هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission

T-104
2022

Course Specification

Course Title:	**Plant Hormone**
Course Code:	**344-BOTN**
Program:	**Bachelors (BSc)**
Department:	**Biology**
College:	**Biology**
Institution:	**Jazan University**
Version:	**4**
Last Revision Date:	*Pick Revision Date.*

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A. General information about the course:

Course Identification					
1. Credit hours:	2Hours				
2. Course type					
a.	University ☐	College ☐	Department☒	Track☐	Others☐
b.	Required ☒	Elective☐			
3. Level/year at which this course is offered:			9th Level/3rd Year		
4. Course general Description: - This course provide the students complete knowledge of Plant growth and development, along with the knowledge of role of different plant growth regulators (PGR's) in plants, difference between Plant growth inhibitors (PGI) and Plant Growth hormones (PGH), In addition to this, Plant Hormone Course also provide knowledge and understanding of the Biosynthesis, Chemical structure, Physiological roles and Application of all the PGR's in Plants. This course also provides knowledge about newly discovered PGR's and their application.					
5. Pre-requirements for this course (if any): Plant Water and Soil Relation Ship (341-BOT-2)					
6. Co- requirements for this course (if any): Plant Morphology and Anatomy (241-BOT-)					
7. Course Main Objective(s):- After completing this course Students would be able: 1. To Understand completely the phenomenon of Plant growth and development. 2. To Explain different process, mechanism, theories, and definitions related to growth and development of plant 3. To Explain the Biosynthesis, role, and application of different Plant growth regulators. 4. To Differentiate between Plant growth inhibitors and Plant Growth Hormones. 5. To Study the Movement of Plant (Tropism: Nastic, Paratonic) 6. To Understand the Mechanism of Tropism (Phototropism, Geotropism, Hydrotropism) 7. To Explain the mechanism, process and theories related to Phytochrome. 8. To Understand the concept of Circadian rhythms, biological clock. 9. To Examine the role of different Plant Growth Regulators in Tissue culture Techniques					

1. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1.	Traditional classroom	33	100%
2.	E-learning		0%
3.	Hybrid • Traditional classroom • E-learning		0%
4.	Distance learning		0%

2. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	Lectures	11
2.	Laboratory/Studio	22
3.	Field	
4.	Tutorial	
5.	Others (specify)	
	Total	33

B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
1.0	Knowledge and understanding			
1.1	Define all principals, concepts, theories, and aspects of Plant Hormone	K1.1	Interactive lectures. Classroom discussions Tutorials. Self-learning activities.	MCQs. Short answer questions. True/False, Quiz Midterm, Final examination
1.2	Differentiate between different mechanisms, functions, practices, and processes related to Plant Hormone	K2.1	Interactive lectures. Classroom discussions Tutorials. Self-learning activities.	MCQs. Short answer questions. True/False. Compare, Midterm Final examination
2.0	Skills			
2.1	Debate the plant hormone theories, principals, and processes.	S2.1	Interactive lectures. Classroom discussions Tutorials. Self-learning activities.	MCQs. Short answer questions. True/False, Quiz, Midterm, Final Examination

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
2.2	Set-up experiment, investigation and research project for complex issues and problems in Biology (Plant Hormone)	S2.2	Interactive lectures. Classroom discussions Tutorials. Self-learning activities.	MCQs. Short answer questions. True/False, Final examination
3.0	Values, autonomy, and responsibility			
3.1	Illustrate awareness of risk assessment and safety observation when dealing with various equipment at various fields.	V3.2	Interactive lectures. Classroom discussions Tutorials. Self-learning activities.	Group Assignment. Observation. Group Discussion. Oral exam. Laboratory work.

C. Course Content

No	List of Topics	Contact Hours
1.	Plant Growth. Definition, Measurement, Differentiation, Development.	1
2.	Plant Hormones. Auxins. Gibberellins. Cytokinin.	2
3	Plant Hormones. Ethylene. Abscisic Acid.	2
4	Plant Movements. Nastic Movements.	1
5	Plant movements: Tropisms.	2
6	Plant Hormones. Circadian rhythms, Biological Clock.	2
7	Plant hormones. Photoperiodism, Tissue culture technique.	1
Total		11

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Theoretical quiz	4	5
2.	Mid-term exam	6	10
3.	Practical quiz	5	5
4	Practical assignment	6	5
5	Final practical exam	11	20
6	Final Exam	12	50

*Assessment Activities (i.e., Written test, oral test, oral presentation, group project, essay, etc.)

E. Learning Resources and Facilities

1. References and Learning Resources

Essential References	Hopkins, WG & Huner, NPA (2008). Introduction to plant physiology, 4th edn, John Wiley and Sons, New York. (ISBN 0 470 24766 5.) Davis P.J. (2005) Plant Hormones. Kluer Academic Publishers, Dordrecht.
Supportive References	أبوزيد، الشحات نصر (2000). الهرمونات النباتية والتطبيقات الزراعية. الدار العربية للنشر والتوزيع. باصلاح، محمد عمر (1998). فسيولوجيا النبات العامة الجزء الثاني. دار رهام جده المملكة العربية السعودية
Electronic Materials	www.users.rcn.com/jkimball.ma.ultranet/BiologyPages/ www.emc.maricopa.edu www.biology.clc.uc.edu
Other Learning Materials	Contents uploaded on Blackboard system, Power-point presentations given by the instructors practical and theoretical

2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	1 Lecture room(s) for groups of 25 students. 1 Laboratory for group of 15 students.
Technology equipment (Projector, smart board, software)	Internet connection, data show or smart board
Other equipment (Depending on the nature of the specialty)	Light microscopes, microscopic slides for the course subjects, models of different stages of plant growth and development, consumables, incubators, chemicals, and glassware's.

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	Peer to peer Reviewer, students	Indirect (Surveys)
Effectiveness of students assessment	Program quality committee, Program leader, peer reviewer	Direct (Cross Check), Indirect (Surveys)
Quality of learning resources	Students	Indirect (Surveys)
The extent to which CLOs have been achieved	Course coordinator	Excel sheet of CLOs assessment (direct), Surveys (indirect)

Assessment Areas/Issues	Assessor	Assessment Methods
Other	Peer to peer Reviewer, students	Indirect (Surveys)

Assessor (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)
Assessment Methods (Direct, Indirect)

G. Specification Approval Data

COUNCIL /COMMITTEE	BIOLOGY PROGRAM BOARD
REFERENCE NO.	B402214
DATE	20/9/2022AD