هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission

Course Specifications

Course Title:	**Microalgae**
Course Code:	**2013110-3**
Program:	**Bachelor in Microbiology**
Department:	**Department of Biology**
College:	**College of Sciences**
Institution:	**Taif University**

Table of Contents

A. Course Identification

1. Credit hours: 3hs
2. Course type **a.** University ☐ College ☐ Department ☑ Others ☐ **b.** Required ☑ Elective ☐
3. Level/year at which this course is offered: 7th level / 3rd year
4. Pre-requisites for this course (if any): **General Microbiology ٢٠١٢٢٠٣-3**
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	٪١٠٠
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 habit and habitat, algal morphology, factors affecting Algal distribution and diversity, algal classes, algal reproduction, economic importance of each algal class, toxins production by microalgae, and applications of microalgae in agriculture and industry.

2. Course Main Objective

This course aims to distinguish between microalgae in various habitats, define the main components of cyanobacteria cells, distinguish between various prokaryotic and eukaryotic micro-algal division's., factor influencing micro-algal reproduction, predict the type of micro-algal morphogenesis and economic importance.

3. Course Learning Outcomes

	CLOs	Aligned PLOs
1	**Knowledge and Understanding:**	
1.1	Recognize the cyanobacteria and algal habit and habitat.	K2
1.2	Describe cyanobacteria and algal morphology in each class	K3

CLOs		Aligned PLOs
2	**Skills:**	
2.1	Distinguish between cyanobacteria and algal genera	S2
2.2	Compare between the kinds of reproductions and Benefits of micro-algae	S3
3	**Values:**	
3.1	Appraise professional and practical codes of conduct to report experimental activities.	V3

C. Course Content

No	List of Topics	Contact Hours
1	**Chapter 1:** Introduction and definition knows Algae - Phycology.	3L + 3P
2	**Chapter 2:** General characteristics of Algae.	3L + 3P
3	**Chapter 3:** The general structure of the microalgae and reproduction methods.	3L + 3P
4	**Chapter 4:** The classification of Algae and Distribution of micralgae in different environments.	3L + 3P
5	**Chapter 5:** General characteristics of the Division of Cyanophyta and uses.	3L + 3P
6	General characteristics and life cycles of some genera of the division of Euglenophyta and economic importance.	3L + 3P
7	General characteristics and life cycles of some genera of the division of Chlorophyta and economic importance.	3L + 3P
8	General characteristics and life cycles of some genera of the division of Chrysophyta and economic importance.	3L + 3P
9	General characteristics and life cycles of some genera of the division of Bacillariophyta and economic importance.	3L + 3P
10	**Chapter 6:** Toxic Algae	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	Recognize the cyanobacteria and algal habit and habitat.	Lecture Concept maps	Paper-based exams
1.2	Describe cyanobacteria and algal morphology in each class	Lecture Interactive learning	Paper-based exams Practical exam
2.0	**Skills:**		
2.1	To distinguish between cyanobacteria and algal genera	Lecture	Written exam
2.2	Compare between the kinds of reproductions and Benefits of micro-algae	Student presentation Small group activities	Activities Evaluation
3.0	**Values:**		
3.1	Appraise professional and practical codes of conduct to report experimental activities.	Tasks as homework and/or semester project. Interactive learning	Reports evaluation

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
3.2			

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
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.

F. Learning Resources and Facilities

1.Learning Resources

Required Textbooks	Charis Galanakis. Microalgae: Cultivation, Recovery of Compounds and Applications. 1st Edition - October 5, 2020. Amos Richmond, Qiang Hu. Handbook of Microalgal Culture: Applied Phycology and Biotechnology, John Wiley & Sons, Ltd. Second Edition. 2013.
Essential References Materials	Textbook of Algae, J.S. Gupta, Oxford & IBH Publishing Co. PVT.LTD. Second Printing 1987.
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.

Item	Resources
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	• Algae fresh samples • Permanent slides. • Autoclave • Incubators • Petri dishes • Disinfectants Culture media

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\1443II**

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