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MINISTRY OF EDUCATION, SCIENCE AND TECHNOLOGY



FOOD AND HUMAN NUTRITION SYLLABUS FOR ADVANCED
SECONDARY EDUCATION
FORM V-VI
2023

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Abbreviations and Acronyms

NECTA	National Examinations Council of Tanzania
RDA	Recommended Daily Allowance
NRV's	Nutrient Reference Values
ICT	Information and Communication Technology
TIE	Tanzania Institute of Education

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1.0 Introduction

Food and Human Nutrition is a compulsory subject for students who choose to join the Science or Sports streams taking Food and Human Nutrition among the subjects in their combination. The subject provides a strong background in the principles underlying the science of food technology and human nutrition. This includes the dietary needs for different groups of people, food preservation and the practices of nutritional assessment. The course is anticipated to serve as a tool for helping students acquire the knowledge, abilities, and attitudes necessary to take care of themselves, and their families, and to engage in entrepreneurial activities. Additionally, the subject will serve as a tool for eradicating malnutrition in society and enhancing family health and well-being.

This syllabus is designed to guide the teaching and learning of Food and Human Nutrition for Advanced Secondary Education, Form V-VI in the United Republic of Tanzania. The syllabus interprets the competences indicated in the 2023 Advanced Secondary Education Curriculum. It emphasizes a hands-on approach throughout the entire teaching and learning process, including fieldwork and projects. The syllabus provides information that will enable teachers to plan their teaching and learning processes effectively. It also provides teaching and learning opportunities that will help teachers to apply different methods and strategies to promote students' nutritional skills and develop 21st century skills which include critical thinking, creativity, collaboration, communication and problem solving.

2.0 Main Objectives of Education in Tanzania

The main objectives of education in Tanzania are to enable every Tanzanian to:

- (a) Develop and improve his or her personality so that he or she values himself or herself and develop self-confidence;
- (b) Respect the culture, traditions and customs of Tanzania; cultural differences; dignity; human rights; attitudes and inclusive actions;
- (c) Advance knowledge and apply science and technology, creativity, critical thinking, innovation, cooperation, communication and positive attitudes for his or her development and the sustainable development of the nation and the world at large;
- (d) Understand and protect national values, including dignity, patriotism, integrity, unity, transparency, honesty, accountability and the national language;

- (e) Develop life and work-related skills to increase efficiency in everyday life;
- (f) Develop a habit of loving and valuing work to increase productivity and efficiency in production and service provision;
- (g) Identify and consider cross-cutting issues, including the health and well-being of the society, gender equality, as well as the management and sustainable conservation of the environment; and
- (h) Develop national and international cooperation, peace and justice in accordance with the Constitution of the United Republic of Tanzania and international conventions

3.0 Objectives of Advanced Secondary Education

The objectives of Advanced Secondary Education are to:

- (a) Strengthen, broaden and develop a deeper understanding of the knowledge, skills and attitudes developed at the Ordinary Secondary Education;
- (b) Safeguard customs and traditions, national unity, national virtues, democracy, respect for human and civil rights, duties and responsibilities associated with such rights;
- (c) Develop self-confidence and the ability to learn in various fields, including science and technology as well as theoretical and technical knowledge;
- (d) Improve the use of language in academic communication.
- (e) Strengthen accountability for cross-cutting issues, including health, security, gender equality and sustainable environmental conservation;
- (f) Develop competence and various skills which will enable the student to employ himself or herself, to be employed and to manage his or her life by exploiting his or her environment well; and
- (g) Develop readiness to continue to a college education.

4.0 General Competences for Advanced Secondary Education

The general competences for Advanced Secondary Education are to:

- (a) Apply the knowledge and skills acquired in Ordinary Secondary Education to strengthen and broaden academic understanding;

- (b) Demonstrate an appreciation of citizenship, national virtues, human rights and civil rights.;
- (c) Demonstrate confidence in learning various fields, including Science and Technology, theoretical knowledge and vocational education;
- (d) Use language skills in academic communication;
- (e) Apply knowledge of cross-cutting issues to master the surrounding environment;
- (f) Using knowledge and skills to enable a student to employ oneself, be employed as well as manage life and his or her environment; and
- (g) Demonstrate readiness to proceed to the next level of education.

5.0 Main and Specific Competences

The main and specific competences to be developed are presented in Table 1.

Table 1: *Main and Specific Competences for Form V-VI*

Main competences	Specific competences
1.0 Demonstrate mastery of principles of Food and Nutrition	1.1 Demonstrate an understanding of the dietary needs for different groups of people 1.2 Conduct experiments on the nutrient present in different types of food 1.3 Demonstrate an understanding of the determinants of good nutrition and intra-household food distribution
2.0 Demonstrate mastery of the technology for processing and preserving food	2.1 Process and preserve different types of food
3.0 Demonstrate mastery of the principles and practices of nutritional assessment	3.1 Conduct nutritional assessment
4.0 Carry out a project in Food and Nutrition	4.1 Conduct a project in Food and Nutrition

6.0 Roles of Teachers, Students and Parents in Teaching and Learning

A good relationship between a teacher, student and parent or guardian is fundamental in ensuring successful learning. This section outlines the roles of each participant in facilitating effective teaching and learning of Food and Human Nutrition

6.1 The teacher

The teacher is expected to:

- (a) Help students to learn and acquire the intended competences in Food and Human Nutrition;
- (b) Use teaching and learning approaches that will allow students with different needs and abilities to:
 - i. develop the competences needed in the 21st Century; and
 - ii. actively participate in teaching and learning process.
- (c) Use student centred instructional strategies that make the student a centre of learning which allow them to think, reflect and search for information from various sources;
- (d) create friendly teaching and learning environment;
- (e) Prepare and improvise teaching and learning resources;
- (f) Conduct formative assessment regularly by using tools and methods which assess theory and practice;
- (g) Treat all the student equally irrespective of their differences;
- (h) Protect the student while at school;
- (i) Keep track of the student's daily progress;
- (j) Identify individual student's needs and provide the right interventions;
- (k) Involve parents/guardians and the society at large in the student's learning process; and
- (l) Intergrate cross-cutting issues and ICT in the teaching and learning process.

6.2 The student

The student is expected to:

- (a) Develop the intended competences by participating actively in various activities inside and outside the classroom;
- (b) Actively engage in the teaching and learning process; and
- (c) Participate in the search for knowledge from various sources, including textbooks, reference books and other publications in online libraries.

6.3 The parent

The parent/guardian is expected to:

- (a) Monitor the child's academic progress in school;
- (b) Where possible, provide a child with the needed academic support;
- (c) Provide the child with safe and friendly home environment which is conducive for learning;
- (d) Keep track of the child's progress in behaviour;
- (e) Provide the child with any materials required in the learning process; and
- (f) Instill in the child a sense of commitment and positive value towards education and work.

7.0 Teaching and Learning Methods

The teaching and learning methods are instrumental in developing student's competences. This syllabus suggests teaching and learning methods for each activity which includes but not limited to discussions, presentations, field visits, practical work, research, scientific experiments, and project works. However, a teacher is advised to plan and use other appropriate methods based on the environment or context. All the teaching and learning methods should be integrated with the everyday lives of students.

8.0 Teaching and Learning Resources/Materials

The process of teaching and learning requires different resources. In that regard, both the teacher and the student should work together to prepare, collect or improvise alternative resources available in the school and home environment when needed. The

teacher and student are expected to constantly seek for information from various sources in order to effectively facilitate teaching and learning. The list of approved textbooks and reference books shall be provided by the TIE.

9.0 Assessment

Assessment is important in teaching and learning of Food and Human Nutrition subject. It is divided into formative and summative assessments. Formative assessment informs both the teacher and students on the progress of teaching and learning, and in making decisions on improving the teaching and learning process. Teachers are, therefore, expected to apply a wide range of formative assessment methods which include but not limited to discussions, presentations, oral questions, experiments, observations, practical and projects.

Summative assessment, on the other hand, will focus on determining student’s achievement of learning. Teachers are expected to use a variety of summative assessments including mid-term tests, terminal, mock examinations and projects. The scores obtained from these assessments will be used as Continuous Assessment (CA). Therefore, the continuous assessments shall contribute 30% and the National Form VI Examination shall be 70% of the student’s final achievement, as indicated in Table 2.

Table 2: *Contribution of Continuous Assessment and National Examination in the final score*

Assessment measures	Form V	Form VI
First Term Examination	5%	5%
Second Term Examination	5%	-
Project	-	10%
Mock Examinations	-	5%
National Examinations	-	70%
Total	100%	

10.0 Number of periods

The Food and Human Nutrition Syllabus for Advanced Level Secondary Education provides estimates of the time that will be spent in teaching and learning in consideration of the complexity of the specific competences and the learning activities. Ten periods of 40 minutes each have been allocated for this subject per week.

11.0 Teaching and learning contents

The contents of this syllabus are presented in matrix form with seven columns which include main competence, specific competence, learning activities, suggested methods, assessment criteria, suggested teaching and learning resources and number of periods as presented in Table 3-4.

Form V

Table 3: *Detailed Contents for Form V*

Main competence	Specific competence	Learning activities	Suggested teaching and learning methods	Assessment criteria	Suggested teaching and learning resources	Number of periods
1.0 Demonstrate mastery of principles of Food and Nutrition	1.1 Demonstrate an understanding of the dietary needs for different groups of people	(a) Explain the concept of groups with special dietary needs (<i>meaning, category and reasons</i>)	<p>Brainstorming: Guide students to brainstorm on the meaning of groups with special dietary needs</p> <p>Group discussion: Guide students to discuss categories of groups with special dietary needs</p>	The concept of groups with special dietary needs is well explained	Charts depicting categories of groups with special dietary needs	175

Main competence	Specific competence	Learning activities	Suggested teaching and learning methods	Assessment criteria	Suggested teaching and learning resources	Number of periods
		(b) Analyse the nutritional requirements for each special group (<i>children, adolescents, elders, vegetarians, pregnant women and lactating mothers, invalids and convalescents</i>)	<p>Scenario: Provide a scenario for students to identify nutritional needs of groups with special dietary needs then guide them to share</p> <p>Field trip: Organise a field trip to health centres for students to observe nutrition education provided and write the report</p>	Nutritional requirements for each group are well analysed	Charts depicting nutritional requirements for different for special group composition tables.	

Main competence	Specific competence	Learning activities	Suggested teaching and learning methods	Assessment criteria	Suggested teaching and learning resources	Number of periods
		(c) Explain the concept of Recommended Dietary Allowance (RDA) or Nutrients Reference Values (NRV's) (<i>meaning, uses and factors affecting RDA</i>)	<p>Scenario: Provide a scenario related to inadequate or excess nutrient intake. From the scenario, guide students to explore the meaning and factors affecting RDA.</p> <p>Group discussion: Guide students to discuss the application of RDA/NRV's in their daily life.</p>	The concept of Recommended Dietary Allowance (RDA) or Nutrients Reference Value (NRV's) is well explained.	Food composition tables, RDA/NRV's tables	
		(d) Use RDA/NRV's tables to determine nutritional requirements of individuals	<p>Group discussion: Guide students to use RDA/NRV's tables to determine nutritional requirements of individuals.</p>	Nutritional requirements of each group are determined.	RDA/NRV's tables, food composition tables.	

Main competence	Specific competence	Learning activities	Suggested teaching and learning methods	Assessment criteria	Suggested teaching and learning resources	Number of periods
		(e) Compute the nutrients intake for different groups using food composition tables and compare with RDA/NRV's	Group discussion: Guide students to use various food composition tables to compute nutrient intake for various individuals and make comparison with RDA	Nutrients intake for different groups are well computed and compared with RDA/NRV's.	Food composition tables RDA/ NRV's table	
		(f) Describe energy balance (meaning and components)	Questions and answers: Provide questions for students to get the meaning of energy balance Jigsaw: Organise students to discuss components of energy balance Project activity: Task students in their club to calculate basal metabolic Index of different individuals	Energy balance concept is well described	Weighing scale, Stadiometer	

Main competence	Specific competence	Learning activities	Suggested teaching and learning methods	Assessment criteria	Suggested teaching and learning resources	Number of periods
		(g) Plan meals for each group based on RDA table	Gallery walk: Guide students to plan meals for groups with special dietary needs based on RDA table Discussion: Guide them to discuss what they have planned	Meals for each group are well planned	Food composition tables RDA/ NRV's tables	
	1.2 Conduct experiments on the nutrient content of different types of food	(a) Extract nutrients from selected foods (<i>cereals, milk, coconut, seeds and nuts</i>)	Skill lab: Demonstrate on how to extract nutrients from various foods Organise students to perform the experiments and write laboratory analysis reports	Various nutrients from selected foods are extracted	Food items such as cereals, milk, coconut, seeds and nuts, laboratory apparatus and reagents	75

Main competence	Specific competence	Learning activities	Suggested teaching and learning methods	Assessment criteria	Suggested teaching and learning resources	Number of periods
		(b) Conduct laboratory analysis of selected foods to determine nutrient present. (<i>protein, starch, fats</i>)	<p>ICT based learning: Guide students to discuss on food rancidity and natural toxicants found in food.</p> <p>Skill lab: Demonstrate on how to determine the nutrients present in foods. Provide food items for students to perform the experiment and write analysis reports</p>	Nutrient present in selected foods, food rancidity and natural toxicants found in food are well determined	Food items containing protein, starch, fats, laboratory apparatus, relevant chemicals	
		(c) Carry out microscopic observations to examine the structures of different foods	<p>Skills Lab: Guide students to observe different structures of food stuffs under the microscope and task them to write experimental report</p>	Microscopic observations to examine the structures of different foods stuff is well conducted	Food items laboratory apparatus and chemicals	

Main competence	Specific competence	Learning activities	Suggested teaching and learning methods	Assessment criteria	Suggested teaching and learning resources	Number of periods
	1.3 Demonstrate an understanding of the determinants of good nutrition and intra-household food distribution	(a) Describe determinants of good nutrition (<i>biological, economic, physical and social</i>) and intra-household food distribution	<p>Library reading: Students to go through different readings to get an overview of food production and determinants of good nutrition and intra-household food distribution</p> <p>Group discussion: Guide students to discuss what they have learnt and share</p>	Determinants of good nutrition and intra-household food distribution are well described	A chart showing determinants of good nutrition	25

Main competence	Specific competence	Learning activities	Suggested teaching and learning methods	Assessment criteria	Suggested teaching and learning resources	Number of periods
2.0 Demonstrate mastery of the principles and practices of nutritional assessment	2.1 Conduct nutritional assessment	(a) Describe the methodology used in nutritional assessment (<i>ethics, study design, data collection, analysis and report writing</i>)	Gallery walk: Organise the students in manageable groups to explore different methodologies used in nutritional assessment	Nutritional assessment methods are well described	Dietary assessment tools	50
		(b) Carry out nutritional assessment in a selected community	Field work: Guide students to carry out nutritional assessment Field work: Guide students to identify nutritional problem in their nearby community, write report and share.	Nutritional assessment is well conducted	Dietary assessment tools, such as Food weighing scales, anthropometric measurement equipment	

Main competence	Specific competence	Learning activities	Suggested teaching and learning methods	Assessment criteria	Suggested teaching and learning resources	Number of periods
3.0 Carry out a project in Food and Nutrition	Conduct a project in Food and Nutrition	(a) Design and carry out a project in Food and Nutrition	Project: Guide students in their subject club to design a project on food and nutrition	A project on food and nutrition is well designed	Fortified foods, Food supplements	25

Form VI

Table 4: Detailed Contents for Form VI

Main competence	Specific competence	Learning activities	Suggested teaching and learning methods	Assessment criteria	Suggested teaching and learning resources	Number of periods
1.0 Demonstrate mastery of principles of Food and Nutrition	1.1 Demonstrate an understanding of the dietary needs for different groups of people	(a) Describe nutritional intervention programmes (<i>the concept, reasons and examples: Vitamin A supplementation, iron and folic acid supplementation, food fortification, exclusive breastfeeding, nutritional education, deworming and HIV and AIDS interventions</i>)	<p>Think pair share: Guide students to brainstorm on nutritional intervention programmes</p> <p>Group discussion: Guide students to discuss various nutritional intervention programmes</p> <p>Field trip: Organise field trip to various intervention centres for students to learn on intervention programmes</p> <p>Guide students to write the report and share</p>	Nutritional intervention programmes are correctly described	Fortified foods, Food supplements	32

Main competence	Specific competence	Learning activities	Suggested teaching and learning methods	Assessment criteria	Suggested teaching and learning resources	Number of periods
	1.2 Conduct experiments on the nutrient content of different types of food	(b) Carry out laboratory analysis to determine minerals in foods	Skills Lab: Demonstrate experiment on minerals determination Organise students to perform experiments and write reports	Laboratory analysis to determine minerals in food is well conducted	Food items, laboratory apparatus and chemical reagents	32

Main competence	Specific competence	Learning activities	Suggested teaching and learning methods	Assessment criteria	Suggested teaching and learning resources	Number of periods
2.0 Demonstrate mastery of the technology for processing and preserving food	2.1 Process and preserve different types of food	(a) Apply modern methods to process food (<i>milling, canning and bottling, fermentation, pasteurization, sterilization, dehydration, pickling</i>)	<p>Group discussion: Organise students into groups to discuss modern methods of food processing</p> <p>Field trip: Organise a trip to the nearby food processing industry for the students to explore on food processing procedures</p> <p>Guide them to write the report and share</p> <p>Project: Guide students in their subject clubs to process various food stuffs</p>	Different food stuffs are well processed using modern methods	Processed foods such as fermented and pasteurized milk, laboratory apparatus, chemical reagents, heat sources, food items	256

Main competence	Specific competence	Learning activities	Suggested teaching and learning methods	Assessment criteria	Suggested teaching and learning resources	Number of periods
		(b) Conduct laboratory analysis to determine the effect of heat and air on selected foods	Skills Lab: Demonstrate experiment on the effect of heat and air on various food stuffs Guide students to perform experiments, write reports and share	Laboratory analysis to determine the effect of heat and air on selected foods is well conducted	Food items, kitchen equipment, laboratory apparatus and chemical reagents, heat sources	
		(c) Carry out laboratory analysis to determine the actions of raising agents	Skills Lab: Demonstrate experiments on the action of raising agents on foods Guide students to perform experiments, write reports and share	Laboratory analysis to determine the actions of raising agents is well conducted	Laboratory apparatus and chemical reagents, raising agents, heat sources, food items	

Main competence	Specific competence	Learning activities	Suggested teaching and learning methods	Assessment criteria	Suggested teaching and learning resources	Number of periods
		(d) Describe the biochemistry of food preservation (<i>principles and modern methods of food preservation</i>)	ICT based learning: Task students to explore biochemistry of food preservation Group discussion: Guide the students to discuss the findings from ICT based learning	The biochemistry of food preservation is clearly described	Pictures/ videos showing modern methods of food preservation	
		(e) Apply modern methods to preserve food (<i>addition of chemicals, freezing, canning and bottling</i>),	Project: Guide students in their subject clubs to preserve different food stuffs	Modern methods preserving food are correctly applied	Pictures/ videos showing modern methods of food preservation, chemical preservatives, heat sources, preservation equipment, food items	

Main competence	Specific competence	Learning activities	Suggested teaching and learning methods	Assessment criteria	Suggested teaching and learning resources	Number of periods
		(f) Conduct laboratory analysis to determine the effects of preservation on selected foods	Skills Lab: Demonstrate experiments to observe the effects of preservation on selected foods Guide students to observe the effects of preservation on selected foods.	Laboratory analysis to determine the effect of preservation on selected foods is well conducted	Kitchen equipment, food preservatives, heat sources, food items	

Main competence	Specific competence	Learning activities	Suggested teaching and learning methods	Assessment criteria	Suggested teaching and learning resources	Number of periods
		(g) Conduct laboratory analysis to identify effect of acids and alkali on food	Skills lab: Demonstrate experiments on the effect of acids and alkali on food Guide students to perform experiments, write reports and share	Laboratory analysis to identify the effect of acids and alkali on foods is well conducted	Pictures/ videos showing effects of acids or alkalis on food, laboratory apparatus and chemical reagents, heat sources, food items	

Main competence	Specific competence	Learning activities	Suggested teaching and learning methods	Assessment criteria	Suggested teaching and learning resources	Number of periods
		(h) Carry out laboratory analysis to determine spoilage microorganisms in food	<p>Group discussion: Guide students to describe micro-organisms affecting food</p> <p>Skills lab: Demonstrate experiments on determination of spoilage microorganisms in food Guide students to perform experiments, write reports and share</p>	<p>Microorganisms affecting food are clearly described.</p> <p>Laboratory analysis to determine spoilage microorganisms in food is well conducted</p>	<p>Pictures/ videos showing microbial spoilage foods, laboratory apparatus and chemical reagent, microscope, heat sources, food items</p>	

Main competence	Specific competence	Learning activities	Suggested teaching and learning methods	Assessment criteria	Suggested teaching and learning resources	Number of periods
3.0 Carry out a project in Food and Nutrition	3.1 Conduct a project in Food and Nutrition	(a) Complete and submit for assessment the project initiated in Form V	Group discussion: Encourage the students in groups to discuss and finalise the project initiated in form five and submit for assessment	Report of the project is well completed and submitted		30

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