



Course Specifications

Revised November 2019

Course Title:	Food Quality Control
Course Code:	4014482-2
Program:	BSc Microbiology
Department:	BSc Microbiology
College:	Faculty of Applied Science – Department of Biology
Institution:	UM AL – QURA UNIVERSITY
Revision Date	November 2019

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A. Course Identification

1. Credit hours: 3 hours
2. Course type
a. University <input type="checkbox"/> College <input type="checkbox"/> Department <input checked="" type="checkbox"/> Others <input type="checkbox"/>
b. Required <input checked="" type="checkbox"/> Elective <input type="checkbox"/>
Level/year at which this course is offered: 4 th Year / Level 8
4. Pre-requisites for this course (if any): Food Microbiology (4014421-3)
5. Co-requisites for this course (if any): None

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	30	50 %
2	Blended	-	-
3	E-learning	-	-
4	Correspondence	-	-
5	Other	30	50 %

7. Actual Learning Hours (based on academic semester)

No	Activity	Learning Hours
Contact Hours		
1	Lecture	30
2	Laboratory/Studio	-
3	Tutorial	-
4	Practical/Field work/Internship	20
5	Others (specify)	30
	Total	80
Other Learning Hours*		
1	Study	30
2	Assignments	8
3	Library	15
4	Projects/Research Essays/Theses	10
5	Others (specify)	-
	Total	63

* The length of time that a learner takes to complete learning activities that lead to achievement of course learning outcomes, such as study time, homework assignments, projects, preparing presentations, library times

B. Course Objectives and Learning Outcomes

1. Course Description

This is a compulsory course for students studying Food Science. The course provides comprehensive definitions of food quality control and quality assurance. It also describes the quality control procedures and objectives in the production of food to satisfy the customers' desire for quality and safe foods and legal requirements. Also, the students should be aware with the international food legislations. The quality factors in food such as appearance (size and shape), colour, consistency, textural, flavor and additional factors are covered. Chemical and Microbiological determination of food quality are also considered. The course explains the conditions that prove a food to be regarded as adulterated or misbranded. Methods of prevention of food adulteration are described. The involvements of governments in regulating foods to ensure safety to prevent economic fraud or deception. The recent third objective of informing consumers about the nutritional content of foods is described. The course considers definition of specification raw material and finished product specifications, with roles of Food Standards, International Standards for foods, Codex, as well as kingdom Saudi Arabia food standards. The concept of Hazard Analysis, Critical Control Points (HACCP) as a systematic approach in safety issues is considered. The course is designed to introduce students to the requirement in the food industry of maintaining high quality, particularly with the requirement for companies selling food in Kingdom Saudi Arabia.

2. Course Main Objective

❖ **At the end of the course, the student will be able to:**

- Define and differentiate between quality assurance and quality control.
- Explain the importance of food quality control systems in satisfying the requirements of both the consumer and legislation.
- Determine food quality using methods such as instrumentation, microbiological, chemical and sensory evaluation.
- Describe food adulteration, detection and prevention.
- Develop an effective HACCP plan for a given food production system.
- List the prerequisite programs need for HACCP.
- mention the food safety who's role.
- Discuss the food borne diseases.
- List the organizations and agencies responsible for international food standard and the international food legislations.

3. Course Learning Outcomes

CLOs		Aligned PLOs
1	Knowledge: <ul style="list-style-type: none"> ❖ Upon successful completion of this course The student will be able to: <ul style="list-style-type: none"> • Define and differentiate between quality assurance and quality control. • Determine food quality using methods such as instrumentation, microbiological, chemical and sensory evaluation. • Describe food adulteration, detection and prevention. • Develop an effective HACCP plan for a given food production system • List the prerequisite programs need for HACCP. • Mention the food safety who's role. • Discuss the food borne diseases. • List the organizations and agencies responsible for international food standard and the international food legislations. • Identify hazards and critical control points of different existing 	

CLOs		Aligned PLOs
	production processes.	
2	Skills:	
2.1	<p>Cognitive skills to be developed</p> <ul style="list-style-type: none"> ❖ Having successfully completed the course students should be able to: <ul style="list-style-type: none"> • Explain the importance of food quality control systems in satisfying the requirements of both the consumer and legislation. • Describe the importance of food quality control. • Develop an effective HACCP plan for a given food production system. • Describe food adulteration, detection and prevention. • discuss the food borne diseases • Explain the importance of a quality control programmes. • Discuss the necessity of HACCP in the food Industry. • Identify the various stages in developing HACCP in food industry. • Describe the application of HACCP concept for the production of any named food. 	
2.2.	<p>Psychomotor Skills</p> <ul style="list-style-type: none"> ❖ Upon successful completion of this course, the student is expected to be able to: <ul style="list-style-type: none"> • Carry out sensory evaluation of a newly developed product; • Carry out all tests used for microbiological and chemical evaluations. • Practice the basic Lab. • Analyze the food samples for the presence of pathogen microorganisms 	
3	Competence:	
3.1	<ul style="list-style-type: none"> ❖ Upon successful completion of this course, the student is expected to be able to: <ul style="list-style-type: none"> • Developing oral presentations. • Communicating personal ideas and thoughts. • Work independently and as part of a team to finish some assignments. • Communicate results of work to others. • use of needed precautions when dealing with detection of pathogenic microorganisms in some foods. • Demonstrate professional attitudes and behaviors towards others. • demonstrate his capability for the responsibility and accountability • Show Effective verbal communication with clarity. • Propose the smart questions. • Understand and dissecting the problem so that it is fully solved understood. • Demonstrate the assertiveness for his decision. • show Effective verbal communication with clarity and must be characterize with the following interpersonal attributes; (verbal communication, non-verbal communication, good listening for the others, questioning, good manners, problem solving, social awareness, 	

CLOs		Aligned PLOs
	self-management, responsibility and accountability). <ul style="list-style-type: none"> Enhancing the ability of students to use computers and internet. Interpret the laboratory data. Know how to write a report. 	

C. Course Content

1 Topics to be Covered		
Topic	No of Weeks	Contact hours
❖ Introduction to Food Quality Evaluation and Control -Some important expressions: -Food Quality -Food Quality control -Food Quality Assurance -Food Safety:- -Food Inspection -International Standard Organization -H A C C P -Barcode	1	2
❖ Legislation and Food Laws -The Food Regulatory Process - Food Laws - International Standards Organisation (ISO) - Codex Alimentarius Commission - National Standards -The Food and Drug Administration -The Standards Organization of Saudi Arabia (SOS) - Other organizations interested with foods such: - FDA: Food and Drug Administration . - WHO:World Health Organization - FAO : Food Agriculture Organization	1	2
❖ Food Lot, Principles and methods of food quality control -The methods used for evaluation of the food lots - Tests used for evaluation of the food lot: -Microbiological, chemical and physical testes -Sensory evaluation, Principles of sensory evaluation and taste Theories, -Design and analysis of Questionnaire for taste panel.	1	2
❖ Food standard: - Organization that corresponding for food Standard :FAD, WHO, Codex, ESO, SASO , FAO -Food standard contents -The objectives of Food Standard -ISO 9000 -ISO 22000	3	6

<p>❖ HACCP: HAZARD ANALYSIS AND CRITICAL CONTROL POINTS</p> <ul style="list-style-type: none"> -What is the meaning of HACCP - Aims and Benefits of HACCP -Principles of HACCP -Advantages of HACCP 	4	8
<p>❖ PREREQUISITE PROGRAMS for HACCP:</p> <ul style="list-style-type: none"> - Good Manufacturing practice (GMP) - Good Hygienic Practice (GHP) - Total Quality Management - Sanitation for Buildings, Instruments - Pest Control - Personal hygiene - Training for workers - Product Recall - Consumers complaints - Codex instructions 		
<p>Food Hazards: Types of food hazards :</p> <ol style="list-style-type: none"> 1-Biological hazards 2- Chemical Hazards 3-Physical Hazards 	2	4
<p>FOOD BORNE DISEASES:</p> <p>Food Infection:</p> <ul style="list-style-type: none"> - Salmonellosis, Shigellosis, Campylobacteriosis, Listerosis, Yersinosis, Vibrosis, Brusilosis, Amebic dysentery, Human Virus diseases <p>Food Intoxication:</p> <ul style="list-style-type: none"> - STAPHYLOCOCAL FOOD POISONING, food botulism, <i>Bacillus cereus</i> food poisoning., <p>FOOD MICOTOXICOSIS</p>		
<p>FOOD SAFETY WHO'S ROLE:</p> <ul style="list-style-type: none"> - Governments Role in Food Safety - Role of Industry in Food safety - Role of distributors and retailers in food safety -Role of international Agencies in food safety - Consumers Role in Food Safety 	2	4
	14 weeks	28hrs

D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	Knowledge		
1.1	<ul style="list-style-type: none"> ❖ Upon successful completion of this course The student will be able to: • Define and differentiate between quality assurance and quality control. • Determine food quality using methods such as instrumentation, microbiological, chemical and sensory evaluation. • Describe food adulteration, detection and prevention. • Develop an effective HACCP plan for a given food production system • List the prerequisite programs need for HACCP. • Mention the food safety who's role. • Discuss the food borne diseases. • List the organizations and agencies responsible for international food. standard and the international food legislations. • Identify hazards and critical control points of different existing production processes. 	<p>The methodology includes a combination of lectures by the lecturer, seminar presentation by the students and web-interactions. Students will be given opportunity to investigate different food products in the laboratory.</p> <p>At the end of the programme, students will be divided into groups for seminar presentation on important areas of the course to assess their understanding and comprehension of the course.</p> <p>All students will be involved in on-line learning process and each student is required to create an E-mail address to facilitate student web interactions.</p> <p>Using images and movies</p> <p>Identify hazards and critical control points of different existing production processes</p> <p>Encouraging students to collect the new information about new methods used for assessment of the food products in the labs</p> <p>Enable the reference books and scientific sites concerning food quality control in internet.</p>	<ul style="list-style-type: none"> • Periodical exam and reports 10% • Mid-term theoretical exam 20% • Mid-term practical exam 5% • Final practical exam 15% • Final exam 50%

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
2.0	Skills		
2.1	<p>Cognitive skills</p> <ul style="list-style-type: none"> • Explain the importance of food quality control systems in satisfying the requirements of both the consumer and legislation. • Describe the importance of food quality control. • Develop an effective HACCP plan for a given food production system. • Describe food adulteration, detection and prevention. • discuss the food borne diseases • Explain the importance of a quality control programmes. • Discuss the necessity of HACCP in the food Industry. • Identify the various stages in developing HACCP in food industry. • Describe the application of HACCP concept for the production of any named food. 	<ul style="list-style-type: none"> • Lectures. • Brain storming. • Discussion. 	<ul style="list-style-type: none"> • Exam must contain questions that can measure these skills. • Quiz and exams. • Discussions after the lecture.
2.3	<p>Psychomotor</p> <p>Upon successful completion of this course, the student is expected to be able to:</p> <ul style="list-style-type: none"> • Carry out sensory evaluation of a newly developed product; • Carry out all tests used for microbiological and chemical evaluations. • Practice the basic Lab. • Analyze the food samples for the presence of pathogen microorganisms 	<p>- Follow up students the students in lab and during carryout all the laboratory experiments</p>	<p>-Giving additional marks for the students they have accurate laboratory results and good seminar presentation</p> <p>-Practical exam.</p>
3.0	Competence		
	<ul style="list-style-type: none"> • Developing oral presentations. • Communicating personal ideas and thoughts. • Work independently and as part of a team to finish some assignments. • Communicate results of work to others. • use of needed precautions when dealing with detection of pathogenic microorganisms in some foods. • Demonstrate professional attitudes 	<ul style="list-style-type: none"> • Lab work • Case Study • Active learning • Small group discussion • Homework (preparing a report on some topics related to the course depending on web sites). 	<ul style="list-style-type: none"> • Oral exams. • Evaluate the efforts of each student in preparing the report. • Evaluate the scientific values of reports. • Evaluate the work in team

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
	<p>and behaviors towards others.</p> <ul style="list-style-type: none"> demonstrate his capability for the responsibility and accountability Show Effective verbal communication with clarity. Propose the smart questions. Understand and dissecting the problem so that it is fully solved understood. Demonstrate the assertiveness for his decision. show Effective verbal communication with clarity and must be characterize with the following interpersonal attributes; (verbal communication, non-verbal communication, good listening for the others, questioning, good manners, problem solving, social awareness, self-management, responsibility and accountability). Enhancing the ability of students to use computers and internet. Interpret the laboratory data. Know how to write a report. 	<ul style="list-style-type: none"> Seminars presentation Practical during carryout the experiments in the lab. 	<ul style="list-style-type: none"> Evaluation of the role of each student in lab group assignment Evaluation of students presentations

2. Assessment Tasks for Students

5. Schedule of Assessment Tasks for Students During the Semester

Assessment	Assessment task (eg. essay, test, group project, examination etc.)	Week due	Exam duration	Proportion of Final Assessment
1	Periodical Exam (1)	4	15 min	10 %
2	Mid Term Exam (Theoretic)	8	60 min	20 %
4	Reports and essay	11	--	10 %
5	Periodical Exam (2)	15	60 min	10 %
6	Final Exam	16	120 min	50 %
Total Marks				100%

*Assessment task (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice :

Office hours: 10hrs.

F. Learning Resources and Facilities

1.Learning Resources

<p>Required Textbooks</p>	<ul style="list-style-type: none"> • Course note and PPT prepared by faculty member responsible for the course: Associate Prof. Dr. Khaled Elbanna
<p>Essential References Materials</p>	<ul style="list-style-type: none"> • Course note and PPT prepared by faculty member responsible for the course: Associate Prof. Dr. Khaled Elbanna • Lutfy Hamzawy (2002).Food safety and HACCP. Scientific home books for publishing and distribution, Cairo, Egypt.
<p>Electronic Materials</p>	<ul style="list-style-type: none"> • PPT prepared by Prof. Dr. Khaled Elbanna
<p>Other Learning Materials</p>	<p>- Kramer, A. and Twigg, B.A. (1973) Quality control for food industry ,Vol. I, II.Avi.</p> <p>- Person, M.D. and Corlett, Jr. D.A. (Editors), 1992. HACCP: Principles and Applications. Chapman and Hail, London, New York.</p> <p>- Lynon, D.H., Francombe, M.A., Hasdell, T.A., Lawson, K. (Editors). 1992. Guidelines for Sensory Analysis in Food Product Development and Quality Control. Chapman and Hall, New York.</p> <p>-Harrigan, W.F. and Park, R.W.A. 1991. Making Safe Food: A Management Guide for Microbiological Quality, Academic Press, London.</p> <p>-Schewart, W.A. (1980) Economic Control of Quality Manufactured Products. Van Notsrand.</p> <p>-Datta, A.K. (1991), Sensory Science: Principles and applications. In: Encyclopedia of Food Science andTecnology Edited by Y.H.Hui, John Wiley and Sons, Inc; Vol. 4; 2333-2353</p> <p>-ISO 4121 (1987) Sensory Analysis-Methodology Evaluation of Food Products by Methods of using Scales.</p> <p>-ISO 8587 (1988) Sensory Analysis-Methodology- Ranking</p> <p>Tomlins, K. (1995). Manual for Sensory Evaluation of Non-grain Starch Staple Food Crops: Natural Resources Institute, chatham Maritime, United Kingdom.</p> <p>- Juran, J.M. 1988.Quality Control Handbook.McGraw Hill Inc. New York.</p> <p>-ISO 9000- Quality Management and Quality Assurance Standards-guidelines for Selection and Use.First edition. 1987.</p>

	<p>-Savage R.A. 1995. Hazard Analysis Critical Control Point: A review. Food Rev. Int., 11(4), 575- 595.</p> <p>-Saudi Arabia food standards and quality control</p>
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2. Facilities Required

Item	Resources
<p>Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)</p>	<ul style="list-style-type: none"> • Class room is already provided with data show • The area of class room is suitable concerning the number of enrolled students (68) and air conditioned
<p>Technology Resources (AV, data show, Smart Board, software, etc.)</p>	<ul style="list-style-type: none"> • Digital lab containing 15 computers.
<p>Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)</p>	<ul style="list-style-type: none"> • Incubators, autoclaves, measuring equipment, water bath, digital balances, pH meters, safety facilities. • Availability of some reference bacterial strains • Different media used in food microbiology • All chemicals and reagents needed.

G. Course Quality Evaluation

<p>1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching</p> <ul style="list-style-type: none"> • Questionaries • Open discussion in the class room at the end of the lectures.
<p>2. Other Strategies for Evaluation of Teaching by the Instructor or by the Department</p> <ul style="list-style-type: none"> • Revision of student answer paper by another staff member. • Analysis the grades of students.
<p>3. Processes for Improvement of Teaching</p> <ul style="list-style-type: none"> • Preparing the course as PPT. • Using scientific movies. • Coupling the theoretical part with laboratory part • Periodical revision of course content.
<p>4. Processes for Verifying Standards of Student Achievement (eg. check marking by an independent faculty member of a sample of student work, periodic exchange and remarking of a sample of assignments with a faculty member in another institution)</p> <ul style="list-style-type: none"> • After the agreement of Department and Faculty administrations
<p>5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.</p> <ul style="list-style-type: none"> • Periodical revision by Quality Assurance Units in the Department and institution

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)

Evaluators (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify))

Assessment Methods (Direct, Indirect)

H. Specification Approval Data

Prepared by faculty staff: Prof. Dr. Khaled Elbanna	Signature:
Date Report Completed: November 2019	
Revised by: 1. Dr. Khaled Elbanna 2. Dr. Hussein H. Abulreesh 3. Dr. Shady Elshahawy	Signature:
Date: November 2019	
Program Chair Dr. Hussein H. Abulreesh	Signature:
Dean	Signature:
Date:	