هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission

Course Specifications

Course Title:	**Water Microbiology**
Course Code:	**2014215-3**
Program:	**Bachelor in Microbiology**
Department:	**Biology Department**
College:	**College of Sciences**
Institution:	**Taif University**

Table of Contents

A. Course Identification

1. Credit hours: 3
2. Course type **a.** University ☐ College ☐ Department ☑ Others ☐ **b.** Required ☑ Elective ☐
3. Level/year at which this course is offered: 11th level – 4rd year
4. Pre-requisites for this course (if any)**: Food Microbiology -2014111-3**
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:

This course investigates the microorganisms in water systems, ecology of microorganisms in fresh water and polluted water, purification of water, diseases transmitted by water, treatment of contaminated water (sewage water, Municipal water….)

2. Course Main Objective:

The main purpose of this course is to provide knowledge about the major theories of petroleum formation and the role of microorganisms in formation and recovery of oil in addition to their importance in removal of petroleum residues from oil-contaminated sites.

3. Course Learning Outcomes

CLOs		Aligned PLOs
1	**Knowledge and Understanding:**	
1.1	Recognize the different groups of microorganisms in water	K1
1.2	Identify the mode of water microbial diseases transmission	K3
2	**Skills :**	
2.1	Apply experiments for microbiological examination of water	S2
2.2	Investigate methods for drinking water and wastewater treatment	S3
3	**Values:**	
3.1	Write scientific report on drinking water contamination and treatment	V1

C. Course Content

No	List of Topics	Contact Hours
1	Chapter 1: Introduction to water microbiology	3L + 3P
2	Chapter 2: Microorganisms important in sewage systems	3L + 3P
3	Chapter 3: Ecology of microorganisms in fresh water and polluted water	3L + 3P
4	Chapter 4: Purification of water	6L + 6P
5	Chapter 5: Diseases transmitted by water	3L + 3P
6	Chapter 6: Microbiological examination of water	6L + 6P
7	Chapter 7: Treatment of wastewater	6L + 6P
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	Recognize the different groups of microorganisms in water	Lectures	Written exams
1.2	Identify the mode of water microbial diseases transmission	Lectures	Written exams
2.0	**Skills**		
2.1	Apply experiments for microbiological examination of water	Interactive learning Brain storming	Practical reports Practical exam
2.2	Lab activities	Lectures	Written exams
3.0	**Values:**		
3.1	Write scientific report on drinking water contamination and treatment	Open discussion Small group activities	Assignments

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Assignments and activities: 1- Written Assignment 2- 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
6	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 for academic advice and consultations
Teaching staff is also available using Blackboard web site and Taif University "Edugate" System

F. Learning Resources and Facilities

1.Learning Resources

Required Textbooks	Andriy Lutsenko, Vasyl Palahniuk. Water Microbiology: Types, Analyses and Disease-causing Microorganisms. Nova Science Publishers, 2009
Essential References Materials	Duncan Mara and Nigel Horan. Handbook of Water and Wastewater Microbiology. Elsevier Ltd. Academic Press. 2003
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.)	▪ Classroom (capacity not more than 40 students) for 2 h/week. Microbiology Lab (capacity not more than 20 students) for 3 h/week.
Technology Resources (AV, data show, Smart Board, software, etc.)	▪ Data Show projectors, smart blackboard 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

Item	Resources
	▪ Culture media Samples of drinking and wastewater

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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