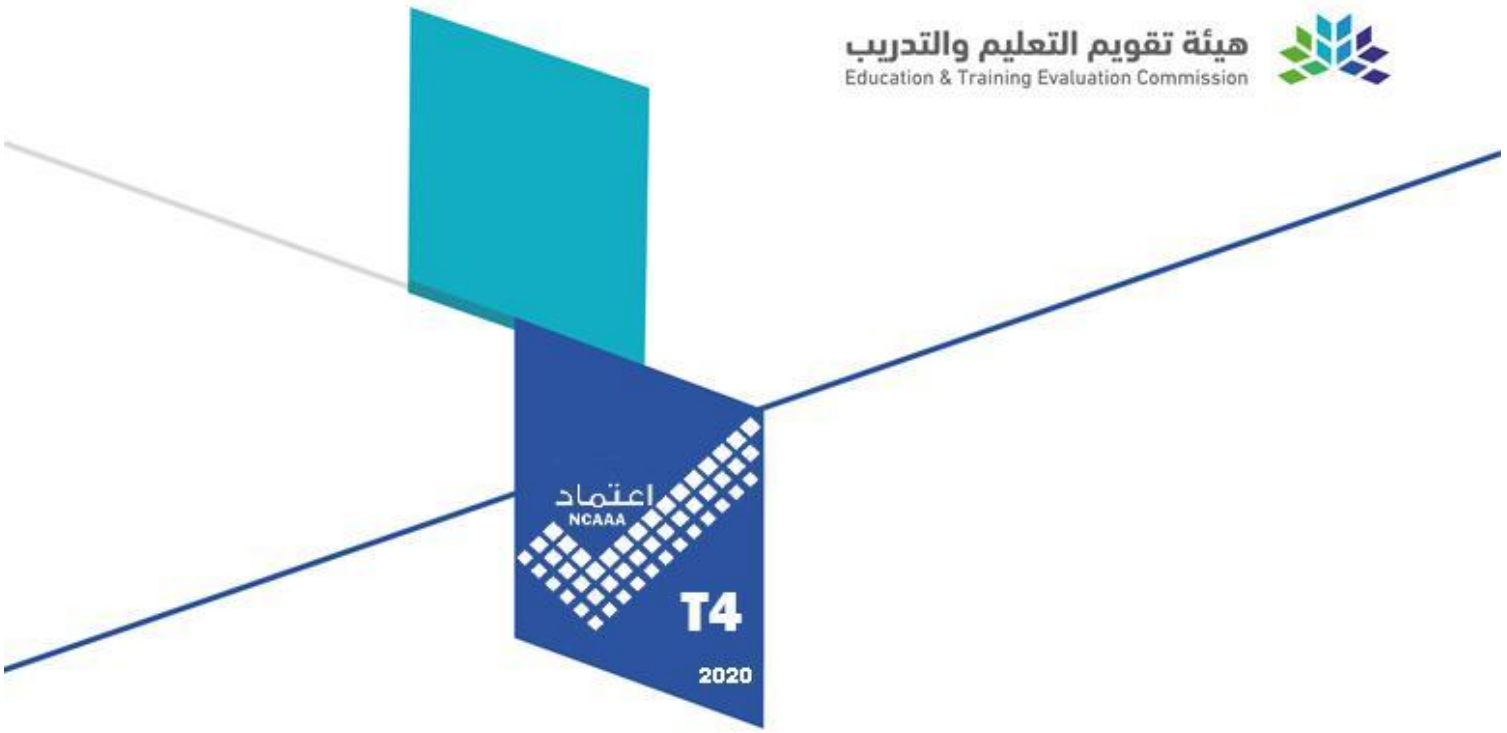
هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission



Course Specifications

Course Title:	**Plant physiology**
Course Code:	**441BOT**
Program:	**Biology**
Department:	**Biology**
College:	**Science**
Institution:	**Jazan University**

Table of Contents

A. Course Identification

1. Credit hours:
2. Course type **a.** University ☐ College ☐ Department ☑ Others ☐ **b.** Required ☑ Elective ☐
3. Level/year at which this course is offered: Level 7 / Year 4
4. Pre-requisites for this course (if any)**: Plant Water and Soil Relationships 341BOT**
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**	28h	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

Study of Enzymes, Photosynthesis, Respiration, N Metabolism

2. Course Main Objective

-Enzymology.
-Photochemical reactions of photosynthesis and photophosphorylation. -Biochemical reactions of photosynthesis and carbon fixation.
-Cell respiration.
-Respiratory electron transport & Oxidative phosphorylation.

3. Course Learning Outcomes

	CLOs	Aligned PLOs
1	**Knowledge and Understanding**	

CLOs		Aligned PLOs
1.1	Define all principals, concepts, theories and aspects concerning with Plant Physiology	K1.1
1.2	Explain all processes, mechanisms, definitions, theories, mode of actions of all Plant Physiological aspects.	K2.2
1.3	Apply your knowledge of Plant Physiology to solve some applied techniques and problems.	K2.1
2	**Skills :**	
2.1	Set-up an experiment, investigation and research project for complex issues and problems in Plant Physiology.	S2.3
2.2	Write a report about any practical or theoretical tasks related to Plant Physiology.	S3.3
2.3	Perform an efficient oral presentation, with effective use of visual aids, using allotted time and all IT available resources.	S4.2
3	**Values:**	
3.1	Apply practices of life-long learning in various biological and scientific disciplines for their professional career.	V1.1
3.2	Access multiple sources of information, capture essential information, and distinguish it from extraneous data	V1.3

C. Course Content

No	List of Topics	Contact Hours
1	Enzymology. Enzyme Structure. Enzyme Catalysis	6
2	Enzymology. Enzyme Classification. Mechaelis-Menten Kinetics. Regulation.	4
3	Photosynthesis. Chloroplast. Thylakoid Molecular Assembly. Pigments.	4
4	Photochemical Reactions. Biochemical Reactions. C3, C4, CAM.	4
5	Photosynthesis. Photorespiration. CO2 Enrichment.	6
6	Respiration. Mitochondria. Glycolytic Pathway. TCA Cycle.	4
Total		28

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**		
K1.1	Define all principals, concepts, theories and aspects concerning with Plant Physiology	Lecture	Quizzes, MCQs
K2.2	Explain all processes, mechanisms, definitions, theories, mode of actions of all Plant Physiological aspects.	Lecture	Quizzes, MCQs, Short Answer Question
K2.1	Apply your knowledge of Plant Physiology to solve some applied techniques and problems.	Lecture, Lab work	Quizzes, MCQs, Essay Questions

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
2.0	**Skills**		
S2.3	Set-up an experiment, investigation and research project for complex issues and problems in Plant Physiology.	Lectures, Group Discussion, Lab work, Research assignment	Short Answer Question, Quizzes, MCQs
S3.3	Write a report about any practical or theoretical tasks related to Plant Physiology.	Lectures, Group Discussion, Lab work	Short Answer Question, Quizzes, MCQs, Essay questions
S4.2	Perform an efficient oral presentation, with effective use of visual aids, using allotted time and all IT available resources.	Lectures, Group Discussion, Lab work	Short Answer Question, Quizzes, MCQs, Presentation
3.0	**Values**		
V1.1	Apply practices of life-long learning in various biological and scientific disciplines for their professional career.	Lectures, Group works	Lab work assessment
V1.3	Access multiple sources of information, capture essential information, and distinguish it from extraneous data.	Lectures	Research assignment Assessment

2. Assessment Tasks for Students

#	*Assessment task	Week Due	Percentage of Total Assessment Score
1	Written Assignment	4	5
2	Written Test	7	10
3	Written Assignment	8	5
4	Written Assignment	10	5
5	Group Assignment	12	5
6	Final Practical Exam	13	20
7	Final Written Exam	14	50

***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: 10 Office hours/week

F. Learning Resources and Facilities

1.Learning Resources

Required Textbooks	Hopkins W.G. (2012) Introduction to Plant Physiology. John Wiley & Sons, New York.
Essential References Materials	Salisbury F., Ross C. (2012) Plant Physiology. Butterworth, London.
Electronic Materials	www.ausers.rcn.com/jkimball.ma.ultranet/BiologyPages/
Other Learning Materials	

2. Facilities Required

Item	Resources
Accommodation Classrooms, laboratories, demonstration) (.rooms/labs, etc	1Lecture room(s) for groups of 50 students. 1 Plant Physiology Laboratory / 25 students.
Technology Resources AV, data show, Smart Board, software,) (.etc	AV, data show, Smart Board
Other Resources Specify, e.g. if specific laboratory) equipment is required, list requirements or (attach a list	Light microscopes, glassware, chemicals, consumables

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Effectiveness of teaching	Students, Faculty	Direct (Questionnaire)
Effectiveness of assessment	Peer Reviewer	Direct (Cross Check marking)
Extent of achievement of course learning outcomes	Program Leader	Indirect (QA Committee)
Quality of learning resources	QA Committee	Indirect (Benchmarking)

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	
Reference No.	
Date	