professional Garde Manger: A Comprehensive Guide to Cold Food Preparation Wiley; 1st ed
4. Indrani (2008). *Nursing Manual Of Nutrition And Therapeutic Diet*. Jaypee Brothers Medical Publishers (p) Ltd. 8180611205

5. Dittmer, Paul (2003). *Principles of food, beverage, and labor cost controls*.(7th ed.) Publisher: New York ; Chichester : Wiley.
6. Food and Beverage Service by Lillicrap, Dennis. Edition: 7th ed. Publisher: London Hodder Arnold 2006
7. Mary T,Becki V. (2005). *Cooking among friends: Meal planning and preparation delightfully simplified.* LLC. USA.

HFN 079: Diet Therapy II (NEW)

Dietary management for various disorders relating to body systems; diseases of the liver, gallbladder and pancreas; diseases of the heart, blood vessels and the lungs; hyper-lipoprotenemia. Classes of lipo-proteins. Functional classification of lipid disorders; acute cardiovascular diseases, hypertension, diabetes mellitus and renal diseases. Field trip; 6 hour per week in a health facility for hands on experience on diet therapy.

Course objectives:

By the end of this course the learner should be able to:

- Describe the basic concepts in dietary management of various disorders.
- Describe the impact diet induced lifestyle diseases
- Describe how to manage various lifestyle diseases.

References:

1. DeBruyne K.L, Pinna. K, Whitney. N.E (2011) Nutrition and Diet Therapy Cengage Learning; 8th ed
2. Nix S (2012) Williams' Basic Nutrition & Diet Therapy, 14e (LPN Threads) Mosby; 14th ed
3. Howard H. Mason, Herbert Swift Carter, Paul E. Howe (2007), Nutrition and Clinical Dietetics. Kessinger Publishing, 1432509489

YEAR III, SEMESTER II

HFN 080: Diet Therapy III (NEW)

Dietary management in; immunity, stress, infections, surgery, burns, cancer, HIV/AIDS and other clinical disorders or conditions. Nutritional support in musculoskeletal diseases; rheumatoid arthritis, osteoarthritis, osteoporosis and gout. Nutritional support in neuromuscular diseases; traumatic brain injury, spinal cord injury, stroke, cerebral palsy, epilepsy, spina bifida, down syndrome, parkinson's disease, huntington's chorea, guillain barre syndrome, mytrophic sclerosis, multiple sclerosis, myastheria gravis and alzheimer's. Field trip; 6 hour per field health facility visit for hands on experience on diet therapy.

Course objectives:

By the end of this course the learner should be able to:

- Describe the basic concepts in dietary management of various disorders.
- Describe the impact of dietary induced lifestyle diseases on the health status of individuals.
- Describe how to manage various diseases.

References:

1. DeBruyne K.L, Pinna. K, Whitney. N.E (2011) Nutrition and Diet Therapy Cengage Learning; 8th ed

2. Nix S (2012) Williams' Basic Nutrition & Diet Therapy, 14e (LPN Threads) Mosby; 14th ed
3. Howard H. Mason, Herbert Swift Carter, Paul E. Howe (2007), Nutrition and Clinical Dietetics. Kessinger Publishing, 1432509489

HFN 081: Community Partnership, Programme Planning and Evaluation

Definition of key concepts in programme planning, monitoring and evaluation. Project life cycle. Community problem identification and analysis. Types and classification of community problems and needs. Role of community participation and importance of collaboration in nutrition programmes. Developing and managing partnerships and different approaches in managing community programmes. Targeting and selection of programme beneficiaries. Monitoring and evaluation of nutrition programmes.

Course objectives:

By the end of this course, the learner should be able to: -

- Define Understand the concept of community partnership
- Identify different approaches for building community partnerships
- Identify possible problems and challenges in developing a genuine partnership
- To be able to plan, monitor, implement and evaluate community programmes.

References:

1. Pandya (2010), *Community Health Education,* Rawat Publications.
2. Myers S.B, Zaza S(2004).Task Force on Community Preventive The Guide To Community Preventive Services: What Works To Promote Health, Oxford University Press, USA,
3. Mckenzie J.F, Pinger R.R, Kotecki J.E (2011) An Introduction to Community Health Jones & Bartlett Learning; 7th ed

HFN 082: Entrepreneurship in Food, Nutrition and Dietetics

Definition of entrepreneur. The entrepreneur and society. Entrepreneurship and self-employment. The government and entrepreneurship. Entrepreneurial behavior. Sources for business ideas. Resource mobilization. Evaluating finance sources for small entrepreneurs. Decision making; risk taking; leadership; marketing strategies; hiring; staff motivation and retention. Financial management. Time management. Entrepreneurial opportunities in food nutrition and dietetics. Project; development of a business plan.

Course objectives:

By the end of this course, the learner should be able to:

- Outline factors affecting the success of a business.
- Apply entrepreneurial competencies in business management.
- Explain management skills necessary for running a successful enterprise.
- Analyze the efficiency of resource utilization and productivity.
- Develop a business plan.

References:

1. Hisrich R. D., Peters M. P, Shepherd D. A. (2007). Entrepreneurship. 6th ed. New Delhi:Tata, McGraw Hill
2. Drucker P.F (2006) Innovation and Entrepreneurship Harper Business; Reprint edition
3. Madura J (2010) Introduction to Business Paradigm Pub Intl; 5th ed

HFN 083: Principles of Dietetics

Diet plans and guidelines involving food exchange system, food pyramids and nutrient density. Recommendations for different age sex and physiological states. Oral, enteral and parenteral feeding. Modified diets. Drug-nutrient and nutrient-nutrient interactions. Practicals; 3 hours per week practical experience in a health facility.

Course objectives:

By the end of this course the learner should be able to:

- Apply dietary planning techniques as well as exercising diet and modification in planning diets for patients.
- Describe application of oral, enteral, parenteral feeding as applied in hospitals
- Describe nutrient-drug and nutrient-nutrient interactions and management of their effects and adherence to different health conditions.

Reference:

1. Gandy W.J, Madden A, Holdsworth M,(2011) Oxford Handbook of Nutrition and Dietetics OUP Oxford; 2nd ed.
2. Gandy J, (2014) Manual of Dietetic Practice Wiley-Blackwell; 5th ed.
3. Duyff L.R (2012) American Dietetic Association Complete Food and Nutrition Guide John Wiley & Sons; 4th, Revised and Updated.

HFN 084: Introduction to Research Methodology

Definition of concepts in research methods. Purpose of research. Types of research. Proposal development process; topic and title development, background information, statement of the problem, objectives, hypotheses, review of literature, research design, sample size determination and sampling techniques, ethical considerations in research, data analysis, interpretations, and references. Report writing. Seminar presentations.

Course objectives:

By the end of the course, the learner should be able to:

- Describe different types of research.
- Describe the processes of proposal development.
- Carry out research in the area of food, nutrition and dietetics.

References:

1. Browne L. B. (2007). Research based evidence supporting food and nutrition. 2nd ed.
2. Steven B. H., Warren S.B., et al. 2007. Designing clinical research. Lippincott Williams & Wilkins.
3. Kumar R (2010) Research Methodology: A Step-by-Step Guide for Beginners SAGE Publications Ltd; Third Edition

HFN 085: Principles of Nutrition Counseling

Principles of counseling. Role and qualities of a nutrition counselor. Nutrition counseling plans. Counseling process; nutrition counseling laboratory. Dietary and health counseling; nutrition counseling techniques; designs and implementation of nutrition counseling. Exposure to one clinical counseling as role play in class. Skill laboratory practicals; 6 hours per week of nutrition counseling to a client in a health facility setting. .

Course objectives:
By the end of the course, learners should be able to:

- Explain the meaning, purpose of nutrition counseling with key issues in planning a counseling session
- Understand the roles and qualities of a nutrition counselor
- Describe different techniques that are used in nutrition counseling and elements of quality nutrition to nutrition counseling
- Design nutrition counseling plans for at risk groups
- Discuss dietary practices and habits that require change at individual, household, and community /institutional level

References:

1. Klawitter B, king K, (2007) Nutrition Therapy: Advanced Counseling LWW; 3rd ed
2. Beto J.A, Holli B, (2012) Nutrition Counseling and Education Skills for Dietetics Professionals LWW; Sixth, None edition
3. Sokolik C.A, Bauer K.D, (2001) Basic Nutrition Counseling Skill Development Cengage Learning; 1st ed

HFN 086: Practicum
Supervised practical experience in medical facility settings (or) organizations dealing with community nutrition (or) food industries to gain hands-on experience in the relevant areas for a period of 3 months. Diploma students to attend 1 practicum session upon completion of ALL units before graduation. Maintenance of daily record of activities, engage in and submit a report at the end of practicum. External industrial supervisors to evaluate students using the departmental evaluation form and submit marks to the department. Diary and practicum report to be marked by departmental lecturers upon completion.

Course objectives:
By the end of the practicum the learner should be able to:

- Write a report on ones experience in the institution or organization of attachment.
- Conduct a situational analysis in regard nutrition and dietetics management at the assigned organization or health facility
- Identify problems and intervention for discussion with the management of the organization or facility.
- Document lessons learnt from the field attachment exercise.

References:

1. Jungers C.M, Scott J (2008) Practicum and Internship: Textbook and Resource Guide for Counseling and Psychotherapy Routledge. 4 edition
2. Hodges, S (2010) The Counseling Practicum and Internship Manual: A Resource for Graduate Counseling Students Springer Publishing Company. 1st ed
3. Baird, B (2007) Internship, Practicum, and Field Placement Handbook: A Guide for the Helping Professions Prentice Hall. 5th ed