هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission

Course Specifications

Course Title:	**Food Microbiology**
Course Code:	**2014111-3**
Program:	**Bachelor in Microbiology**
Department:	**Biology department**
College:	**College of Sciences**
Institution:	**Taif University**

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A. Course Identification

1. Credit hours: 3h
2. Course type **a.** University ☐ College ☐ Department √ Others ☐ **b.** Required √ Elective ☐
3. Level/year at which this course is offered: 10th level/ 4th year
4. Pre-requisites for this course (if any)**: Bacteriology- 2013112-3**
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**	6 hrs/Week	100
2	**Blended**	-	-
3	**E-learning**	-	-
4	**Distance learning**	-	-
5	**Other**	-	-

7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	**Lecture**	30
2	**Laboratory/Studio**	30
3	**Tutorial**	-
4	**Others** (specify)	-
	Total	60

B. Course Objectives and Learning Outcomes

1. Course Description:

Nutrients in food - Sources of food contamination - Factors affecting the growth of microorganisms in food - control the microbial activity in the foods (methods of food preservation) - Role of microorganisms in food spoilage and foodborne diseases -Beneficial uses of microorganisms in foods.

2. Course Main Objective:

Providing scientific knowledge about initial microbial load and sources of microbial contamination of food; factors influencing the growth of microorganisms in food; food spoilage and food-borne diseases; the methods that control the microbial activity in food; and beneficial applications of the uses of microorganisms in food.

3. Course Learning Outcomes

CLOs		Aligned PLOs
1	**Knowledge and Understanding:**	
1.1	Describe beneficial uses of microorganisms in foods	K1

CLOs		Aligned PLOs
1.2	List the primary sources of food contamination by microorganisms and factors affecting the activity of microorganisms in foods.	K3
2	**Skills:**	
2.1	Differentiate between the sings of the microbial and non-microbial spoilage of foods	S2
2.2	be able to apply the principles of food science to control and assure the quality of food products	S3
3	**Values:**	
3.1	Research the recent advances in the field of microbiological specifications and quality of food.	V1

C. Course Content

No	List of Topics	Contact Hours
1	**Unit: 1**: Introduction and describe the course specifications - basics of food - microbiology - Nutrients in food.	3L+3P
2	**Unit: 2**: Important microbial groups in foods.	3L+3P
3	**Unit: 3:** Factors affecting microbial growth in foods.	3L+3P
4	**Unit: 4:** Microbial contamination of foods.	3L+3P
5	**Unit: 5:** Microbial spoilage of foods. Microbial spoilage of meat, eggs, milk, seafood and their products	3L+3P
	Microbial spoilage of vegetables, fruits, cereal and their products	
6	**Unit: 6:** Foodborne pathogens - Food poisoning.	3L+3P
7	**Unit: 7:** Control of microbial growth in foods (Food preservation).	
8	**Principles of Food Preservation by Controlling Microbial Growth**	9L+9P
	Microbial control by using antimicrobial preservatives and acid; applying non thermal processing and combination of methods (hurdle concept)	
	Microbial control by using antimicrobial preservatives and acid; applying non thermal processing and combination of methods (hurdle concept)	
	Microbial control by drying, irradiation and modified atmosphere	
9	**Unit: 8:** Useful uses of microorganisms in foods.	3L+3P
Total		**30L+30P**

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 and Understanding:**		
1.1	Describe beneficial uses of microorganisms in foods	Lecture - Project	Written Exam – Report
1.2	List the primary sources of food contamination by microorganisms and factors affecting the activity of microorganisms in foods.	Lecture	Written Exam
2.0	**Skills:**		

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
2.1	Differentiate between the sings of the microbial and non-microbial spoilage of foods	Lecture	Assignments
2.2	be able to apply the principles of food science to control and assure the quality of food products	Lecture- Discussion	Written Exam – Report
3.0	**Values:**		
3.1	Research the recent advances in the field of microbiological specifications and quality of food.	Interactive learning Brain storming	Practical reports Practical exam

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Assignments and activities: 1- Written Assignment Power-point presentation	Variable	10
2	Midterm Exam	5th	20
3	Periodic Exam	7th	10
4	Practical Reports	Continuous	15
5	Final Practical Exam	11th	5
٦	Final Exam	12th	40

***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 :
6 hours per week of office hours are available for each faculty members for consultations and academic advice.

F. Learning Resources and Facilities

1.Learning Resources

Required Textbooks	Matthews, K R., . Kniel, K E, Montville, T J. 2017. Food Microbiology: An Introduction, 4th ed.. ASM Press, Washington, DC 20036-2904, USA.
Essential References Materials	Martin R Adams, Maurice O Moss , Peter McClure. 2016. Food Microbiology. Royal Society of Chemistry
Electronic Materials	Blackboard website Website of Saudi digital Library
Other Learning Materials	Computer-based programs and professional software.

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	One classroom for 2 hours a week and one laboratory for 3 hours a week with internet facility. Classrooms (maximum 40 students)
Technology Resources (AV, data show, Smart Board, software, etc.)	• Data show and Smart board • Computer Portable PowerPoint presentations to special lectures.
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	• Autoclave • Incubators • Micropipettes and its tips • Petri dishes • Disinfectants • Culture media • Samples of different foods

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Effectiveness of teaching and assessment	Students	Indirect
Quality of Learning Resources	Peer Reviewer Students	Direct Indirect
Extent of Achieving the course Learning outcomes	Peer Reviewer Students	Direct Indirect

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

Council / Committee	**Biology Department**
Reference No.	**Committee number 14 - Academic Year 1442-1443H**
Date	**22\5\2022G – 21\10\1443H**

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