THE UNITED REPUBLIC OF TANZANIA
MINISTRY OF EDUCATION AND VOCATIONAL TRAINING

FOOD AND HUMAN NUTRITION SYLLABUS FOR ADVANCED SECONDARY EDUCATION FORM V - VI

2010

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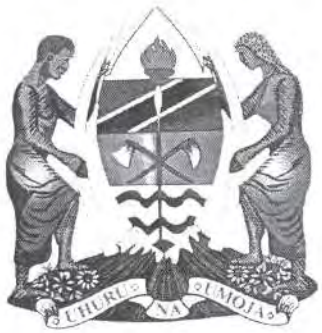
UNITED REPUBLIC OF TANZANIA
MINISTRY OF EDUCATION AND VOCATIONAL TRAINING



FOOD AND HUMAN NUTRITION SYLLABUS FOR ADVANCED LEVEL SECONDARY EDUCATION

FORM V - VI

2010

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1.0 INTRODUCTION

1.1 Background information

The syllabus is the revised version of the 1997 Home economics syllabus. It was prepared as a result of evaluation of the advanced secondary curriculum carried out in May, 2008 which aimed at identifying the gaps, irrelevancies, inconsistencies, redundancies and other short comings.

1.2 Subject description

Food and Human Nutrition covers issues such as food, malnutrition, catering, food quality and safety, nutrition programme planning and intervention. The target group for this subject is "A" Level student, who are having expectations on self employment, tertiary education and further studies.

1.3 Rationale for review of Food and Human Nutrition syllabus

Is incorporating global and cross cutting issues, specifically in life styles, health eating, food hazards, food safety and quality. Some of the subtopic was completely removed because they were shifted from one topic to the other and fussed within the topics

2.0 OBJECTIVES OF EDUCATION IN TANZANIA

The general aims of education in Tanzania are to:

1. Guide and promote the development and improvement of the personalities of the citizens of Tanzania, their human resources and effective utilization of their resources in bringing about individual and national development.
2. Promote the acquisition and appreciation of culture, customs and traditions of the people of Tanzania.
3. Promote the acquisition and appropriate use of literary, social, scientific, vocational, technological, professional and other forms of knowledge, skills and understanding for the development and improvement of man and society.
4. Develop and promote self-confidence and an inquiring mind, an understanding and respect for human dignity and human rights and a readiness to work hard for personal self advancement and national improvement.
5. Enable and expand the scope of acquisition, improvement and upgrading of mental, practical productive and other life skills needed to meet the changing needs of industry and the economy.
6. Enable every citizen to understand the fundamentals of the national constitution as well as the enshrined human and civic rights, obligation and responsibilities.
7. Promote the love for work, self and wage employment and to improve performance in the production and service sectors.
8. Inculcate principles of national ethic and integrity, national and international cooperation, peace and justice through the study, understanding and adherence to the provision of the National Constitution and International basic charters.
9. Enable a rational use, management and conservation of our environment.

3.0 AIMS AND OBJECTIVES OF SECONDARY EDUCATION IN TANZANIA

The aims and objectives of secondary education are to:

1. Consolidate and broaden the scope of baseline ideas, knowledge, skills and principles acquired and developed at primary education levels.
2. Enhance further development and appreciation of national unity, identify and ethnic personal integrity, respect for and readiness to work, human rights, cultural and moral values, customs, traditions and civic responsibilities and obligations.
3. Promote the development of competency in linguistic ability and effective use of communication skills in Kiswahili and at least one foreign language.
4. Promote opportunities for the acquisition of knowledge, skills, attitudes and understanding in prescribed or selected fields of study.
5. Prepare students to tertiary and higher education; vocational, technical and professional.
6. Inculcate a sense and ability for self-study, self-reliance and self-advancement in new frontiers of science and technology, academic and occupational knowledge and skills.
7. Prepare the student to join the world of work.

4.0 GENERAL COMPETENCES FOR THE SUBJECT

By the end of two years course, students should have ability to:

1. Relate and apply Food and Human nutrition principles and skills to improve health and quality of life.
2. Make appropriate use of Food and Human nutrition knowledge in solving problems at individuals and community level.
3. Prepare recipe, design menu and determine portion sizes to suit various social groups.
4. Process, package and handle various food products.

5.0 GENERAL OBJECTIVES FOR THE SUBJECT

By the end of two year course, students should be able to:

1. Pursue the course to promote good health for combating malnutrition.
2. Develop interest for further professional in the field of Food and Human Nutrition
3. Develop managerial skills in planning, preparing, cooking and serving complete and balanced diets/meals.
4. Develop proper knowledge and skills in Food processing, preservation and storage.
5. Improve food quality and safety in their communities.
6. Develop health eating habits

6.0 ORGANIZATION OF THE SYLLABUS

This Food and Human Nutrition syllabus has a slightly different structure compared to that of 1997. The following changes were added for improvement:

General competences for the whole course

Competences for each class

Suggested areas for assessment

Number of periods per sub-topic

Class Competences

Competences have been stated for each class of Food and Human Nutrition course. The class competences have been derived from general competences.

Class Objectives
Class objectives have been derived from general objectives of the subject. The class objectives for each class are stated in general terms to indicate the scope of content to be covered within each level.

Content Matrix
The matrix is composed of topics/subtopics, specific objectives, teaching/learning strategies, teaching learning resources, assessment and suggested number of periods.

Topics/sub – topics
Main topics have been derived from general competences and objectives. Topics have been divided into sub-topics. Each sub-topic comprises a portion of the content from the main topic in question. The sub-topics have also been arranged in a logical order. Some of subtopics have been shifted to more appropriate topics and other subtopics have been developed. However some of the subtopics have been removed since they were irrelevant to the level of students and to the subject.

Specific Objectives
Specific objectives have been stated for each sub-topic and each sub-topic has more than one specific objective. These specific objectives are the expected outcomes in classroom instructions. They also reflect the competences to be attained within the cognitive, affective and psychomotor domains.

Teaching and Learning Strategies
The teaching and learning strategies indicate what the students and teacher are expected to do in the process of teaching and learning. Students are encouraged to work in small groups for maximum participatory and cooperative learning. The teacher shall assume the role of a facilitator to promote, guide and help students' learning activities. The whole teaching and learning process should be participatory and interactive, so as to help students to demonstrate self esteem, confidence and assertiveness. The suggested teaching and learning strategies are not exhaustive. The students and teacher may use any other strategies which suit the teaching and learning environment depending on the available teaching and learning resources. Practical sessions are encouraged in the class teaching settings in order to acquire more skills and experience of the subject.

Teaching and Learning Resources
In the teaching of Food and Human Nutrition a variety of teaching/learning resources will for needed in quality and quantity output. Lake of standard teaching and learning resources may require the teacher students to collect or improvise alternative resources according to their environment.

Assessment
An assessment guide is given to teachers in the fifth column. It shows what and how to assess a student's knowledge skills and attitudes to be acquired in each specific objective.

Estimated number of periods

The number of periods has been allocated per each sub-topic. Ten periods per week of 40 minutes each, have been allocated for both Form V and Form VI. Within ten periods per week, four periods are to be used for practicals.

7.0 INSTRUCTIONAL TIME

This syllabus is to be covered in two academic years having approximately 194 instruction days per year including two weeks reserved for mid term and annual examinations.

8.0 ASSESSMENT OF THE SUBJECT

Summative assessment should be geared towards mastering all the competences developed within the course

S N	Types of assessment	SN	Assessment measure	frequency				Weight %	Total
				F V		F. VI			
1.	Continuous assessment		Test	T. I	T. II	T. I	T. II		
		2	Practical tests	2	2	2	-	10	
		3	Research project	2	2	2	-	10	
		4	Field work	-	-	1	-	5	
		5	Terminal examination	1	1	1	-	15	50
Total of Continuous assessment								50	
	Final examination		National examination	-	-	-	1	50	50
Total Marks									100

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FORM FIVE

SPECIFIC CLASS LEVEL COMPETENCES

By the end of the form five the student should be able to:-

1. Develop new food products through food formulation
2. Fortify and enrich food in order to improve food quality
3. Plan process and manage a food processing enterprise
4. Make appropriate use of modern devices (Electrical and Electronics) in food processing, storage and handling
5. Apply basic rules and best practices in ensuring food quality and safety
6. Improve household food and Human nutrition security
7. Apply health eating concepts in developing good food habit.

SPECIFIC CLASS LEVEL OBJECTIVES

By the end of form five the student should be able to:

1. Develop skills in food processing and entrepreneurship
2. Understand the use of computers and computer based programmes to address Food and Human Nutrition issues
3. Develop skills on usage of modern devices (electrical and electronic) in food processing, storage and handling
4. Understand the concept of food production, household food and nutrition security
5. Understand basic values and best practices in food quality and safety
6. Understand concepts of health eating

TOPIC/ SUBTOPIC	SPECIFIC OBJECTIVES	TEACHING/LEARNING STRATEGIES	TEACHING/LEARNING RESOURCES	ASSESSMENT	PERIOD
1.0 FOOD COMPOSITION 1.1 Meaning of food and major food groups	At the end of sub-topic the student should be able to: (a) Explain the meaning of food and nutrients	(i) Student to brainstorm the meaning of food and nutrient (ii) The teacher to lead class discussion and make clarification on the meaning of food and nutrients	VIPP cards Different food Stuffs Food test Reagents Different food stuffs	Is the student able to: a) explain the meaning of food and nutrients?	15
	(b) Describe the main components of food	(i) teacher to guide students through group discussion to describe the main components of food (ii) students and teacher to perform experiments on food test		b) describe the main components of food?	
	(c) Categorize major food groups	(i) student collect different types of food (ii) teacher and students to group foods according to major food groups (iii) teacher to guide students to discuss importance of grouping foods		c) categorize major food groups?	
1.2 Composition of food stuffs	At the end of sub-topic the student should be able to: (a) compare the relative richness of various food stuffs on basis of nutrient content using food tables	i) Teacher to guide discussion on relative richness of the various food stuffs with respect to various nutrients (ii) students in groups to discuss right choice of food in relation to richness of nutrients	Food tables Food charts Food samples Dry air oven Kjeldahl apparatus, Soxhlet apparatus Analytical weighing scales Different analytical starch grains Microscope	Is the student able to: a) compare the relative richness of various food stuffs on basis of nutrient content using food tables?	22

TOPIC/ SUBTOPIC	SPECIFIC OBJECTIVES	TEACHING/LEARNING STRATEGIES	TEACHING/LEARNING RESOURCES	ASSESSMENT	PERIOD
	b) Conduct laboratory analysis of different food stuffs to determine their basic nutrient contents	(i) student and teacher to perform laboratory analysis to determine nutrient contents (moisture content, minerals by ashing, protein by Kjeldahl, apparatus, fat by Soxhlet method and carbohydrate by proximate analysis (ii) teacher to guide discussion on each experiment performed and give comments		b) Conduct laboratory analysis of different food stuffs to determine their basic nutrient contents?	
	c) Examine the structures of different starch cereals	(i) the teacher to guide students to examine structures of different cereals starch using microscope (ii) student in groups to discuss different structures observed		c) is the student able to examine the structures of different starch cereals?	
2.0 NUTRIENT REQUIREMENT 2.1 Recommended Daily Allowance/Intakes (RDAs/RDIs)	At the end of sub-topic the student should be able to: (a) Explain the meaning of Recommended Daily Allowances/Intakes	(i) students to brainstorm the meaning of RDAs/RDIs (ii) the teacher to lead discussion and make clarification on the meaning of RDAs/RDIs	RDAs/RDIs tables Food tables	Is the student able to: a) explain the meaning of Recommended Daily Allowances/Intakes	15
	(b) Discuss different uses of RDAs/RDIs	(i) student in groups to discuss the uses of RDAs/RDIs (ii) the teachers to guide		b) discuss different uses of RDAs/RDIs	

		students to present their findings in class and summarize key points			
	(c) Use RDAs/RDIs tables to determine nutritional needs of various social groups of people	(i) teacher to guide students through questions and answers to identify different social groups of people (ii) using RDAs/RDIs students to discuss nutritional needs of different social groups of people		c) use RDAs/RDIs tables to determine nutritional needs of various social groups of people?	
	(d) Compute the total nutrient intake and compare with the recommended daily intake	(i) teacher to guide each student to record his/her daily food intake (ii) by using food tables student to compute their nutrient intake (ii) student to compare the calculated nutrient intake with the RDAs/RDIs (iii) the teacher to guide student to discuss their results and make comments		d) compute the total nutrient intake and compare with the recommended daily intake?	
2.2 Complete and balanced meals	At the end of sub-topic the student should be able to: (a) State the meaning of complete meal, balanced meal and meal planning	(i) through questions and answers the teacher to guide students to state the meaning of complete meal, balanced.meal and meal planning	Charts of complete meals Different food stuffs Food tables Charts of balanced meals Samples of various foods	Is the student able to: a) State the meaning of complete meal,	15

		(ii) teacher to guide students to relate complete meal balanced meal and meal planning		balanced meal and meal planning?	
	(b) Outline the advantages of meal planning	(i) student to discuss in groups advantages of meal planning (ii) teacher to guide students to summarize correct answers		b) Outline the advantages of meal planning?	
	(c) Discuss factors to consider in meal planning	(i) student in groups to discuss the factors to consider in meal planning (ii) teacher to guide students to present the factors in plenary session (iii) students and teacher to summarize the correct answer		c) discuss factors to consider in meal planning?	
	(d) Plan balanced meals for different social groups of people	(i) teacher to guide students to plan meals for various social groups (ii) student to practice planning daily and weekly meals		d) plan balanced meals for different social groups of people?	
2.3 Healthy eating	At the end of sub-topic the student should be able to: (a) Explain the concept of healthy eating and how it influences food selection	(i) students to brainstorm the meaning of health eating (ii) teacher to guide students through questions and answers to explain how	Food charts Pictures of different functional foods, Different functional foods Pamphlet of functional foods	Is the student able to: a) explain the concept of healthy eating and how it	17

		healthy eating influences food selection		influences food selection?	
	(b) Discuss the importance of healthy eating	(i) students to discuss in groups importance of healthy eating (ii) teacher to guide students to present in plenary and summarize key points		b) discuss the importance of healthy eating?	
	(c) Describe foods that promote good health and those with a potential for health risks	(i) students in groups to identify food that promote good health and those with a potential for health risks (ii) teacher and students to discuss, summarize and make conclusion		c) describe foods that promote good health and those with a potential for health risks?	
	(d) Associate some foods with chronic illnesses	i) students to identify chronic diseases associated with food habits ii) teacher to guide students to associate some foods with mentioned chronic diseases		d) associate some foods with chronic illnesses?	
	(e) Explain about functional foods and their health benefits	(i) teachers to invite a guest speaker to talk about functional foods (ii) teachers to guide students to summarize and make conclusions		e) explain about functional foods and their health benefits?	
2.4 Formulation of foods for various social groups	At the end of sub-topic the student should be able to: (a) Explain the meaning of food formulation	(i) students to brainstorm the meaning of food formulation (ii) the teacher to lead class discussion and	Food stuffs Formulated food samples Pearson's square chart	Is the student able to: a) explain the meaning of food formulation?	13

		make clarification on the meaning of food formulation			
	(b) Formulate appropriate foods for the various social groups	(i) students to discuss the importance of formulating foods (ii) teacher to guide students to formulate foods according to the needs of the social groups iii) student to formulate foods for various social groups		b) formulate appropriate foods for the various social groups?	
2.5 Energy Balance	At the end of sub-topic the student should be able to: (a) State the concept of energy balance	(i) the teacher to guide students through questions and answers to explain the meaning of energy balance (ii) students to discuss importance of calculating energy balance	Scientific calculators, food composition tables	Is the student able to: a) state the concept of energy balance?	15
	(b) Calculate the average daily energy intake	(i) students to record the daily food intake and refer to the food composition table (ii) students to calculate the average energy intake		b) calculate the average daily energy intake?	
	(c) Compute the average daily energy expenditure and determine energy balance	(i) using factorial method the students to calculate energy expenditure (ii) teacher to guide		c) compute the average daily energy expenditure and	

		students to calculate energy balance		determine energy balance?	
	(d) Explain factors that influence energy intake, expenditure and balance	(i) teacher to guide students through group discussion to describe the factors which influence energy intake, expenditure and balance (ii) students to present in plenary session and summarize		d) explain factors that influence energy intake, expenditure and balance?	
3.0 FOOD PRODUCTION 3.1 Food Production situation in Tanzania	At the end of sub-topic the student should be able to: (a) Evaluate food production situation in Tanzania	(i) Through think pair share students to identify food crops grown in Tanzania (ii) teacher to lead discussion on food production situation in Tanzania	Data form the Ministry of Agriculture and Food Economic map of Tanzania Pictures /videos depicting factors affecting food production	Is the student able to : a) evaluate food production situation in Tanzania?	12
	(b) Analyze factors affecting food production	(i) students in groups to discuss factors affecting food production (ii) the teacher to guide students to present in plenary and summarize key factors		b) analyze factors affecting food production?	
	(c) Discuss methods of improving food production in Tanzania	(i) students in groups to discuss by using guiding questions the methods of improving food		c) discuss methods of improving food production in Tanzania?	

		production in Tanzania (ii) teacher to guide student to summarize correct methods			
3.2 Household food and nutrition security	At the end of sub-topic the student should be able to: (a) Analyze determinant of household food security	(i) teacher to guide students through questions and answers to identify determinants of household food security (ii) student to discuss in groups determinants of household food security (iii) students to present in plenary and teacher to summarize main points		Is the student able to: a) analyze determinant of household food security?	8
	(b) discuss factors affecting intra-household food distribution	(i) students to identify factors affecting intra- household food distribution (ii) teacher to lead students discussion on the factors affecting intra household food distribution		b) discuss factors affecting intra household food distribution?	
4.0 FOOD STORAGE 4.1 Perishable and non - perishable foods	At the end of sub-topic the student should be able to: (a) Distinguish perishable from non perishable foods	(i) student to collect different types of food stuffs (ii)teacher to guide students through questions and answers to explain characteristics of each food group	Perishable foods Non - perishable foods	Is the student able to: a) distinguish perishable from non perishable foods?	6

	(b) Discuss the economic importance of storage of non-perishable foods	(i) student to brainstorm economic importance of storage of non- perishable foods (ii) teacher to guide students to outline economic importance of storage of non – perishable food		b) discuss the economic importance of storage of non-perishable foods?	
	(c) Enumerate the problems of storage for non - perishable foods	(i) students to discuss in groups the problems of storage of non-perishable foods (ii) students to present their responses in plenary and teacher guide them to summarize		c) enumerate the problems of storage for non - perishable foods?	
4.2 Agents of food deterioration and losses	At the end of sub-topic the student should be able to: (a) Classify agents of food deterioration and losses	(i) students to classify agents of food deterioration and losses and their examples (ii) teacher to guide students to discuss conditions which favor proliferation of each agent	deteriorated and spoiled food stuff	Is the student able to: a) classify agents of food deterioration and losses?	18
	(b) Propose methods for controlling agents of food deterioration	(i) students to brainstorm methods of controlling agents of food deterioration (ii) teacher to guide		b) propose methods for controlling agents of food deterioratio?	

		students to discuss and propose the correct control measures			
	(c) characterize deteriorated and spoiled foods	(i) student and teacher to collect different deteriorated and spoiled food (ii) students to identify deteriorated and spoiled food (iii) teacher to guide student through question and answers to characterize deteriorated and spoiled food		c) characterize deteriorated and spoiled foods?	
4.3 Grain storage and good storage practices	At the end of sub-topic the student should be able to: (a) Outline steps involved in grain storage	(i) the teacher to guide students to discuss in groups essential steps in grain storage (ii) students to present in plenary and the teacher to guide them in making necessary corrections	Photographs/pictures of different types of storage structure	Is the student able to: a) outline steps involved in grain storage?	10
	(b) Explain good grain storage practices	(i) Teacher to ask student to mention storage practices in their localities (ii) using guiding questions students to discuss good grain storage practices		b) explain good grain storage practices?	
4.4 Grain storage structures	At the end of sub-topic the student should be able to: (a) describe various types of grain	(i) students to identify various types of grain storage structures and	Pictures/photographs of various storage structures	Is the student able to: a) describe	16

	storage structures	their examples (ii) teacher to guide students to discuss characteristics of each type of grain storage structure (iii) students to outline advantages and disadvantages of each type of grain storage structure		various types of grain storage structure?	
	b) Design selected grain storage structures	(i) teacher to guide student in groups to design selected grain storage structures (ii)students in groups to discuss features of each design and present in plenary		b) design selected grain storage structures?	
4.5 Pesticides used in food storage	At the end of sub-topic the student should be able to: a) state the meaning of food-grade pesticides	(i) students to brainstorm the meaning of food-grade pesticides (ii) teacher to guide student to come up with a correct meaning of food-grade pesticides	Food-grade pesticides Leaflets and labels	Is the student able to: a) state the meaning of food-grade pesticides?	15
	b) Classify different groups of food-grade pesticides	(i) teacher to guide student to classify different groups of food-grade pesticides (ii) students to discuss characteristic of each group of food grade pesticides		b) classify different groups of food – grade pesticides	
	c) Explain uses of each group of pesticides	(i) the teacher to guide students through		c) Explain uses of each	

		question and answers to explain uses of each group of food-grade pesticides (ii) teacher to guide students to discuss the side effects of food-grade pesticides		group of pesticides?	
	d) Summarize rules to follow when applying food-grade pesticides	i) teacher to guide students in groups to discuss rules to follow when applying pesticides ii) teacher to guide students to present in plenary and summarize key points		d) summarize rules to follow when applying food-grade pesticides?	
5.0 FOOD PROCESSING AND PRESERVATION 5.1 Food processing	At the end of sub-topic the student should be able to: (a) Explain the concept of food processing	(i) Students to brainstorm meaning of food processing (ii) teacher to lead students to come up with the correct meaning (iii) students to discuss the importance of food processing	Wheat grains Rice Maize Carrots Potatoes Food reagents	Is the student able to: a) explain the concept of food processing	23
	(b) Outline the principles of food processing	(i) Teacher to guide students to outline the principles in food processing (ii) teacher to lead class discussion on principles outlined		b) outline the principles of food processing?	
	(c) Analyze the effects of food processing on nutrients and food utilization	(i) students and teacher to perform different food processing activities (ii) teacher and student to discuss the effects of		c) analyze the effects of food processing on nutrients and food utilization?	

		food processing on nutrient and food utilization			
	(d) Carry out experiments on effects of heat, acids, alkalis and air on food nutrients	(i) students and teacher to perform experiment to observe effects of heat, acids, alkalis and air on food nutrients (ii) from the results teacher to guide students to discuss the effects of heat, acids, alkalis, and air on food nutrients		d) carry out experiments on effects of heat, acids, alkalis and air on food nutrients?	
5.2 Food preservation	At the end of sub-topic the student should be able to: (a) State the concept of food preservation	(i) students to brainstorm meaning of food preservation (ii) teacher to lead students to come up with the correct meaning (iii) through think pair share students to discuss the importance of food preservation	Food reagents Food stuffs, equipment and devices, preservation and packaging materials Solar drier Preserved foods	Is the student able to: a) state the concept of food preservation?	22
	(b) Enumerate principles involved in food preservation	(i) teacher to guide students to enumerate the principles in food preservation (ii) teacher to lead class discussion on principles of food preservation		b) enumerate principles involved in food preservation?	
	(c) Describe methods of food preservation	(i) teacher and students to discuss methods of food preservation (ii) through question and		c) describe methods of food preservation?	

		answers the teacher to guide students to outline advantages and disadvantages of food preservation			
	(d) analyse the effects of food preservation on food nutrients	(i) students and teacher to perform different food preservation activities (ii) from the results teacher to guide students to discuss the effects of food preservation on food nutrient		d) analyse the effects of food preservation on food nutrients?	
	(e) Process and preserve food products	(i) teacher to organise field trip to the food processing industries to observe various processing and preservation methods, equipment and devices used (ii) students in groups to write reports based on study visit (iii) teacher to lead discussions based on the observations from the study visit (iv) teacher and students to process and preserve food products		e) process and preserve food products?	
5.3 Food fortification	At the end of sub-topic the student should be able to:	(i) students to brainstorm the	library Fortified foods	Is the student able to:	14

	(a) Explain the concept of food fortification	meaning of food fortification (ii) the teacher to lead students to come up with the correct meaning of food fortification (iii) teacher and students to discuss the importance of food fortification		a) explain the concept of food fortification?	
	(b) Describe the factors to be considered in food fortification	(i) students to do library research on factors to be considered in food fortification (ii) teacher to guide students to present in plenary and summarize the correct factors		b) describe the factors to be considered in food fortification?	
	(c) Outline advantages and disadvantages of food fortification	(i) teacher to guide students to debate on advantages and disadvantages of food fortification (ii) the teacher to guide the students to come up with the correct advantages and disadvantages of food fortification		c) outline advantages and disadvantages of food fortification?	
	(d) describe the characteristics of fortified food	(i) students to outline characteristics of fortified food (ii) teacher to guide students to discuss each characteristic		d) describe the characteristics of fortified food?	

	(c) Analyse conditions necessary for food fortification	(i) students to do the library research on conditions necessary for food fortification (ii) teacher to lead students through questions and answers to summarize the conditions		e) analyze conditions necessary for food fortification?	
6.0 TECHNOLOGY OF SPECIFIC PRODUCTS 6.1 Bread and buns making	At the end of sub-topic the student should be able to: (a) Prepare bread and buns from different cereal flours	(i) teacher to demonstrate preparation of buns and bread dough's appropriately (ii) students to prepare the dough and bake (iii) students and teacher to discuss characteristics of baked products	Cereal flours Raising agents Recipe Baking equipment	Is the student able to: a) prepare bread and buns from different cereal flours?	24
	(b) Analyse the importance of raising agents	(i) teacher to provide reading assignment to students on importance of raising agents in baking (ii) teacher to conduct the class discussion on importance of raising agents		b) analyse the importance of raising agents	
	(c) Classify different types of raising agents	i) students in groups to identify different types of raising agents ii) teacher to guide students to summarise correct types of raising agents iii) teacher and students to discuss mode of action of different types of raising agents		c) classify different types of raising agents?	

		iv) teacher and student to perform different practical on various raising agents			
	d) Extract gluten from wheat flour	(i) student to prepare dough and extract gluten (ii) teacher to lead students to summarize characteristics of gluten (iii) students to separate gluten and starch from wheat flour		d) extract gluten from wheat flour?	
6.2 Making of fruits juices and vegetables	At the end of sub-topic the student should be able to: (a) Illustrate the flow diagram of unit operation in thermo processing of juice and vegetables	(i) teacher to guide student to illustrate the flow diagram of unit operation in thermo processing of juice and vegetable (ii) teacher and students to discuss each step in unit operation (iii) teacher and student to prepare juice and vegetable products	Food industry Chart of flow diagram of unit operation in thermo processing of juice and vegetables Packaging materials	Is the student able to: a) illustrate the flow diagram of unit operation in thermo processing of juice and vegetables?	18
	(b) Describe the process of food packaging and labeling	(i) teacher to organise a field trip to a food industry to observe food packaging and labelling procedures (ii) through questions and answers teacher to guide students to point out procedures followed in food		b) describe the process of food packaging and labeling?	

		packaging and labelling (iii) teacher to guide students to practice packaging and labelling of food stuffs			
7.0 FOOD MICROBIOLOGY 7.1 Important micro organisms in food microbiology	At the end of sub-topic the student should be able to: (a) State the concept of food microbiology	(i) students to brainstorm the meaning of food microbiology (ii) teacher to lead class discussion and make clarification on the meaning of food micro biology (iii) though questions and answers students to outline importance of food microbiology in food processing	Spoiled and deteriorated foods Library Charts of food micro organisms Plants, Utensils Animal feeds Animal hides	Is the student able to: a) state the concept of food microbiology ?	18
	(b) Classify micro-organisms which are important in food microbiology	(i) students to identify classes of micro organisms which are important in food (ii) students and teacher to discuss importance of each class of micro-organisms (iii) students and teachers to display various spoiled and deteriorated foods and observe effect of micro – organisms		b) classify micro-organisms which are important in food microbiology ?	
	(c) Explain the primary sources of microbial food contamination	(i) teacher to provide reading assignment to		c) explain the primary	

		students on primary sources of microbial food contamination (ii) student to present their responses in plenary (iii) teacher and students to come up with correct responses		sources of microbial food contaminatio n?	
	(d) state some practical applications of micro-organisms in food processing	(i) teacher to organize field trip to food processing industries to observe the use of micro-organisms in food processing (ii) students to write reports of the field trip		d) state some practical applications of micro-organisms in food processing?	
7.2 Growth requirement of different micro-organisms	At the end of sub-topic the student should be able to: (a) Explain the growth requirements of different micro organisms	(i) Teacher and students to perform experiment to investigate the condition necessary for growth of yeast, moulds and bacteria (ii) teacher to guide students to summarize the correct growth requirements of micro-organisms	Yeast, Moulds Spoiled foods Library Growth curve chart	Is the student able to: a) explain the growth requirements of different micro organisms?	16
	(b) describe important stages in growth of micro-organism which are related with food spoilage	(i) students to do library research on the important stages of growth of micro-organisms which are related with food spoilage (ii) teacher to guide		b) describe important stages in growth of micro-organism which are related with	

		students to perform class presentations on the findings		food spoilage?	
7.3 Food poisoning	At the end of sub-topic the student should be able to: (a) Explain the meaning of food poisoning	(i) students to brainstorm meaning of food poisoning (ii) teacher to guide students to come up with the correct meaning	Textbooks/written texts on food poisoning Pamphlets on Staphylococcus aureus, Clostridium botulinum, Salmonella and Mycotoxins	Is the student able to: a) explain the meaning of food poisoning?	15
	(b) Categorize food poisoning	(i) teacher to lead students through questions and answers to categorize food poisoning (ii) students to identify micro-organisms which cause food intoxication and food infection and their proliferation (iii) teacher to provide reading assignment on conditions which lead to food poisoning (iv) teacher and students to discuss effects of food poisoning to human beings		b) categorize food poisoning?	
	(c) Propose methods to control food poisoning	(i) students to do an open textbook study to find out methods of controlling food poisoning (ii) teacher to guide students to outline the		c) propose methods to control food poisoning?	

		correct food poisoning control methods			
7.4 Food Hygiene	At the end of sub-topic the student should be able to: (a) State the meaning of food hygiene	(i) students to write on VIPP cards the meaning of food hygiene (ii) the teacher to summarise correct answers on the blackboard	VIPP cards the Raw and cooked food stuffs	Is the student able to: a) state the meaning of food hygiene?	8
	(b) Describe the rules for handling raw and cooked foods	(i) students to outline rules for handling raw and cooked food (ii) teacher to guide students to summarize the correct rules		b) describe the rules for handling raw and cooked foods?	
	(c) Explain hygienic practices in food handling	(i) students to use VIPP cards to list different hygienic practices in food handling (ii) students to role play hygienic practices in handling food		c) explain hygienic practices in food handling?	
8.0 FOOD QUALITY AND SAFETY 8.1 Natural toxicants in foods	At the end of sub-topic the student should be able to: (a) State the meaning of natural toxicants in food	(i) students to brainstorm the meaning of natural toxicants in foods (ii) teacher to guide students to come up with the correct meaning	Food stuffs	Is the student able to: a) state the meaning of natural toxicants in food?	11
	(b) Describe distribution of natural toxicants in various foods	(i) teacher to provide reading assignment to students on distribution of natural toxicants in various foods		b) describe distribution of natural toxicants in various foods?	

		(ii) students to identify natural toxicants in various foods through experiment (iii) teacher to guide students to perform class presentations and make clarifications			
8.2 Hazards of natural toxicants in foods	At the end of sub-topic the student should be able to: (a) Explain the hazards associated with each toxicant in the food	(i) teacher to guide students in groups to discuss hazards associated with toxicant identified in various foods (ii) teacher to guide students to present in plenary and make clarification	Soya beans Cotton seed oil Sorghum	Is the student able to: a) explain the hazards associated with each toxicant in the food?	12
	(b) Describe various methods used to remove toxicants in foods	(i) Students to perform simple test to show presence and absence of selected toxicants (ii) students and teacher to identify methods used to remove toxicants in foods		b) describe various methods used to remove toxicants in foods?	
8.3 Quality assurance	(a) Explain the concept of food safety and food quality assurance	i) students to brainstorm the meaning of food safety and quality assurance ii) teacher to guide students to come up with a correct meaning iii) teacher to guide students to outline the	Library	Is the student able to: a) explain the concept of food safety and food quality assurance?	22

		importance of quality assurance			
	(b) Describe food quality assurance system	(i) Teacher to invite a guest speaker to talk about food quality assurance system (ii) teacher to guide students to summarise main points		b) describe food quality assurance system?	
	(c) Analyze basic requirements of food quality and safety assurance	(i) teacher and students to identify basic requirements of food quality and safety assurance (ii) using questions and answers the teacher to guide student to discuss the basic requirements of food quality and safety assurance		c) analyze basic requirements of food quality and safety assurance?	

FORM SIX

SPECIFIC CLASS LEVEL COMPETENCES

By the end of form six the student should have the ability to:-

1. Participate actively in combating nutritional problems in Tanzania
2. Manage the over nutrition and under nutrition cases in the community
3. Manage a catering enterprise
4. Carry out Food and human nutrition related projects

SPECIFIC CLASS LEVEL OBJECTIVES

By the end of form six the student should be able to:-

1. Identify under nutrition and over nutrition problems in Tanzania
2. Describe the complex causes of under nutrition and over nutrition in Tanzania
3. Develop appropriate use of food and human nutrition knowledge in the prevention and man agement of under nutrition and over nutrition problems in the communities
4. Plan and design a food and human nutrition related projects
5. Plan design and organize a food services enterprise

TOPIC/ SUBTOPIC	SPECIFIC OBJECTIVES	TEACHING/LEARNING STRATEGIES	TEACHING/LEARNING RESOURCES	ASSESSMENT	PERIOD
1.0 **CATERING AND INSTITUTIONAL FEEDING** 1.1 Catering management	At the end of sub-topic the student should be able to: (a) State the meaning of catering and catering management	(i) students to brainstorm the meaning of catering and catering management (ii) teacher to lead discussion and make clarifications on the meaning of catering and catering management	VIPP cards	Is the student able to: a) state the meaning of catering and catering management ?	8
	(b) Explain types and economic importance of catering	(i) teacher to guide students through group discussion to explain types and economic importance of catering (ii) teacher to clarify and lead the students to summarize main points		b) explain types and economic importance of catering?	
	(c) Summarize principles of caterir g	(i) teacher to provide reading assignment to students on principles of catering (ii) teacher to guide students to present in plenary and summarize the principles		c) summarize principles of catering?	
1.2 Menu	At the end of sub-topic the student should be able to: (a) Explain the concept of menu	(i) teacher guide students through question and answers to give the meaning of menu (ii) students and teacher to discuss types, groups and importance of menu	Menu cards	Is the student able to: a) explain the concept of menu?	20

	(b) Discuss social-cultural and economic factors affecting menu planning	(i) students to identify their social cultural factors affecting menu planning (ii) through question and answers teacher to guide student to identify economic factors affecting menu planning (iii) teacher and students to summarise social cultural factors affecting menu planning		b) discuss social-culture and economic factors affecting menu planning?	
	(c) Design menu suitable for various social groups	(i) teacher to organize study visit to different types of hotels to observe different types of menu (ii) students to design menus for various social groups		c) design menu suitable for various social groups?	
1.3 Recipe	At the end of sub-topic the student should be able to: (a) explain the meaning of recipe	(i) students to brainstorm the meaning of recipe (ii) teacher to lead students to clarify the meaning of recipe	Food stuffs Different recipe Pearson's square chart	Is the student able to: a) explain meaning of recipe?	22
	(b) formulate recipes using available food stuffs	(i) students in group to formulate recipes from different types of food (ii) teacher to guide students to present in plenary and make clarification		b) formulate recipes using available food stuffs?	
	(c) Use a recipe to make a product	(i) student to prepare different food stuffs		Use a recipe to make a product	

		(ii) teacher to guide students to cook different dishes using prepared recipe			
1.4 Hygiene	At the end of sub-topic the student should be able to: a) Explain the meaning of hygiene	(i) student to brainstorm the meaning of hygiene (ii) teacher to lead discussion and make clarification on the meaning of hygiene.		Is the student able to: a) explain the meaning of hygiene?	9
	b) Categorize areas for proper hygiene practice	i) students in groups to discuss important areas for proper hygiene practice (general, kitchen, and personal hygiene) ii) teacher to guide students to discuss in plenary and summarize proper hygiene practice		b) categorize areas for proper hygiene practice?	
1.5 Business plan in catering	At the end of sub-topic the student should be able to: (a) Analyse possible sources of securing capital for catering enterprise	(i) student in groups to discuss different sources of securing capital for catering enterprise (ii) teacher to guide student to outline the sources of securing capital for catering enterprise	Posters Adverts Pictures/photographs of equipment in catering	Is the student able to: a) analyse possible sources of securing capital for catering enterprise?	24
	(b) Prepare a budget for catering entrepreneurship	(i) student to brainstorm the requirement for establishing catering entrepreneurship (ii) teacher to lead		b) prepare a budget for catering entrepreneurs hip?	

		students through question and answer to identify the right requirements (iii) students and teacher to budget for the requirements			
	(c) Describe the type and amount of labour, equipment and ingredients required	(i) Teacher to arrange a study visit to a catering industry (ii) students and teacher to identify type of labour, equipment and ingredients needed (iii) teacher to lead students to discuss amount of labour equipment and ingredients needed for the establishment of catering enterprise		c) describe the type and amount of labour, equipment and ingredients required?	
	(d) Plan for market promotion and merchandizing of catering	(i) Teacher to invite a guest speaker to talk on market promotion and merchandising of catering (ii) teacher to lead students to summarize main points		d) plan for market, promotion and merchandizing of catering?	
1.6 Tourist catering	At the end of sub-topic the student should be able to: (a) State the concept of tourist catering	(i) using questions and answers students to give the meaning of tourist, tourism and tourist catering (ii) teacher to provide reading assignment on economic importance of tourist catering	Tourist hotels	Is the student able to: a) state the concept of tourist catering?	16

	(b) Enumerate departments of tourist catering industry and their functions	(i) teacher to organize study of visit to a tourist hotel to observe different catering activities (ii) students in groups to identify key departments and discuss the role of each department (iii) teacher to lead discussion and summarize		b) enumerate departments of tourist catering industry and their functions?	
2.0 MALNUTRITION 2.1 Economic and social significance of malnutrition	At the end of sub-topic the student should be able to: a) Explain the meaning of malnutrition	(i) students to write on the VIPP cards the meaning of malnutrition (ii) teacher to clarify the correct meaning of malnutrition	VIPP cards Library	Is the student able to: a) explain the meaning of malnutrition?	7
	(b) Describe social and economic significance of malnutrition	(i) students to do library research on social and economic significance of malnutrition (ii) teacher to lead students through question and answers to outline social and economic significance of malnutrition		b) describe social and economic significance of malnutrition?	
2.2 Conceptual framework of malnutrition	At the end of sub-topic the student should be able to: (a) Categorize causes of malnutrition	(i) students to do library research on the causes of malnutrition (ii) teacher to lead students to discuss in	Library Chart of conceptual framework of malnutrition	c) categorize causes of malnutrition?	16

		plenary the causes of malnutrition and summarize the main points			
	(b) Analyze levels of malnutrition using the conceptual framework of malnutrition	(i) teacher and students to discuss levels of malnutrition using conceptual framework (ii) students to summarize the key issues from the discussion		b) analyze levels of malnutrition using the conceptual framework of malnutrition?	
2.3 Major nutritional problems in Tanzania	At the end of sub-topic the student should be able to: (a) Identify major nutritional problems in Tanzania and their causes	(i) students to brainstorm major nutritional problems in Tanzania (ii) students to discuss in groups the causes of each nutritional problem (iii) teacher to lead students discussions in plenary and summarize the causes of nutritional problems	Nutrition Rehabilitation Centres Pictures/photographs of victims of different nutritional problems	Is the student able to: a) identify major nutritional problems in Tanzania and their causes?	32
	(b) Describe the Management of Nutritional problems	(i) teacher to organize a study visit to a nutrition rehabilitation centre (ii) teacher to lead discussion on observation made and propose management of the nutritional problems		b) describe the Management of Nutritional problems?	
2.4 Nutritionally vulnerable social	At the end of sub-topic the student should be able to:	(i) through questions and answers students to	Photographs/pictures of victims	Is the student able to:	22

groups in the society	(a) Outline vulnerable social groups in the society	identify vulnerable social groups in the society (ii) teacher to guide class discussion on causes of vulnerability for each social group	Weighing scales Tape measures Chart of nutritional planning models Pamphlet on nutrition program planning	a) describe the management of nutritional problems?	
	(b) Explain methods used to identify vulnerable groups at household and community	(i) teacher to organize a field study to a nutritional rehabilitation centre to observe the methods adopted (ii) students to do library research on nutritional assessment (iii) teacher to guide students on how to conduct nutritional screening and nutritional surveillance to asses nutritional status of vulnerable groups at household and community level		b) explain methods used to identify vulnerable groups at household and community?	
3.0 NUTRITION PROGRAMME PLANNING AND INTERVENTION 3.1 Nutrition programme planning	At the end of sub-topic the student should be able to: (a) State the meaning of nutrition programme planning	(i) student to brainstorm the meaning of nutrition programme planning (ii) teacher to lead students to get the correct meaning of nutrition programme planning	Food and nutrition policy Illustration showing the macro – variables/areas of nutritional programme planning model	Is the student able to: a) state the meaning of nutrition programme planning?	21
	(b) Explain the principles involved in nutrition programme planning	(i) students in groups to discuss the principles of nutrition programme planning (ii) teacher to guide		b) explain the principles involved in nutrition programme planning?	

		students to present the principles in plenary session and summarise			
	(c) Explain aims and objectives of food and nutrition policy	(i) teacher to invite guest speaker to talk about food and nutrition policy (ii) teacher and student to summarize key points on food an nutrition policy		c) explain aims and objective of food and nutrition policy?	
	(d) Analyse nutrition programme planning model	(i) through questions and answers teacher to guide students to identify macro - variables/areas of nutrition programme planning model (ii) teacher to guide students through illustration to discuss macro – variables/areas of nutritional programme planning model with related policy		d) analyse nutrition programme planning model?	
3.2 Nutrition intervention programme	At the end of sub-topic the student should be able to: (a) Explain the meaning of nutrition intervention programme	i) teacher to guide students through question and answers to explain the meaning of nutrition intervention	Pamphlets on nutrition intervention programmes	Is the student able to: a) explain the meaning of nutrition intervention programme?	30
	(b) Outline the common nutrition intervention programme under primary health care	(i) Teacher to invite a guest speaker to talk about nutrition intervention programme (ii) teacher to provide reading assignment		b) outline the common nutrition intervention programme in Tanzania?	

		on common nutrition intervention programme in the country (iii) teacher to lead students to discuss and clarify main points			
	(c) Describe types of interventions	(i) teacher to organize a study visit to a community where nutrition intervention programme is in progress (ii) students to write report on types of interventions taking place		c) describe types of interventions ?	
3.3 Health and related services	At the end of sub-topic the student should be able to: (a) State the meaning of health and primary health care	(i) students to brainstorm the meaning of health and primary health care (ii) teacher and student to discuss and come up with the correct meaning of health and primary health care	Reproductive and child health clinic Family planning devices and pills	Is the student able to: a) state the meaning of health and primary health care?	30
	(b) Explain the services rendered by reproductive and child health clinics	(i) teacher to organize a study visit to a reproductive and child health clinic (ii) students in groups to discuss different services observed in the clinic (iii) teacher to guide		b) explain the services rendered by reproductive and child health clinics?	

		students to present in plenary and make clarification			
	(c) Discuss methods of family planning	(i) Teacher to invite a guest speaker from family planning centers to talk about family planning methods (ii) students and teacher to discuss the meaning and importance of family planning (iii) using questions and answers the teacher to guide students to discuss different methods of family planning (iv) students to identify advantages and disadvantages of each family planning methods		c) discuss methods of family planning?	
3.4 Environmental sanitation and water supply	At the end of sub-topic the student should be able to: (a) Explain the meaning of environmental sanitation and water supply	(i) students in groups to discuss the meaning of environmental sanitation and water supply (ii) teacher to lead students presentation on the meanings and make clarification	Library Water Filter Alum disinfectants (chlorine) Shabu	Is the student able to: a) explain the meaning of environment al sanitation and water supply?	24
	(b) Describe methods of waste disposal	(i) students to do library research on methods of waste disposal (ii) teacher to lead students		b) describe methods of waste disposal?	

		to make class presentation and make clarification			
	(c) Explain the importance of adequate and safe water supply	(i) students to discuss in groups the importance of adequate and safe water supply (ii) teacher to lead students to present in plenary		c)explain the importance of adequate and safe water supply?	
	(d) Methods of purifying water at household level	(i) teacher to demonstrate different methods of purifying water at household level (ii) students to practice different methods of purifying water at household level (iii) teacher to lead students to construct sand filter		d) methods of purifying water at household level?	
3.5 Community nutrition education	At the end of sub-topic the student should be able to: (a) Describe the concept of nutrition education and community nutrition education	(i) through question and answers students to explain the meaning of nutrition education and community nutrition education (ii) students to discuss in groups importance of nutrition education and community nutrition education	Library Pamphlets on nutrition education	Is the student able to: a) describe the concept of nutrition education and community nutrition education?	20
	(b) explain major components of nutrition education programme(s)	(i) using leading questions teacher to guide students to identify components of nutrition education programme(s)		b) explain the major component of nutrition education programmes?	

		(ii) teacher guide students to discuss the components of nutrition education programme(s)			
	(c) Discuss factors that limit the success of nutrition programme(s)	(i) teacher to provide reading assignment on factors that limit the success of nutrition programme(s) (ii) teacher to lead students to present in a plenary session (iii) students in groups to discuss on factors that limit the success of nutrition programme(s		c) discuss factor that limit to success of nutrition programme(s)?	
3.6 Nutrition intervention education programme	At the end of sub-topic the student should be able to: (a) Analyse nutrition intervention programmes in nutrition education	(i) through questions and answers the teacher to guide students to identify nutrition intervention programmes in nutrition education (ii) students and teacher to discuss each intervention mentioned	Library	Is the student able to: a) analyse nutrition intervention programmes in nutrition education?	12
	(b) Describe nutrition education approaches	(i) students to do library research on nutritional education approaches. (ii) teacher to lead students to discuss nutrition education approach and summarize		b) describe nutrition education approaches?	