

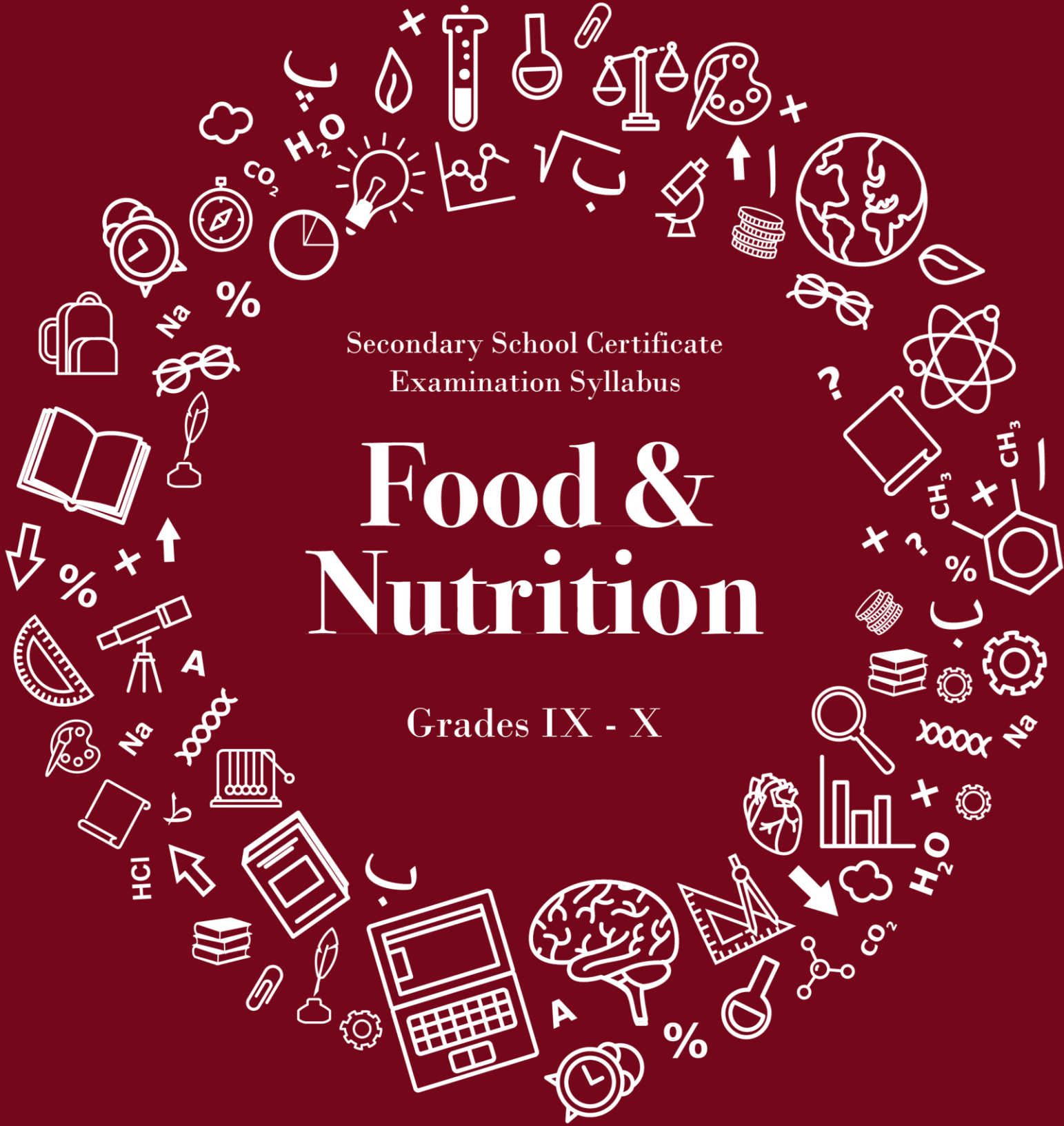


آغا خان یونیورسٹی ایگزامینیشن بورڈ
AGA KHAN UNIVERSITY EXAMINATION BOARD

Secondary School Certificate
Examination Syllabus

Food & Nutrition

Grades IX - X



FOR ANNUAL EXAMINATION 2023 AND ONWARDS

Published by
Aga Khan University Examination Board
Block - C, IED - PDC, 1-5/B-VII
Federal B. Area, Karimabad, Karachi, Pakistan.

Latest revision: August 2022
(This syllabus has been periodically revised in 2009 and 2018)

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**Secondary School Certificate
Examination Syllabus**

**FOOD AND NUTRITION
GRADES IX-X**

**This syllabus will be examined in
Annual Examination session from
Annual Examinations 2023**

Table of Contents	Page No.
Preface	5
Understanding of AKU-EB Syllabi	7
Subject Rationale	8
Concept Map	10
Student Learning Outcomes	11
Scheme of Assessment	26
Acknowledgements	29

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Preface

Established in 2002 through the Pakistan government's ordinance, the Aga Khan University Examination Board (AKU-EB) is country's first private autonomous qualification awarding body for secondary (SSC) and higher secondary (HSSC) school certifications. Its vision is to be a model of excellence and innovation in education in Pakistan and the developing world.

AKU-EB achieves its vision by developing examination syllabi which inculcate conceptual thinking and higher order learning and are aligned with National/ trans-provincial curricula and international standards. AKU-EB revises its syllabi periodically to support the needs of students, teachers and examiners.

The aims of the syllabus review of SSC and HSSC are to:

- Ensure continued compatibility with the goals of the trans-provincial curricula of Pakistan.
- Review the content for inclusion of new knowledge and deletion of obsolete knowledge.
- Review the content for clarity and relevance as per the changing needs of students, teachers and examiners.
- Enhance and strengthen continuation and progression of content both within and across grades IX - XII (SSC and HSSC).
- Ensure the readiness of students for higher education.

During the syllabus review, the needs of all the stakeholders were identified through a needs-assessment survey. Students and teachers of AKU-EB affiliated schools from across Pakistan participated in the survey. Thereafter, a revision panel, which consisted of examiners, teachers of affiliated and non-affiliated schools, teacher trainers and university academicians, reviewed and revised the syllabus following a planned, meticulous and standardised syllabi review process.

The syllabus is organised into topics and subtopics. Each subtopic is further divided into achievable student learning outcomes (SLOs). The SLOs of the cognitive domain are each assigned a cognitive level on which they have to be achieved. These cognitive levels are 'knowledge', 'understanding' and 'application', the latter also including other higher order skills. This is followed by the Exam Specification which gives clear guidance about the weightage of each topic and how the syllabus will be assessed.

The development of the revised syllabus has been made possible by the creativity and relentless hard work of Curriculum and Examination Development unit and the constant support provided by all the other units of AKU-EB. We are particularly thankful to Dr Sohail Qureshi for his very useful feedback on revising the syllabus review process, to Dr Naveed Yousuf for his continued guidance and support throughout the syllabus revision process and to Raabia Hirani for leading the syllabi revision. We are also thankful to all the students and teachers who took part in the needs-assessment survey and to the principals of AKU-EB affiliated schools who made this endeavour possible by facilitating and encouraging their teachers to be a part of the survey and the syllabus revision panel.

With your support and collective hard work, AKU-EB has been able to take the necessary steps to ensure effective implementation of the best international and trans-provincial standards through this syllabus. We are confident that this syllabus will continue to provide the support that is needed by students to progress to the next level of education and we wish the very best to our students and teachers in implementing this syllabus.



Dr Shehzad Jeeva

Chief Executive Officer (CEO), Aga Khan University Examination Board

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FOR ANNUAL EXAMINATION 2023 AND ONWARDS

Understanding of AKU-EB Syllabi

1. The AKU-EB syllabi guide the students, teachers, parents and other stakeholders regarding the topics that will be taught and examined in each grade (IX, X, XI and XII). In each syllabus document, the content progresses from simple to complex, thereby, facilitating a gradual, conceptual learning of the content.
2. The topics of the syllabi are divided into subtopics and **student learning outcomes (SLOs)**. The subtopics and the SLOs define the depth and the breadth at which each topic will be taught, learnt and examined. The syllabi also provide enabling SLOs where needed to scaffold student learning.
3. Each SLO starts with an achievable and assessable **command word** such as describe, relate, evaluate, etc. The purpose of the command words is to direct the attention of teachers and students to specific tasks that the students are expected to undertake in the course of their studies. The examination questions are framed using the same command words or their connotations to elicit evidence of these competencies in students' responses.
4. The topics of the syllabi are grouped into themes derived from the National/ trans-provincial curricula. The connection between various themes and topics is highlighted in the '**concept map**' provided at the beginning of each syllabus. This ensures that students begin to understand the interconnectedness of knowledge, learn conceptually and think critically.
5. The SLOs are classified under three **cognitive levels**: knowledge (K), understanding (U) and application and other higher order skills (A) for effective planning during teaching and learning. Furthermore, it will help to derive multiple choice questions (MCQs), constructed response questions (CRQs) and extended response questions (ERQs) on a rational basis from the subject syllabi.
6. By focusing on the achievement of the SLOs, these syllabi aim to counter the culture of rote memorisation as the preferred method of examination preparation. While suggesting relevant, locally available textbooks for achieving these outcomes, AKU-EB recommends that teachers and students use multiple teaching and learning resources for achieving these outcomes.
7. The syllabi follow a uniform layout for all subjects to make them easier for students and teachers to follow. They act as a bridge between students, teachers and assessment specialists by providing a common framework of student learning outcomes and **exam specifications**.
8. On the whole, the AKU-EB syllabi for Secondary School Certificate (SSC) provide a framework that helps students to acquire conceptual understanding and learn to critically engage with it. This lays a solid foundation for HSSC and beyond.

Subject Rationale of AKU-EB Food and Nutrition

What will you learn in AKU-EB Food and Nutrition?

Nutrition-related illness has become a global issue; therefore, it is immensely important to educate our society about the importance of nutrition and its direct or indirect impact on the economic and social development of the society. Thus, proper education of food and nutrition and its right practices are the ultimate solutions to address nutrition-related illness globally. Therefore, food and nutrition syllabus is designed to understand and follow the main aspects of food science, including nutrition and nutritional value, meal management, community health nutrition and food technology.

Where will it take you?

AKU-EB food and nutrition examination syllabus is more focused towards conceptual understanding of the importance of nutrition and its application in the changing world which prepares students appropriately for higher secondary or tertiary level studies of food and nutrition-related fields.

The following list suggests the diversity of careers which graduates in food and nutrition can pursue:

Food Writer

Dietary Manager

Clinical Dietetics

Professional Chef

Nutrition Educator

Public Health Worker

Independent Nutritionist

International Aid Worker

Food Industry Professionals

Weight Management Professional

How to approach the syllabus?

The concept map on the next page will give you an overview of your entire syllabus. After this, the topics and Student Learning Outcomes (SLOs) will tell you the details about what you have to achieve. And finally, the Exam Specification will tell you what to expect in your examination.

What is the concept map telling you?

‘To eat is a necessity, but to eat intelligently is an art.’

La Rochefoucauld

In this concept map of food and nutrition, the items on the table are artistically presented and related to the themes that we cover in our syllabus. There is a purpose for keeping each item on the specific part of the table. The four main parts of the table depict the four main themes present in the food and nutrition SSC syllabus. Each food item or other items signify the topics and subtopics. For example, in the theme nutrient and nutritional value, the plate with a variety and balanced food illustrates the requirement and importance of a balanced diet in our lives. Let's explore the logic behind every item on the table and relate it with the topics in our syllabus.

FOR ANNUAL EXAMINATION 2023 AND ONWARDS

Foods & Nutrition

1 nutrients & nutritional values

- i. Introduction to the study of food & nutrition
- ii. Energy and nutrients
- iii. Balanced diet
- iv. Nutrient composition

4 food technology

- i. Preparation & Cooking
- ii. Food Preservation

2 meal management

- i. Meal Management
- ii. Table Setting & Meal Services
- iii. Purchasing & Storage of Food

3 community & health nutrition

- i. Family & Community Nutrition

1500 calories

Grocery list
Meat
Beans
Mushrooms
Rice

pickle

Student Learning Outcomes of AKU-EB SSC Food and Nutrition Syllabus

Part I (Grade IX)

Topics and Sub-topics	Student Learning Outcomes		Cognitive Level ¹		
			K	U	A
1. Introduction to the Study of Nutrition and Human Organ System	Students should be able to:				
1.1 Introduction	1.1.1	define the terms 'nutrition', 'nutrients' and 'diet';	*		
	1.1.2	relate nutrition with physical health;		*	
	1.1.3	discuss the significance of food and nutrition in daily life;		*	
	1.1.4	define antioxidants;	*		
	1.1.5	discuss the role of antioxidants in regulating human body processes;		*	
1.2 Human Organ System	1.2.1	describe the functions of human organ systems, i.e: a. digestive system b. muscular system c. skeletal system.		*	

¹ K = Knowledge, U = Understanding, A = Application and other higher-order cognitive skills

Topics and Sub-topics	Student Learning Outcomes		Cognitive Level		
			K	U	A
2. Energy and Nutrients	Students should be able to:				
2.1 Nutrients <ul style="list-style-type: none"> • carbohydrates • proteins • fats • minerals (calcium, iodine, phosphorus and iron) • vitamins (A, B1, B2, B6, C, D and folate) • water • dietary fiber 	2.1.1	list the basic nutrients of food;	*		
	2.1.2	describe each basic nutrient;		*	
	2.1.3	identify the food sources of each basic nutrient;		*	
	2.1.4	describe the functions of each basic nutrient;		*	
	2.1.5	explain the digestion of carbohydrates, proteins and fats in each part of the digestive system, i.e. <ul style="list-style-type: none"> a. mouth b. stomach c. small intestine; 		*	
	2.1.6	describe the absorption of nutrients in small intestine, i.e. <ul style="list-style-type: none"> a. carbohydrates b. proteins c. fats; 		*	
	2.1.7	discuss the health implications of low carbohydrate, high protein diet;		*	
2.2 Food intolerance	2.2.1	define the term ‘food intolerance;’	*		
	2.2.2	describe intolerance to lactose and gluten;		*	
2.3 Dietary Reference Intakes (DRIs)	2.3.1	define Dietary Reference Intakes (DRIs);	*		
	2.3.2	differentiate among Dietary Reference Intakes (DRIs), i.e. <ul style="list-style-type: none"> a. Estimated Average Requirements (EARs) b. Recommended Dietary Allowances (RDAs) c. Adequate Intakes (AIs) d. Tolerable Upper Intake Levels (ULs); 		*	
	2.3.3	describe the general characteristics of Recommended Daily Allowance (RDA);		*	

Topics and Sub-topics	Student Learning Outcomes		Cognitive Level		
			K	U	A
	Students should be able to:				
	2.3.4	state the RDA of nutrients for teenagers, i.e. a. carbohydrates b. proteins c. fats d. minerals (calcium, iodine, phosphorus and iron) e. vitamins (A, B1, B2, B6, C, D and folate) f. water g. dietary fiber;	*		
	2.3.5	discuss the most likely effects of excess and deficiencies of each nutrient;		*	
	2.3.6	discuss public health strategies to overcome iron, vitamin A, vitamin D and folate deficiency;		*	
2.4 Energy Value of Food	2.4.1	define the terms 'energy', 'calorie' and 'metabolism';	*		
	2.4.2	state the uses of energy in human body;	*		
	2.4.3	outline the process of release of energy in human body;		*	
	2.4.4	describe factors affecting energy requirement of the individuals, i.e. a. age b. gender c. physical activity d. state of body (pregnancy, lactation and illness).		*	

Topics and Sub-topics	Student Learning Outcomes	Cognitive Level		
		K	U	A
3. Balanced Diet	Students should be able to:			
3.1 Features and Importance of Balanced Diet	3.1.1 define balanced diet;	*		
	3.1.2 differentiate between balanced and unbalanced diet;		*	
	3.1.3 define malnutrition;	*		
	3.1.4 differentiate between under-nutrition and over-nutrition;		*	
	3.1.5 relate: a. kwashiorkor and marasmus with under-nutrition b. diabetes and obesity with over nutrition;		*	
	3.1.6 identify food groups in food pyramid;		*	
	3.1.7 describe the different food groups;		*	
	3.1.8 describe the concept of 'MyPlate'; a. cereals b. fruits c. vegetables d. milk products e. meat;		*	
	3.1.9 state the importance of balanced diet;	*		
	3.1.10 explain the requirement of a balanced diet; a. at different ages-infancy, pre-school, adolescence, adulthood, old age b. between genders c. in relation to intensity of daily physical activity d. during pregnancy and lactation;		*	
3.2 Health and Dietary Practices	3.2.1 define the term 'health';	*		
	3.2.2 define the term 'dietary practices';	*		
	3.2.3 describe the factors influencing dietary practices;		*	
	3.2.4 discuss the role of unhealthy dietary practices on health;		*	
	3.2.5 discuss the general dietary guidelines to maintain optimal health;		*	

Topics and Sub-topics		Student Learning Outcomes		Cognitive Level		
				K	U	A
		Students should be able to:				
3.3	Planning Balanced Diets	3.3.1	discuss the importance of healthy food choices;		*	
		3.3.2	differentiate between serving size and the concept of portion size;		*	
		3.3.3	plan a balanced diet for a teenager using basic food groups;			*
		3.3.4	define Body Mass Index (BMI);	*		
		3.3.5	calculate Body Mass Index BMI;			*
		3.3.6	estimate energy, protein, carbohydrate and fat content for an individual.			*

FOR ANNUAL EXAMINATION 2022

Topics and Subtopics	Student Learning Outcomes		Cognitive Level		
			K	U	A
4. Nutrient Composition	Students should be able to:				
4.1 Nutrient Composition of the Various Foods	4.1.1	describe the nutrient composition of various foods, i.e. a. milk b. eggs c. fish d. poultry e. vegetables and fruits f. cereals g. pulses h. nuts i. butter j. cheese k. yogurt;		*	
	4.1.2	identify food items with reference to their nutrient composition.		*	

Topics and Sub-topics	Student Learning Outcomes	Cognitive Level		
		K	U	A
5. Preparation and Cooking	Students should be able to:			
5.1 Preparation and Cooking Methods	5.1.1	explain the effects of cooking on colour, texture, palatability and digestibility of various foods, i.e. a. milk and milk products b. eggs c. meat and meat products d. vegetable and fruits e. cereals and starch;		*
	5.1.2	describe appropriate methods of preparing food; (cereals, meat and vegetables);		*
	5.1.3	identify measuring equipment (cups and spoons);		*
	5.1.4	convert weight and volume equivalencies;		*
	5.1.5	demonstrate different cooking methods, i.e. a. baking b. frying c. grilling d. steaming e. boiling f. barecuing;		*P
	5.1.6	describe the effects of moist and dry method of cooking on the nutrient content of food;		*
	5.1.7	explain cooking methods which minimises nutrient losses;		*
	5.1.8	plan, prepare and serve some common dishes from the following: a. milk and milk products (custard, kheer, etc) b. eggs (omelet, egg sandwiches, egg roll, etc) c. meat and meat products (biryani, etc)		*P

Topics and Subtopics	Student Learning Outcomes		Cognitive Level		
			K	U	A
	Students should be able to:				
	5.1.9	d. vegetable and fruits (potato and spinach bhujia, vegetable rice, pea pulao, etc) e. cereals and starch (paratha, cutlets, daal, etc); explain food preparation guidelines;		*	
5.2 Safety in the Kitchen	5.2.1 5.2.2 5.2.3	explain the importance of safety measures in the kitchen; identify potential danger areas in the kitchen; discuss causes of accidents in the kitchen and their preventive measures, i.e. a. slips b. trips c. scalds and burns d. machinery accidents e. cuts f. fires g. electricity.		* * *	

*Practical Activity

Part II (Grade X)

Topics and Subtopics		Student Learning Outcomes		Cognitive Level		
				K	U	A
6. Family and Community Nutrition		Students should be able to:				
6.1 Nutrition of Vulnerable Groups in the Community	6.1.1	define the term ‘community nutrition’;	*			
	6.1.2	define the term ‘vulnerable groups’;	*			
	6.1.3	identify nutritional problems of different vulnerable groups;			*	
	6.1.4	explain the dietary needs of the vulnerable groups: a. pregnant and lactating females b. infants c. preschoolers d. adolescents e. elderly;			*	
	6.1.5	differentiate between the additional food requirements of pregnant and lactating mothers;			*	
	6.1.6	describe the advantages and disadvantages of breast-feeding and bottle-feeding;			*	
	6.1.7	compare the choices between home-made and commercial baby foods;			*	
	6.1.8	differentiate between healthy snacks and unhealthy snacks;			*	
	6.1.9	explain the modification of diets to suit the food needs of preschools and elderly in the family;			*	
6.2 Preventing Malnutrition in Community	6.2.1	list various measures for preventing malnutrition;	*			
	6.2.2	discuss the prevention of nutritional disorders related to food shortage;			*	
	6.2.3	discuss the role of economics in community nutrition;			*	
	6.2.4	discuss the role of nutrition education in promoting healthy diets;			*	
	6.2.5	explain distribution of food in family and community;			*	
	6.2.6	discuss the importance of avoiding food wastage at family and community levels.			*	

Topics and Sub-topics	Student Learning Outcomes		Cognitive Level		
			K	U	A
7. Meal Management	Students should be able to:				
7.1 Principles of Meal	7.1.1	define the term ‘meal planning’;	*		
	7.1.2	state the principles of meal planning;	*		
	7.1.3	explain the importance of meal planning;		*	
7.2 Menu Planning for Families of Different Income Levels	7.2.1	define the term ‘menu planning’;	*		
	7.2.2	state the principles of menu planning;	*		
	7.2.3	differentiate between meal planning and menu planning;		*	
	7.2.4	state the principles of menu writing;	*		
	7.2.5	describe the types of menu, i.e. a. formal b. informal c. single use d. cycle menu;		*	
7.3 Menu Planning	7.3.1	plan menu for three different income levels, i.e. a. low b. middle c. high;			*P
	7.3.2	plan menu for different stages of life, i.e. a. pregnancy b. early childhood c. teenage d. elderly;			*P
	7.3.3	plan menu for different dietary preferences, i.e. a. meat lovers b. vegetarians c. health conscious individuals;			*P

Topics and Sub-topics	Student Learning Outcomes		Cognitive Level		
			K	U	A
	Students should be able to:				
	7.3.4	plan menu for different occasions, i.e. a. eid b. birthday c. wedding.			*P

FOR ANNUAL EXAMINATION 2023 AND

Topics and Sub-topics	Student Learning Outcomes	Cognitive Level		
		K	U	A
8. Table Setting and Meal Services	Students should be able to:			
8.1 Food Service and Table Setting	8.1.1	define the term 'food service';	*	
	8.1.2	describe the significance of food service;		*
	8.1.3	describe the different methods of food service, i.e. a. buffet b. trolley c. tray d. table;		*
	8.1.4	describe appropriate methods of food services for different occasions;		*
8.2 Table Manners and Etiquettes	8.2.1	demonstrate table manners and etiquettes, e.g. washing hands before eating meals, saying prayers while starting meal, using right hand while eating, use of table napkins etc.		*P

*Practical Activity

Topics and Sub-topics	Student Learning Outcomes		Cognitive Level		
			K	U	A
9. Purchases and Storage of Food	Students should be able to:				
9.1 Purchase of Food	9.1.1	explain the principles of purchase;		*	
	9.1.2	interpret food label;			*
	9.1.3	discuss the criteria of purchasing different types of food, i.e.		*	
		a. fruits b. meat c. vegetables d. bread;			
9.2 Storage	9.2.1	compare different types of food storage: a. refrigeration b. freezing c. cabinet storage.		*	

Topics and Sub-topics	Student Learning Outcomes		Cognitive Level		
			K	U	A
10. Food Preservation	Students should be able to:				
10.1 Food Preservation	10.1.1	define the term ‘preservation of food’;	*		
	10.1.2	discuss the importance of food preservation;		*	
	10.1.3	explain the principles of preserving food;		*	
	10.1.4	compare different methods of preservation, i.e. a. heating, i.e. canning and bottling b. removal of moisture, i.e. drying c. reduction in temperature, i.e. freezing d. chemical preservation, i.e. sugar, salt, vinegar e. pasteurisation f. irradiation;		*	
10.2 Food Spoilage	10.2.1	define the term ‘spoilage of food’;	*		
	10.2.2	explain the factors of food spoilage, i.e. a. natural decay (moisture loss and action of enzymes) b. contamination by microorganisms (bacteria, mould and yeast) c. other sources (chemicals, radiation and pollution);		*	
	10.2.3	explain different methods of controlling food spoilage, i.e. a. personal hygiene b. kitchen hygiene c. waste disposal;		*	
10.3 Food Additives	10.3.1	define the term ‘food additives’;	*		
	10.3.2	describe the types of food additives and their uses;		*	

Topics and Sub-topics	Student Learning Outcomes		Cognitive Level		
			K	U	A
	Students should be able to:				
	10.3.3	explain the role of food additives in relation to health hazards, i.e. a. allergies b. migraine c. diabetes d. dysbiosis;		*	
	10.3.4	discuss food adulteration and its implications on human health.		*	

FOR ANNUAL EXAMINATION 2022

Scheme of Assessment

Grade IX

Table 1: Number of Student Learning Outcomes by Cognitive level

Topic No.	Topic	No. of Sub-Topics	SLOs			Total SLOs
			K	U	A	
1.	Introduction to the study of Food and Nutrition	2	2	4	-	6
2.	Energy and Nutrients	4	6	13	-	19
3.	Balanced Diet	3	6	12	3	21
4.	Nutrient Composition	1	-	2	-	2
5.	Preparation and Cooking	2	-	8	3	11
Total		12	14	39	6	59
Percentage			24	66	10	100

Table 2: Exam Specification

Topic No.	Topics	Marks Distribution			Total Marks
		MCQs	CRQs	ERQs	
1.	Introduction to the study of Food and Nutrition	8	Total 3 Marks (1 CRQ)		11
2.	Energy and Nutrients	10	Total 3 Marks (1 CRQ)	6 Marks Choose any ONE from TWO	28
3.	Balanced Diet	6	Total 3 Marks (1 CRQ)		
4.	Nutrient Composition	8	Total 2 Marks (1 CRQ)	6 Marks Choose any ONE from TWO	26
5.	Preparation and Cooking	8	Total 2 Marks (1 CRQ)		
Total		40	13	12	65
Practical*					10
Total					75

Grade X

Table 3: Number of Student Learning Outcomes by Cognitive level

Topic No.	Topic	No. of Sub-Topics	SLOs			Total SLOs
			K	U	A	
6.	Family and Community Nutrition	2	3	12	0	15
7.	Meal Management	3	5	3	4	12
8.	Table Setting and Meal Services	2	1	3	1	5
9.	Purchases and Storage of Food	2	-	3	1	4
10.	Food Preservation	3	3	8	-	11
Total		12	12	29	6	47
Percentage			25	62	13	100

Table 4: Exam Specification

Topic No.	Topics	Marks Distribution			Total Marks
		MCQs	CRQs	ERQs	
6.	Family and Community Nutrition	7	Total 3 Marks (1 CRQ)	6 Marks Choose any ONE from TWO	26
7.	Meal Management	7	Total 3 Marks (1 CRQ)		
8.	Table Setting and Meal Services	8	Total 3 Marks (1 CRQ)		11
9.	Purchases and Storage of Food	9	Total 2 Marks (1 CRQ)	6 Marks Choose any ONE from TWO	28
10.	Food Preservation	9	Total 2 Marks (1 CRQ)		
Total		40	13	12	65
Practical*					10
Total					75

- Multiple Choice Question (MCQ) requires candidates to choose one best/ correct answer from four options for each question. Each MCQ carries ONE mark.
- Constructed Response Question (CRQ) requires students to respond with a short text (few phrases/ sentences), calculations or diagrams.
- Extended Response Question (ERQ) requires students to answer in a more descriptive form. The answer should be in paragraph form, with diagrams where needed, and address all parts of the question.
- Tables 1 and 3 indicate the number and nature of SLOs in each topic in grades IX and X respectively. This will serve as a guide in the construction of the examination paper. It also indicates that more emphasis has been given to the Understanding (66% in IX and 62% in X), Application and higher order skills (10% in IX and 13% in X) to discourage rote memorisation. Tables 1 and 3, however, do not translate directly into marks.
- There will be two examinations, one at the end of grade IX and one at the end of grade X.
- In each grade, the theory paper will be of 3 hours and will consist of two parts: paper I and paper II.
- Paper I theory will consist of 40 compulsory, multiple choice items. These questions will involve four response options.
- Paper II theory will carry 25 marks and consist of a number of compulsory, structured questions and a number of extended response questions. Each extended response question will be presented in an either/or form.
- All constructed response questions will be in a booklet which will also serve as an answer script.

***Practical:**

- In each grade, practical examination will be conducted separate from the theory paper and will consist of 10 marks.
- Practical examination will be based on the list of practical activities given in the examination syllabus. Schools may design their own practical manuals based on these activities.
- Practical journal/ portfolio should be developed by students and endorsed by a figure of authority, such as a teacher or principal, and submitted at the time of the practical examination.
- It is essential for each school to equip its computer laboratories with necessary devices, software etc. to meet the requirements of the practicals in the examination syllabus. Each school will be responsible to make sure that each student is provided the opportunity to do the practicals.

Acknowledgements

Aga Khan University Examination Board (AKU-EB) would like to acknowledge the contributions of all those who played an important part in the revision of the AKU-EB SSC Food and Nutrition syllabus.

We would like to thank **Nek Parveen, Former Specialist** and **Sumera Anjum, Specialist**, AKU-EB, for taking the **subject lead** during the entire process for revising the **Food and Nutrition** syllabus and **Sajida Afzal, Specialist** for taking the **lead** during the development of Exam Specification 2023.

We are particularly thankful to the **syllabus revision panel** for their time, commitment and effort in revising the syllabus. The panel included:

- **Gul Afshan Siddiqui**
Habib Girls School, Karachi
- **Najiha Khan**
Rana Liaquat Ali

We also thank the following **post-revision reviewers** for their feedback on relevance of the content, skills and resources of the syllabus:

- **Gul Afshan Siddiqui**
Habib Girls School, Karachi
- **Umm-e-Aimen**
Safiya Girls School

Furthermore, we thank the following for reviewing the syllabus for **higher education preparedness**, ensuring that the syllabus includes adequate skills and content to effectively prepare students for the next level of education.

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We would like to thank the students and teachers of affiliated schools from across Pakistan who gave their valuable feedback at various stages of the review process.

We also thank **Shahid Arwani**, Assistant AKU-EB, **Tabassum Ali**, Senior Assistant, AKU-EB and **Anusha Aslam**, Former Assistant, AKU-EB, for data compilation and formatting. In addition, we thank, **Noshaba Hameed**, Assistant AKU-EB and **Naveed Ashiq Ali** for his support during formatting.