

# MODULE DESCRIPTION FORM

## نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Arabic Language		Module Delivery
Module Type	Core		<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	NTU 104		
ECTS Credits	2		
SWL (hr/se3m)	2		
Module Level	1	Semester of Delivery	
Administering Department	Plant Production PLP	College	Technical Agricultural College
Module Leader	Fahad Khalaf Yassein	e-mail	fahadbiologymycology@ntu.edu.iq
Module Leader's Acad. Title	Asst.prof.	Module Leader's Qualification	
Module Tutor	Amina mahir azeez	e-mail	Amina.mahir@ntu.edu.iq
Peer Reviewer Name	Name	e-mail	E-mail
Scientific Committee Approval Date	01/06/2023	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module		Semester	
Co-requisites module		Semester	

## Module Aims, Learning Outcomes and Indicative Contents

### أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<p><b>Module Objectives</b> أهداف المادة الدراسية</p>	<p>1-Preparing students who have the ability to pronounce correctly and write without .errors as much as possible</p> <p>2.Encouraging the student to follow correct spelling rules</p> <p>3.Paying attention to punctuation marks and how to use them in writing</p>
<p><b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية</p>	<p>1-.Learn about the basic and important rules of the Arabic language</p> <p>2.Focus on correct spelling rules .</p> <p>3-Paying attention to a lot of reading and reading. To train the student on .correct pronunciation and writing without errors as much as possible</p>
<p><b>Indicative Contents</b> المحتويات الإرشادية</p>	<p>:Instructional content includes the following</p> <p>Alert students to common linguistic errors, as well as benefit from correcting these _ .errors in their formal and informal writing. (4 hours</p> <p>Knowing the necessary spelling rules. (4 hours_</p> <p>.Knowing punctuation marks and how to use them. (4 hours_</p>

	Part B - practical part
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<b>Learning and Teaching Strategies</b> استراتيجيات التعلم والتعليم	
<b>Strategies</b>	1-Providing students with the basics and lectures related to the subject - 2.Use slide presentation methods to convey information more clearly 3-Urging students to read, read, and go to libraries

<b>Student Workload (SWL)</b> الحمل الدراسي للطالب محسوب لـ 60 ساعة			
<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	45	<b>Structured SWL (h/w)</b>	2
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غيرالمنتظم للطالب خلال الفصل	15	<b>Unstructured SWL (h/w)</b>	2
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	60		

## Module Evaluation

### تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO #5, #8 and #10
Summative assessment	Midterm Exam	2hr	10% (10)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

## Delivery Plan (Weekly Syllabus)

### المنهاج الاسبوعي النظري

	Material Covered
Week 1	The concept of linguistic errors
Week 2	Rules for writing open ta's and open ta's
Week 3	The elongated alif and the short alif
Week 4	Solar letters and lunar letters
Week 5	Dhaad and Dhaa
Week 6	Writing the hamza: connecting and cutting, the middle hamza, the extreme hamza
Week 7	punctuation marks
Week 8	Exam
Week 9	The noun, the verb, and the difference between them
Week 10	The object, the absolute object, the object for its sake, the object in it, and the object with it
Week 11	Formal aspects of administrative discourse, the language of administrative discourse

Week 12	the number
Week 13	Applications of common linguistic errors
Week 14	Meanings of prepositions, the rule of alif al-fariqa, the rule of nun and tanween
Week 15	Exam
Week 16	Review the material before the final exam

### Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للجزء العملي

	Material Covered
Week 1	
Week 2	
Week 3	
Week 4	
Week 5	
Week 6	
Week 7	

### Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Clear Dictation, Abdul Majeed Al-Naimi, Dahham Al-Kayyal, .Dar Al-Mutanabbi Library, Baghdad, 6th edition, 1987 AD	لا
Recommended Texts	Lessons in language, grammar, and dictation for state employees, Ismail Hamoud Atwan and others, Ministry of .Education Press No. (3), Baghdad, 2nd edition, 1984 AD	لا
Websites		

### Grading Scheme

مخطط الدرجات

Group	Grade	التقدير	Marks %	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group	FX - Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded

(0 - 49)	F - Fail	راسب	(0-44)	Considerable amount of work required
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**Note:** Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

## MODULE DESCRIPTION FORM

### نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Cilviculture		Module Delivery
Module Type	Core		<input checked="" type="checkbox"/> Theory <input checked="" type="checkbox"/> Lecture <input checked="" type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	PLP 155		
ECTS Credits	2		
SWL (hr/sem)	3		
Module Level	One	Semester of Delivery	
Administering Department	Plant Production PLP	College	Technical Agricultural College
Module Leader	Fahad Khalaf Yassein	e-mail	fahadbiologymycology@ntu.edu.iq
Module Leader's Acad. Title	Asst. prof	Module Leader's Qualification	
Module Tutor	Wasan waleed ahmad Al Obaidy	e-mail	<a href="mailto:wsnalobaidy@ntu.edu.iq">wsnalobaidy@ntu.edu.iq</a>
Peer Reviewer Name	Name	e-mail	E-mail
Scientific Committee Approval Date	01/06/2021	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	Sustainable Agriculture		Semester Two
Co-requisites module			Semester

## Module Aims, Learning Outcomes and Indicative Contents

### أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<p><b>Module Objectives</b> أهداف المادة الدراسية</p>	<p><b>1. Understanding the installation and function of the forest:</b></p> <ul style="list-style-type: none"><li>• Introducing students to the installation of forests and their biological diversity, and to understand the importance of forests in maintaining environmental balance and providing vital resources.</li></ul> <p><b>2. Study environmental and economic impacts:</b></p> <ul style="list-style-type: none"><li>• Analyzing the impact of humanitarian activities on the forests, and studying environmental and economic factors that affect the health and sustainability of forests.</li></ul> <p><b>3. Development of scientific skills:</b></p> <ul style="list-style-type: none"><li>• Enhancing research, analysis and critical thinking skills in the field of forests, including collection and analysis of data and logically and systematically providing results.</li></ul> <p><b>4. Definition of environmental policies:</b></p> <ul style="list-style-type: none"><li>• Providing a deep understanding of the policies and laws related to managing and protecting forests at the local and global levels, and its role in preserving the environment.</li></ul> <p><b>5. Enhancing environmental awareness:</b></p> <ul style="list-style-type: none"><li>• Encouraging students to think responsible about the environmental challenges related to forests and adopting sustainable behaviors to maintain these vital resources.</li></ul> <p><b>1. Understanding the installation and function of the forest:</b></p> <ul style="list-style-type: none"><li>• Introducing students to the installation of forests and their biological diversity, and to understand the importance of forests in maintaining environmental balance and providing vital resources.</li></ul> <p><b>2. Study environmental and economic impacts:</b></p> <ul style="list-style-type: none"><li>• Analyzing the impact of humanitarian activities on the forests, and studying environmental and economic factors that affect the health and sustainability of forests.</li></ul> <p><b>3. Development of scientific skills:</b></p> <ul style="list-style-type: none"><li>• Enhancing research, analysis and critical thinking skills in the field of forests, including collection and analysis of data and logically and systematically providing results.</li></ul> <p><b>4. Definition of environmental policies:</b></p> <ul style="list-style-type: none"><li>• Providing a deep understanding of the policies and laws related to managing and protecting forests at the local and global levels, and its role in preserving the environment.</li></ul> <p><b>5. Enhancing environmental awareness:</b></p> <ul style="list-style-type: none"><li>• Encouraging students to think responsible about the environmental challenges related to forests and adopting sustainable behaviors to maintain these vital resources.</li></ul>
<p><b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية</p>	<ol style="list-style-type: none"><li><b>1. A deep understanding of the foundations of forest development:</b> These concepts include the principles of forest manufacturing, forest regulation techniques, environmental sustainability, and forestry environment.</li><li><b>2. Design and planning skills:</b> Students can acquire skills in planning forest land, artificial forest design, and forest management management.</li><li><b>3. Learn about the types of trees and plants:</b> Students can learn about a variety of trees and plants in the forests and understand the role of each type in the forest environment.</li><li><b>4. Environmental management skills:</b> These skills include understanding how to maintain biological diversity and maintain natural ecosystems in forests.</li><li><b>5. The ability to assess environmental impact:</b> Students learn how to assess the impact of human activities on forests and apply strategies to reduce these negative effects.</li><li><b>6. Participation in scientific research:</b> The course may encourage students to</li></ol>

	<p>participate in research related to forest development, which helps them to understand the problems and challenges facing forests and create sustainable solutions.</p>
<p><b>Indicative Contents</b> المحتويات الإرشادية</p>	<p><b>1.Introduction to Forest Development:</b>  <b>Definition of forest development and its importance.</b>  <b>The history of forest development and the development of concepts and practices.</b></p> <p><b>2.Forest environment:</b>  <b>Environmental factors that affect the growth and development of forests.</b>  <b>The effect of climatic changes on the forests.</b></p> <p><b>3.Forest manufacturing:</b>  <b>Forest manufacturing concepts and principles.</b>  <b>Trees transplant techniques and forest renovation.</b></p> <p><b>4. Forestry Management:</b>  <b>Methods and tools of forest resource management.</b>  <b>Forest's strategic planning.</b></p> <p><b>5. Biological diversity and the preservation of environmental systems:</b>  <b>The importance of biological diversity in forests and methods of preserving it.</b>  <b>The effect of human activities on the forest environment and how to mitigate this effect.</b></p> <p><b>6.Modern techniques in forest development:</b>  <b>The use of technology to evaluate and manage forests.</b>  <b>Artificial intelligence applications and data analysis in forest development.</b></p> <p><b>7.Status studies and field visits:</b>  <b>Review cases of various forest development projects around the world.</b>  <b>Field visits to local forest projects to identify practical applications.</b></p> <p><b>8.Search and innovation in forest development:</b>  <b>The role of scientific research in developing forest development practices.</b>  <b>Stimulating students to conduct research in the field of forest development and provide innovative solutions.</b></p>



## Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

<b>Strategies</b>	<b>The necessity of visiting to gain experience from others. Obtaining new scientific information in the field of scientific research (videos). Practical training in the field. Access to modern scientific literature. Participation in relevant scientific conferences. Scientific laboratories with other universities.</b>
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## Student Workload (SWL)

ساعة 45 الحمل الدراسي للطالب محسوب ل

<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	30	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعيا	2
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطالب خلال الفصل	15	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطالب أسبوعيا	1
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	<b>45</b>		

## Module Evaluation

### تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO #5, #8 and #10
Summative assessment	Midterm Exam	2hr	10% (10)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

## Delivery Plan (Weekly Syllabus) ,

### المنهاج الاسبوعي النظري

Week	Material Covered
Week 1	The economic importance of forests, the definition of the forest, the relationship of the forest to the human being
Week 2	The geographical distribution of forests, the distribution of forests and the reasons for its spread, the vertical distribution of forests
Week 3	Various divisions of forest trees, division of meals by races, source, source of propagation, target
Week 4	Benefits of forests productive, preventive, tourist, and social benefits
Week 5	Forest problems, seed trees test, multiplication methods, seeds collection and extraction, factors affecting the vitality of seeds
Week 6	Planning the forest factors affecting the forest planning, implanting dates of planning, planting methods
Week 7	Forests, composition, advantages, disadvantages
Week 8	Pruning in forests, the importance of pruning and mitigating the types of pruning and mitigation
Week 9	Forest maintenance is the importance of forest maintenance, stages of development of vital factors (human animal diseases bush insects)
Week 10	Non -vital factors are the importance of studying non -vital factors and their influence on forests and non -biological factors (climate, fires, gases).
Week 11	Forest environment is defined by the effect of forests on heat, wind, moisture.

Week 12	Forest measurements, high trees, diameter of trees, tree -sifters growth and age of trees.
Week 13	Forest investment is important, definition, tree pieces, trunks cleaning, transportation and clouds for trees.
Week 14	Wood technology and wooden industries wood manufacturing wood manufacturing.
Week 15	Show slides or scientific trip.
Week 16	Preparatory week before the final Exam

### Delivery Plan (Weekly Lab. Syllabus)

#### المنهاج الاسبوعي التطبيقي

Week	Material Covered
Week 1	Learn about forest trees and virtual qualities for each type in the field
Week 2	Monster reproduction, collection and extraction of seeds, collection dates and methods of storage, the importance of machines and equipment used to collect seeds
Week 3	Forest nurseries, their benefits, types, prose methods, prose and unique methods.
Week 4	Maintenance and sustainability of forests and shrines- watering the wealth of shrines- moving seedlings.
Week 5	Service operations and creating uniqueness shrines, various uniqueness circles, creating uniqueness and continuing to manage prose shrines.
Week 6	Study of changes in breathing and methods for estimating breathing rate
Week 7	A scientific visit to the nearby forests and nurseries to the region and prepare models
Week 8	Identify other trees of forests, type of recipes, benefits, and watch models, display slides or films
Week 9	Pruning and mitigation operations, definition of all kinds, display of slides or films
Week 10	Forest maintenance, practical application on fire extinguishing
Week 11	Excellence operations, uniqueness circles, exclusivity time, unique ways.
Week 12	Forest measurements, height, diameter, growth, age devices used in measurements.
Week 13	Scientific films, the importance and investment of forests
Week 14	Cutting trees, cutting stages, cutting, dropping, cleaning and cutting operations.
Week 15	Wood technology, showing scientific films.

### Learning and Teaching Resources

#### مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	”التصدي لتغير المناخ من خلال الغابات“:	no
Recommended Texts	<a href="https://shepherd.com/best-books/important-reads-about-forests">https://shepherd.com/best-books/important-reads-about-forests</a>	No
Websites	<a href="https://www.fao.org/biotech/sectoral-overviews/biotech-forestry/ar/">https://www.fao.org/biotech/sectoral-overviews/biotech-forestry/ar/</a> <a href="https://www.un.org/ar/208338">https://www.un.org/ar/208338</a>	

## Grading Scheme

### مخطط الدرجات

Group	Grade	التقدير	Marks %	Definition
<b>Success Group (50 - 100)</b>	<b>A - Excellent</b>	امتياز	90 - 100	Outstanding Performance
	<b>B - Very Good</b>	جيد جدا	80 - 89	Above average with some errors
	<b>C - Good</b>	جيد	70 - 79	Sound work with notable errors
	<b>D - Satisfactory</b>	متوسط	60 - 69	Fair but with major shortcomings
	<b>E - Sufficient</b>	مقبول	50 - 59	Work meets minimum criteria
<b>Fail Group</b>	<b>FX - Fail</b>	راسب (فقد المعالجة)	(45-49)	More work required but credit awarded

(0 - 49)	F - Fail	راسب	(0-44)	Considerable amount of work required
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**Note:** Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

## MODULE DESCRIPTION FORM

### نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Computer principles( 1)		Module Delivery
Module Type	Core		<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input checked="" type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	NTU 101		
ECTS Credits	2		
SWL (hr/sem)	2		
Module Level	First	Semester of Delivery	
Administering Department	Plant Production PLP	College	Technical Agricultural College
Module Leader	Fahad Khalaf Yassein	e-mail	fahadbiologymycology@ntu.edu.iq
Module Leader's Acad. Title	Asst. prof.	Module Leader's Qualification	
Module Tutor	Mustafa Natheer Mustafa Al Obaidy	e-mail	<a href="mailto:mustafa.n.m1989@ntu.edu.iq">mustafa.n.m1989@ntu.edu.iq</a>
Peer Reviewer Name	Name	e-mail	E-mail
Scientific Committee Approval Date	01/06/2021	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	Computer principles( 2)	Semester	Second
Co-requisites module	Computer principles(3)	Semester	Third

## Module Aims, Learning Outcomes and Indicative Contents

### أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<p><b>Module Objectives</b> أهداف المادة الدراسية</p>	<ol style="list-style-type: none"><li>1. <b>Understand the basics of computing: Provide students with a basic understanding of computing concepts, including its history, development, and types of computing systems.</b></li><li>2. <b>Learn to use operating systems and basic software: Provide students with basic skills to use operating systems effectively and learn to use office software such as word processors, spreadsheets, and presentation software.</b></li><li>3. <b>Developing basic programming skills: Teaching students the basics of programming through programming languages such as Python or Java, enabling them to write simple programs and understand different programming concepts.</b></li><li>4. <b>Learn about the basics of software engineering: clarify software engineering concepts such as analysis, design, and testing, and how to apply them in software development.</b></li><li>5. <b>Enhancing practical skills and creative thinking: Encouraging students to solve computer problems in creative ways and use the acquired programming skills to produce effective solutions.</b></li><li>6. <b>Promoting interaction and teamwork: Encouraging students to collaborate on group programming projects and in solving complex programming problems.</b></li></ol>
<p><b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية</p>	<ol style="list-style-type: none"><li>1. Understand basic concepts in computer science such as data, software, hardware, and networks.</li><li>2. Ability to analyze problems and understand basic algorithms used in programming and software development.</li><li>3. Learn basic programming languages such as C, Python, or Java and understand the basics of writing and executing code.</li><li>4. Ability to use software development tools such as text editors and integrated development environments (IDEs).</li><li>5. Understand the concepts of information security and privacy in the context of technology use.</li><li>6. The ability to understand and analyze computer systems, networks, and communication concepts between devices.</li><li>7. Learn about artificial intelligence concepts and their basic applications.</li><li>8. Learn about the basics of operating systems and how to manage computer resources and processes.</li></ol>

**Indicative Contents**

المحتويات الإرشادية

1. Introduction to computer science and its history.
2. Basic concepts such as data, processing and storage.
3. Numerical systems and conversion between them (decimal, binary, octal, and hexadecimal).
4. Computer structure and its main units (central processor, memory, input/output).
5. Basic programming and algorithms.
6. Programming languages and software development methods.
7. Data structures and advanced concepts in programming.
8. Information security and privacy in computing.
9. Fundamentals of computer networks and communications.
10. Introduction to operating systems and resource management.
11. Basic artificial intelligence and machine learning concepts.
12. Ethics and social responsibility in the use of technology.

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<b>Learning and Teaching Strategies</b> استراتيجيات التعلم والتعليم	
<b>Strategies</b>	<p><b>The necessity of visiting to gain experience from others. Obtaining new scientific information in the field of scientific research (videos). Practical training in the field. Access to modern scientific literature. Participation in relevant scientific conferences. Scientific laboratories with other universities.</b></p>

<b>Student Workload (SWL)</b> الحمل الدراسي للطالب محسوب ل 30 ساعة			
<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	25	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعيا	2
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطالب خلال الفصل	5	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطالب أسبوعيا	0
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	<b>30</b>		



## Module Evaluation

### تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO #5, #8 and #10
Summative assessment	Midterm Exam	2hr	10% (10)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

## Delivery Plan (Weekly Syllabus) , Delivery Plan (Weekly Lab. Syllabus)

### المنهاج الاسبوعي النظري والتطبيقي

Week	Material Covered
Week 1	Definition of calculator - calculator generations - hardware and software components
Week 2	MS-Dos operating system, system concept, system signal, disks, directories and their levels, files, internal and external commands
Week 3	Internal and external operating system commands.
Week 4	Windows operating system, system concept, advantages, basic requirements, system operation, desktop components
Week 5	The concept of icons, the method of dealing with the mouse, the importance and components of the Task Bar, the Start menu, and exiting the system
Week 6	Formatting disks, copying files and folders, taking advantage of Cut and Paste operations, dealing with the Recycle Bin, how to delete files and recover them.
Week 7	Take advantage of Control Panel programs,
Week 8	Change the desktop background, control the Screen Saver, Add and remove programs to the start menu.
Week 9	Taking advantage of the Run command to execute programs directly.
Week 10	Use entertainment programs, Window media player, and take advantage of additional programs. Accessories
Week 11	Use entertainment programs, Window media player, take advantage of additional programs, and use the calculator.

Week 12	Working with the Paint drawing program to create, save and retrieve drawings. Dealing with Office applications. How to get help Help.
Week 13	The concept of computer viruses, how they are infected, types of viruses, how to treat them and deal with them using anti-virus programs.
Week 14	Windows 7 operating system, American company Microsoft, the company's official website <a href="http://www.microsoft.com">www.microsoft.com</a>
Week 15	. Dealing with desktop icons, dealing with the components of the My Computer icon in terms of disks, folders, and files.
Week 16	Preparatory week before the final Exam

### Learning and Teaching Resources

#### مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	الكتاب المنهجي لوزارة التعليم العالي الجزء 1 والجزء 2 للمرحلة الاولى	no
Recommended Texts	سلسلة يسر المصطفى للعلوم " اساسيات الحاسوب والانترنت, الاوفس 2010 د. زياد محمد عبود, 2013	No
Websites	الامريكية, موقع Microsoft نظام التشغيل ويندوز 7, شركة مايكروسوفت <a href="http://www.microsoft.com">www.microsoft.com</a> الشركة الرسمي	

### Grading Scheme

#### مخطط الدرجات

Group	Grade	التقدير	Marks %	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group	FX - Fail	راسب (فقد المعالجة)	(45-49)	More work required but credit awarded

(0 - 49)	F - Fail	راسب	(0-44)	Considerable amount of work required
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**Note:** Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

## MODULE DESCRIPTION FORM

### نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Computer principles( 2)		Module Delivery
Module Type	Core		<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input checked="" type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	NTU 101		
ECTS Credits	2		
SWL (hr/sem)	2		
Module Level	First	Semester of Delivery	
Administering Department	Plant Production PLP	College	Technical Agricultural College
Module Leader	Fahad Khalaf Yassein	e-mail	fahadbiologymycology@ntu.edu.iq
Module Leader's Acad. Title	Asst. prof.	Module Leader's Qualification	
Module Tutor	Mustafa Natheer Mustafa Al Obaidy	e-mail	<a href="mailto:mustafa.n.m1989@ntu.edu.iq">mustafa.n.m1989@ntu.edu.iq</a>
Peer Reviewer Name	Name	e-mail	E-mail
Scientific Committee Approval Date	01/06/2021	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	Computer principles( 2)	Semester	Second
Co-requisites module	Computer principles(3)	Semester	Third

## Module Aims, Learning Outcomes and Indicative Contents

### أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<p><b>Module Objectives</b> أهداف المادة الدراسية</p>	<ol style="list-style-type: none"><li>7. <b>Understand the basics of computing:</b> Provide students with a basic understanding of computing concepts, including its history, development, and types of computing systems.</li><li>8. <b>Learn to use operating systems and basic software:</b> Provide students with basic skills to use operating systems effectively and learn to use office software such as word processors, spreadsheets, and presentation software.</li><li>9. <b>Developing basic programming skills:</b> Teaching students the basics of programming through programming languages such as Python or Java, enabling them to write simple programs and understand different programming concepts.</li><li>10. <b>Learn about the basics of software engineering:</b> clarify software engineering concepts such as analysis, design, and testing, and how to apply them in software development.</li><li>11. <b>Enhancing practical skills and creative thinking:</b> Encouraging students to solve computer problems in creative ways and use the acquired programming skills to produce effective solutions.</li><li>12. <b>Promoting interaction and teamwork:</b> Encouraging students to collaborate on group programming projects and in solving complex programming problems.</li></ol>
<p><b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية</p>	<ol style="list-style-type: none"><li>9. Understand basic concepts in computer science such as data, software, hardware, and networks.</li><li>10. Ability to analyze problems and understand basic algorithms used in programming and software development.</li><li>11. Learn basic programming languages such as C, Python, or Java and understand the basics of writing and executing code.</li><li>12. Ability to use software development tools such as text editors and integrated development environments (IDEs).</li><li>13. Understand the concepts of information security and privacy in the context of technology use.</li><li>14. The ability to understand and analyze computer systems, networks, and communication concepts between devices.</li><li>15. Learn about artificial intelligence concepts and their basic applications.</li><li>16. Learn about the basics of operating systems and how to manage computer resources and processes.</li></ol>

**Indicative Contents**

المحتويات الإرشادية

13. Introduction to computer science and its history.
14. Basic concepts such as data, processing and storage.
15. Numerical systems and conversion between them (decimal, binary, octal, and hexadecimal).
16. Computer structure and its main units (central processor, memory, input/output).
17. Basic programming and algorithms.
18. Programming languages and software development methods.
19. Data structures and advanced concepts in programming.
20. Information security and privacy in computing.
21. Fundamentals of computer networks and communications.
22. Introduction to operating systems and resource management.
23. Basic artificial intelligence and machine learning concepts.
24. Ethics and social responsibility in the use of technology.

## Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

<b>Strategies</b>	<b>The necessity of visiting to gain experience from others. Obtaining new scientific information in the field of scientific research (videos). Practical training in the field. Access to modern scientific literature. Participation in relevant scientific conferences. Scientific laboratories with other universities.</b>
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## Student Workload (SWL)

الحمل الدراسي للطالب محسوب ل 30 ساعة

<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	25	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعيا	2
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطالب خلال الفصل	5	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطالب أسبوعيا	0
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	<b>30</b>		

## Module Evaluation

### تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO #5, #8 and #10
Summative assessment	Midterm Exam	2hr	10% (10)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

## Delivery Plan (Weekly Syllabus) , Delivery Plan (Weekly Lab. Syllabus)

### المنهاج الاسبوعي النظري والتطبيقي

Week	Material Covered
Week 1	Definition of calculator - calculator generations - hardware and software components
Week 2	MS-Dos operating system, system concept, system signal, disks, directories and their levels, files, internal and external commands
Week 3	Internal and external operating system commands.
Week 4	Windows operating system, system concept, advantages, basic requirements, system operation, desktop components
Week 5	The concept of icons, the method of dealing with the mouse, the importance and components of the Task Bar, the Start menu, and exiting the system
Week 6	Formatting disks, copying files and folders, taking advantage of Cut and Paste operations, dealing with the Recycle Bin, how to delete files and recover them.
Week 7	Take advantage of Control Panel programs,
Week 8	Change the desktop background, control the Screen Saver, Add and remove programs to the start menu.
Week 9	Taking advantage of the Run command to execute programs directly.
Week 10	Use entertainment programs, Window media player, and take advantage of additional programs. Accessories
Week 11	Use entertainment programs, Window media player, take advantage of additional programs, and use the calculator.

Week 12	Working with the Paint drawing program to create, save and retrieve drawings. Dealing with Office applications. How to get help Help.
Week 13	The concept of computer viruses, how they are infected, types of viruses, how to treat them and deal with them using anti-virus programs.
Week 14	Windows 7 operating system, American company Microsoft, the company's official website <a href="http://www.microsoft.com">www.microsoft.com</a>
Week 15	. Dealing with desktop icons, dealing with the components of the My Computer icon in terms of disks, folders, and files.
Week 16	Preparatory week before the final Exam

### Learning and Teaching Resources

#### مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	الكتاب المنهجي لوزارة التعليم العالي الجزء 1 والجزء 2 للمرحلة الاولى	no
Recommended Texts	سلسلة يسر المصطفى للعلوم " اساسيات الحاسوب والانترنت, الاوفس 2010 د. زياد محمد عبود, 2013	No
Websites	الامريكية, موقع Microsoft نظام التشغيل ويندوز 7, شركة مايكروسوفت <a href="http://www.microsoft.com">www.microsoft.com</a> الشركة الرسمي	

### Grading Scheme

#### مخطط الدرجات

Group	Grade	التقدير	Marks %	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group	FX - Fail	راسب (فقد المعالجة)	(45-49)	More work required but credit awarded



(0 - 49)	F - Fail	راسب	(0-44)	Considerable amount of work required
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**Note:** Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

## MODULE DESCRIPTION FORM

### نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Democracy and human rights		Module Delivery
Module Type			<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	NTU 103		
ECTS Credits	2		
SWL (hr/sem)	2		
Module Level	One	Semester of Delivery	
Administering Department	Plants Products	College	Technical Agricultural College
Module Leader	Fahad Khalaf Yassein		e-mail
			fahadbiologymycology@ntu.edu.iq
Module Leader's Acad. Title	Asst.prof.		Module Leader's Qualification
Module Tutor	Name (if available)		e-mail
			E-mail
Peer Reviewer Name	Name		e-mail
			E-mail
Scientific Committee Approval Date			Version Number
			1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	.....		Semester
			....
Co-requisites module	.....		Semester
			....

## Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<p><b>Module Objectives</b> أهداف المادة الدراسية</p>	<ol style="list-style-type: none"> <li>1. Introducing the student to the most important laws related to human rights</li> <li>2. Introducing the student to the most important Iraqi constitutions and their relationship to human rights.</li> <li>3. Teaching the student to respect the freedom of others in dealing with him, taking into account the differences in cultures in the Iraqi environment</li> </ol>
<p><b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية</p>	<ol style="list-style-type: none"> <li>1. Definition of human rights, goals of human rights</li> <li>2. Learn about human rights through the divine books.</li> <li>3. The student must have complete knowledge of human rights rules and the international and regional recognition of these rights</li> <li>4. Teach the student that freedom of expression is guaranteed by the Iraqi Constitution</li> <li>5. Identify the components of the social fabric and the differences in their cultures and languages.</li> </ol>

## Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

<p><b>Strategies</b></p>	<p>The necessity of visiting to gain experience from others and their different cultures. Obtaining new information in the field of human rights. Good training and familiarization with regional constitutions and their observance of human rights. Access to modern scientific literature. Participate in literary forums related to freedom of expression and respect for the opinions of others.</p>
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## Student Workload (SWL)

الحمل الدراسي للطالب محسوب لـ 30 ساعة

<p><b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل</p>	<p>30</p>	<p><b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعياً</p>	<p>2</p>
<p><b>Unstructured SWL (h/sem)</b> الحمل الدراسي غيرالمنتظم للطالب خلال الفصل</p>		<p><b>Unstructured SWL (h/w)</b> الحمل الدراسي غيرالمنتظم للطالب أسبوعياً</p>	
<p><b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل</p>	<p><b>30</b></p>		

## Module Evaluation

### تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO #5, #8 and #10
Summative assessment	Midterm Exam	2hr	10% (10)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

## Delivery Plan (Weekly Syllabus)

### المنهاج الاسبوعي النظري

Week	Material Covered
Week 1	Human rights, their definition, and goals.
Week 2	The roots of human rights and their development in human history. Human rights in ancient times
Week 3	Human rights in ancient civilizations, especially the Mesopotamian civilization
Week 4	Human rights in divine laws, with a focus on human rights in Islam
Week 5	Human rights in the Middle Ages. Human rights in doctrines, schools and political theories. Human rights in companies, their advertisements, revolutions, and constitutions
Week 6	Human rights in contemporary and modern history: international recognition of human rights
Week 7	Regional international recognition of human rights
Week 8	Non-governmental organizations and human rights
Week 9	National human rights organizations
Week 10	Human rights in Iraqi constitutions between reality and theory
Week 11	The relationship between human rights and public freedoms in the Universal Declaration of Human Rights
Week 12	The relationship between human rights and public freedoms in regional charters and national constitutions
Week 13	Necessary human rights and collective human rights
Week 14	Economic, social and cultural human rights and civil and political human rights
Week 15	Modern human rights: facts in development, the right to a clean environment

## Learning and Teaching Resources

### مصادر التعلم والتدريس

	Text	Available in the Library?
<b>Required Texts</b>	<b>General Botany, 2014</b> محاضرات في الديمقراطية و حقوق الانسان	Yes
<b>Recommended Texts</b>		
<b>Websites</b>		

## Grading Scheme

### مخطط الدرجات

Group	Grade	التقدير	Marks %	Definition
<b>Success Group (50 - 100)</b>	<b>A - Excellent</b>	امتياز	90 - 100	Outstanding Performance
	<b>B - Very Good</b>	جيد جدا	80 - 89	Above average with some errors
	<b>C - Good</b>	جيد	70 - 79	Sound work with notable errors
	<b>D - Satisfactory</b>	متوسط	60 - 69	Fair but with major shortcomings
	<b>E - Sufficient</b>	مقبول	50 - 59	Work meets minimum criteria
<b>Fail Group</b>	<b>FX - Fail</b>	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded

<b>(0 - 49)</b>	<b>F - Fail</b>	راسب	(0-44)	Considerable amount of work required
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**Note:** Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

# MODULE DESCRIPTION FORM

## نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Ecological Pollution		Module Delivery
Module Type	Option		<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture Lab <input type="checkbox"/> Tutorial <input checked="" type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	PLP 105		
ECTS Credits	2		
SWL (hr/sem)	3		
Module Level	First	Semester of Delivery	
Administering Department	Plant Production PLP	College	Technical Agricultural College
Module Leader	Fahad Khalaf Yassein	e-mail	fahadbiologymycology@ntu.edu.iq
Module Leader's Acad. Title	Asst.prof.	Module Leader's Qualification	
Module Tutor	Amer Moqbel Abdul Hameed	e-mail	E-mail amer.m@ntu.edu.iq
Peer Reviewer Name	Amer Moqbel Abdul Hameed	e-mail	E-mail amer.m@ntu.edu.iq
Scientific Committee Approval Date	01/06/2021	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	Pollution and Environment	Semester	Second
Co-requisites module	Recycling of Agricultural Wastes	Semester	Second

## Module Aims, Learning Outcomes and Indicative Contents

### أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<p><b>Module Objectives</b> أهداف المادة الدراسية</p>	<p>13. Introducing the student to the most important basic information about the concept of environmental pollution. 14. Identify the sources of environmental pollution. 15. Teaching and training students on how to deal with pollutants.</p>
<p><b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية</p>	<p>1. The student will be familiar with the meaning of the term pollution 2 . The student's knowledge of the various sources of pollution. 3 . The student's knowledge of the Earth's physical and biological components 4 .The student's knowledge of energy sources 5 .Know the types of pollutants 6. Identify the types of food contaminants.</p>
<p><b>Indicative Contents</b> المحتويات الإرشادية</p>	<p>Indicative content includes the following. <u>Part A - theoretical part</u> . Definition of pollution, the importance of studying pollution, types of waste.[3 hrs] .The Earth's environment, its components, the role of elements and energy, and the factors affecting it.[3 hrs] . Energy sources and types.[3 hrs] . Nutrient cycling, air pollution, sources of air pollution.[3 hrs] .Types of pollutants, sources of radioactive contamination.[3 hrs] . Food pollution, its types, preventive measures against solid pollutants. [3 hrs]</p>

	<p><u>Part B - practical part</u></p> <ul style="list-style-type: none"> <li>. <b>Types of pollutants, their sources, methods and units of measurement. [9 hrs].</b></li> <li>. <b>Measurement of solids in water. [9 hrs].</b></li> <li>. <b>Methods of water treatment and disposal of pollutants. [9 hrs].</b></li> <li>. <b>The effects of pollution on vegetatio. [9 hrs].</b></li> </ul>
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<b>Learning and Teaching Strategies</b> استراتيجيات التعلم والتعليم	
<b>Strategies</b>	<p><b>The necessity of visiting to gain experience from others.Obtaining new scientific information in the field of scientific research (videos). Practical training in the field. Access to modern scientific literature. Participation in relevant scientific conferences. Scientific laboratories with other universities.</b></p>

<b>Student Workload (SWL)</b> الحمل الدراسي للطالب محسوب ل45 ساعة			
<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	40	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعيا	2
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غيرالمنتظم للطالب خلال الفصل	5	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غيرالمنتظم للطالب أسبوعيا	1
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	<b>45</b>		

## Module Evaluation

### تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO #5, #8 and #10
Summative assessment	Midterm Exam	2hr	10% (10)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

## Delivery Plan (Weekly Syllabus)

### المنهاج الاسبوعي النظري

Week	Material Covered
Week 1	Introduction to the science of environmental pollution, its definition, its importance and its relationship to other sciences.
Week 2	Earth's environment, its physical and biological components, the cycle of elements and energy, environmental balance.
Week 3	Ecosystems and biodiversity, renewable and non-renewable natural environments and resources.
Week 4	The growth of population, the development of technologies, the expansion of cities, the increase in human, agricultural, industrial and urban activity, the decline of vegetation and the increase of pollutants.
Week 5	Pollution and pollutants, definition of pollution and pollutants, classification based on their nature, state, media of spread and sources.
Week 6	Air pollution, air pollutants, their types, sources, and effects on environmental and human health.
Week 7	Water pollution, air pollutants, their types, sources, and effects on environmental and human health.
Week 8	Soil pollution, its pollutants, types, sources, pollution practices, and the effects on plant, living and human health.
Week 9	Solid pollutants from municipal, agricultural, and industrial waste, their effects on the environment and humans.
Week 10	Food pollution, sources and transfer of pollutants through the food chain network, from plants - animals - humans, the amplification of pollution and its harm to animal and human health.
Week 11	The use of chemical fertilizers and pesticides, their types, harms, transportation and effects on the environment and humans.



Week 12	Using supportive farming methods in agricultural production and biological resistance to reduce the effects of pollution in current production methods.
Week 13	The role of pollution in the disappearance of the earth's temperature, the expansion of ozone holes, the impact on climate and environment, rising temperatures, melting snow, sinking and waterlogging of the earth, and land degradation.
Week 14	The effects of pollution on the extinction of plant and animal species and its effects on the genetic stock and the development of biodiversity.
Week 15	Manifestations of pollution in Iraq and its effects on the share of plants, animals and humans.
Week 16	Exam

### Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

week	Material Covered
Week 1	Introduction to the types of pollution and pollutants, their sources, methods and units of measurement, and the media of their spread
Week 2	A field tour to present and investigate the manifestations of pollution and its effects on the health of the components of the environment and humans.
Week 3	A discussion session on the effects of pollution and assigning students to research projects on various pollution topics.
Week 4	Studying the effects of air pollutants, methods of measuring them, and disposal techniques.
Week 5	Measurement of salinity, pH, and biological oxygen requirement in water of varying contamination.
Week 6	Measuring solids in water and the effect of their pollutants on aquatic organisms, the spread of jungles, and the agricultural environment.
Week 7	Studying methods for treating water and eliminating solid pollutants and pathogens.
Week 8	Study and measure solid pollutants from municipal and industrial waste and land and environmental pollution.
Week 9	Studying methods for treating and disposing of industrial and agricultural municipal solid waste.
Week 10	Study the effects of pollution on vegetation.
Week 11	Studying the effects of pollution on organisms and biodiversity.
Week 12	Studying the effects of local pollution on plants and beneficial organisms inside and outside agricultural soil.
Week 13	Studying the effects of agricultural pollutants on aquatic media.
Week 14	Studying the effects of pesticides on organisms across food chains, the use of alternatives and biological resistance.
Week 15	Discussing and evaluating students' research on environmental pollution.
Week 16	Exam

## Learning and Teaching Resources

### مصادر التعلم والتدريس

	Text	Available in the Library?
<b>Required Texts</b>	<b>Ecological Pollution,</b> تلوث بيئي ، البيئة ومشكلات التلوث أ.د. محمد حسان عوض ا.د. حسن أحمد شحاتة 2017	Yes
<b>Recommended Texts</b>	<b>Plant anatomy</b>	Yes
<b>Websites</b>	<a href="https://books-library.net/free-1179887737-download">https://books-library.net/free-1179887737-download</a>	

## Grading Scheme

### مخطط الدرجات

Group	Grade	التقدير	Marks %	Definition
<b>Success Group (50 - 100)</b>	<b>A - Excellent</b>	امتياز	90 - 100	Outstanding Performance
	<b>B - Very Good</b>	جيد جدا	80 - 89	Above average with some errors
	<b>C - Good</b>	جيد	70 - 79	Sound work with notable errors
	<b>D - Satisfactory</b>	متوسط	60 - 69	Fair but with major shortcomings
	<b>E - Sufficient</b>	مقبول	50 - 59	Work meets minimum criteria
<b>Fail Group</b>	<b>FX - Fail</b>	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded

(0 - 49)	F - Fail	راسب	(0-44)	Considerable amount of work required
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**Note:** Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

## MODULE DESCRIPTION FORM

### نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Economics of Natural Resources		Module Delivery
Module Type	Option		<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	TAMO 151		
ECTS Credits	2		
SWL (hr/sem)	2		
Module Level	First	Semester of Delivery	
Administering Department	Plant Production PLP	College	Technical Agricultural College
Module Leader	Fahad Khalaf Yassein	e-mail	fahadbiologymycology@ntu.edu.iq
Module Leader's Acad. Title	Asst.prof.	Module Leader's Qualification	
Module Tutor	Bashar Mohsin Mohammed able	e-mail	Bashar_mohsin.m@ntu.edu.iq
Peer Reviewer Name	Name	e-mail	E-mail
Scientific Committee Approval Date	01/06/2021	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	Agricultural policy		Semester Second
Co-requisites module	Agricultural marketing		Semester Second

## Module Aims, Learning Outcomes and Indicative Contents

### أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<p><b>Module Objectives</b> أهداف المادة الدراسية</p>	<ol style="list-style-type: none"><li>16. Studying the concept of economics, agricultural economics, branches of agricultural economics, and the relationship of agricultural economics to other sciences.</li><li>17. Paying attention to the economic and agricultural problem in terms of its causes and solutions.</li><li>18. Studying the economics of agricultural production and studying production functions and their economic derivatives</li><li>19. Study of production costs, cost functions and their economic derivatives</li><li>20. Study of markets, revenues and profits</li><li>21. Study of agricultural marketing, price policy and farm management</li></ol>
<p><b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية</p>	<ol style="list-style-type: none"><li>1. Teach the student about the applications of economics in agriculture in an economic manner and compared to the technical aspect.</li><li>2. The student's knowledge of economic laws and economic principles used in agriculture.</li><li>3. Optimal employment of agricultural production elements.</li><li>4. How to achieve optimal levels of production.</li><li>5. How to produce agricultural products in light of market prices</li></ol>
<p><b>Indicative Contents</b> المحتويات الإرشادية</p>	<p>Indicative content includes the following.</p> <p><u>Part A - theoretical part</u></p> <ol style="list-style-type: none"><li>1. Introducing the student to economics in general and agricultural economics in particular [2]</li><li>2. The student's ability to identify and know the deviation in the optimal use of resources and production from the actual use[2]</li><li>3. Teaching the student how to achieve economic efficiency on the farm[2]</li></ol>

	<p><u>Part B - practical part</u></p> <ol style="list-style-type: none"> <li>1. The skill of thinking according to the student's ability, and the goal of this skill is for the student to believe in what is tangible. [2]</li> <li>2. Understanding when, what and how one should think and working to improve the ability to think sensibly. [2]</li> <li>3. Observation and perception[2]</li> <li>4. Analysis and interpretation[2]</li> <li>5. Preparation and calendar[2]</li> <li>6. Critical thinking strategy in learning[2]</li> </ol>
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<b>Learning and Teaching Strategies</b> استراتيجيات التعلم والتعليم	
<b>Strategies</b>	<p>The necessity of visiting to gain experience from others. Obtaining new scientific information in the field of scientific research (videos). Practical training in the field. Access to modern scientific literature. Participation in relevant scientific conferences. Scientific laboratories with other universities.</p>

<b>Student Workload (SWL)</b> الحمل الدراسي للطالب محسوب لـ 20 ساعة			
<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	25	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعياً	2
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطالب خلال الفصل	5	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطالب أسبوعياً	0
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	<b>30</b>		

## Module Evaluation

### تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
<b>Formative assessment</b>	<b>Quizzes</b>	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	<b>Assignments</b>	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	<b>Projects / Lab.</b>	1	10% (10)	Continuous	All
	<b>Report</b>	1	10% (10)	13	LO #5, #8 and #10
<b>Summative assessment</b>	<b>Midterm Exam</b>	2hr	10% (10)	7	LO #1 - #7
	<b>Final Exam</b>	3hr	50% (50)	16	All
<b>Total assessment</b>			100% (100 Marks)		

## Delivery Plan (Weekly Syllabus)

### المنهاج الاسبوعي النظري

Week	Material Covered
<b>Week 1</b>	<b>Principles in agricultural economics</b>
<b>Week 2</b>	<b>Economic problems</b>
<b>Week 3</b>	<b>Demand for agricultural crops</b>
<b>Week 4</b>	<b>Agricultural supply</b>
<b>Week 5</b>	<b>Economics of agricultural production</b>
<b>Week 6</b>	<b>Agricultural production functions</b>
<b>Week 7</b>	<b>Agricultural production functions</b>
<b>Week 8</b>	<b>Agricultural production costs</b>
<b>Week 9</b>	<b>Agricultural production costs</b>
<b>Week 10</b>	<b>Revenues and profits for projects Agricultural Production</b>
<b>Week 11</b>	<b>Agricultural marketing</b>

Week 12	Price policy
Week 13	Price policy
Week 14	Farm management
Week 15	Farm management
Week 16	Preparatory week before the final Exam

Learning and Teaching Resources		
مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	الداهري، عبد الوهاب مطر . . 1987 الأقتصاد الزراعي . وزارة التعليم العالي والبحث العلمي . جامعة بغداد . الطبعة الثانية . بغداد	Yes
Recommended Texts	النجفي ، سالم توفيق . . 1992 الأقتصاد الزراعي . دار الحكمة للطباعة والنشر الموصل	Yes
Websites		

Grading Scheme				
مخطط الدرجات				
Group	Grade	التقدير	Marks %	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group	FX - Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded

(0 - 49)	F - Fail	راسب	(0-44)	Considerable amount of work required
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**Note:** Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

## MODULE DESCRIPTION FORM

### نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Engineering Drawing		Module Delivery
Module Type	College Requirements		<input type="checkbox"/> Theory <input type="checkbox"/> Lecture <input checked="" type="checkbox"/> Lab <input checked="" type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	TAMO 102		
ECTS Credits	1		
SWL (hr/sem)	3		
Module Level	One	Semester of Delivery	
Administering Department	Plant Production PLP	College	Technical Agricultural College
Module Leader	Fahad Khalaf Yassein	e-mail	fahadbiologymycology@ntu.edu.iq
Module Leader's Acad. Title	Asst.prof.	Module Leader's Qualification	Master
Module Tutor	Mahmood Shaker Mahmood	e-mail	<a href="mailto:Msh41551@ntu.edu.iq">Msh41551@ntu.edu.iq</a>
Peer Reviewer Name	Name	e-mail	E-mail
Scientific Committee Approval Date	01/06/2021	Version Number	1.0

### Relation with other Modules

العلاقة مع المواد الدراسية الأخرى

Prerequisite module	Basics of engineering drawing	Semester	one
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## Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<p><b>Module Objectives</b> أهداف المادة الدراسية</p>	<p>Teaching students how to recognize and use engineering drawing tools and some operations in engineering drawing, projections, three-dimensional shapes, sections, and some simple shapes in sections of irrigation channels and agricultural facilities.</p>
<p><b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية</p>	<ol style="list-style-type: none"><li>1. Using modern techniques in designing fields, agricultural buildings, and gardens</li><li>2. The possibility of managing agricultural and livestock activity in dry farming areas in a way that achieves the best possible efficiency through the ideal distribution of irrigation systems.</li><li>3. Developing means, equipment, and machines in line with the labor market.</li></ol>
<p><b>Indicative Contents</b> المحتويات الإرشادية</p>	<p><b><u>part One:</u></b> Get a general idea about the engineering drawing material, the AutoCAD program, drawing tools and their shortcuts, and how to draw straight lines, circles, and two-dimensional rectangles (9 hours).</p> <p><b><u>Part two:</u></b> Drawing arcs and polygons, learning methods of deletion and addition to drawing, as well as learning to draw triangular projections (9 hours).</p> <p><b><u>Part three:</u></b> Finding the third plan of the other falls and drawing models of the three falls, in addition to doing applied exercises for drawing trowels and irrigation channels (9 hours).</p>

## Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

<b>Strategies</b>	<p>Working to increase knowledge to gain practical experience from others through educational videos and training courses to obtain new scientific information in the field of knowledge. Practical field training and how to take field measurements. Access to modern scientific literature. Scientific laboratories with other universities.</p>
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## Student Workload (SWL)

الحمل الدراسي للطالب محسوب لـ 45 ساعة

<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	45	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعياً	2
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطالب خلال الفصل	5	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطالب أسبوعياً	1
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	<b>45</b>		

## Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
<b>Formative assessment</b>	<b>Quizzes</b>	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	<b>Assignments</b>	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	<b>Projects / Lab.</b>	1	10% (10)	Continuous	All
	<b>Report</b>	1	10% (10)	13	LO #5, #8 and #10
<b>Summative assessment</b>	<b>Midterm Exam</b>	2hr	10% (10)	7	LO #1 - #7
	<b>Final Exam</b>	3hr	50% (50)	16	All
<b>Total assessment</b>			100% (100 Marks)		

## Delivery Plan (Weekly Syllabus)

### المنهاج الاسبوعي النظري

Week	Material Covered
Week 1	A general idea about the subject of engineering drawing - its importance - learning about the use of engineering drawing tools - drawing the frame of the painting and the title
Week 2	Types of fonts - Arabic geometric letters - illustrative examples
Week 3	Establishing a perpendicular on a straight line from a point on it and outside it - bisecting a straight line - bisecting a known angle - drawing a straight line parallel to another - dividing a straight line
Week 4	Drawing a circle that passes through the vertices of the outside and inside angles of a triangle - finding the center of a circle or arc. Drawing a tangent to a circle from a known point on its circumference and outside of it.
Week 5	Draw an arc with a known radius that touches two circles from the outside and inside and from the outside and inside
Week 6	Cam cross section drawing - a perspective drawing of a circle at a 30 or 40 degree angle
Week 7	The Three Projects (Practical Exercises)
Week 8	Finding the third location from the other locations
Week 9	Drawing models of the three projections
Week 10	Drawing models of the three projections
Week 11	Practical exercises for drawing figures
Week 12	Drawing sectors and applied exercises on them
Week 13	Drawing sewers and irrigation channels of all kinds
Week 14	Drawing sections of dams and reservoirs
Week 15	How to ink drawings and how to use ink pens
Week 16	Exam

## Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

week	Material Covered
Week 1	A general idea about the subject of engineering drawing - its importance - learning about the use of engineering drawing tools - drawing the frame of the painting and the title
Week 2	Types of fonts - Arabic geometric letters - illustrative examples
Week 3	Establishing a perpendicular on a straight line from a point on it and outside it - bisecting a straight line - bisecting a known angle - drawing a straight line parallel to another - dividing a straight line
Week 4	Drawing a circle that passes through the vertices of the outside and inside angles of a triangle - finding the center of a circle or arc. Drawing a tangent to a circle from a known point on its circumference and outside of it.
Week 5	Draw an arc with a known radius that touches two circles from the outside and inside and from the outside and inside
Week 6	Cam cross section drawing - a perspective drawing of a circle at a 30 or 40 degree angle
Week 7	The Three Projects (Practical Exercises)
Week 8	Finding the third location from the other locations
Week 9	Drawing models of the three projections
Week 10	Drawing models of the three projections
Week 11	Practical exercises for drawing figures
Week 12	Drawing sectors and applied exercises on them
Week 13	Drawing sewers and irrigation channels of all kinds
Week 14	Drawing sections of dams and reservoirs
Week 15	How to ink drawings and how to use ink pens
Week 16	Exam

## Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
<b>Required Texts</b>	Autocad 2014	Yes
<b>Recommended Texts</b>	<a href="https://www.google.iq/books/edition/%D8%A7%D9%84%D8%B1%D8%B3%D9%85_%D8%A7%D9%84%D9%87%D9%86%D8%AF%D8%B3%D9%8A_%D8%A8%D8%A7%D8%B3%D8%AA%D8%AE%D8%AF%D8%A7/lnIDwAAQBAJ?hl=ar&amp;gbpv=1&amp;dq=%D8%A8%D8%B1%D9%86%D8%A7%D9%85%D8%AC%20%D8%A7%D9%88%D8%AA%D9%88%D9%83%D8%A7%D8%AF&amp;pg=PA17&amp;printsec=frontcover">https://www.google.iq/books/edition/%D8%A7%D9%84%D8%B1%D8%B3%D9%85_%D8%A7%D9%84%D9%87%D9%86%D8%AF%D8%B3%D9%8A_%D8%A8%D8%A7%D8%B3%D8%AA%D8%AE%D8%AF%D8%A7/lnIDwAAQBAJ?hl=ar&amp;gbpv=1&amp;dq=%D8%A8%D8%B1%D9%86%D8%A7%D9%85%D8%AC%20%D8%A7%D9%88%D8%AA%D9%88%D9%83%D8%A7%D8%AF&amp;pg=PA17&amp;printsec=frontcover</a>	yes

## Grading Scheme

### مخطط الدرجات

Group	Grade	التقدير	Marks %	Definition
<b>Success Group (50 - 100)</b>	<b>A</b> - Excellent	امتياز	90 - 100	Outstanding Performance
	<b>B</b> - Very Good	جيد جدا	80 - 89	Above average with some errors
	<b>C</b> - Good	جيد	70 - 79	Sound work with notable errors
	<b>D</b> - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	<b>E</b> - Sufficient	مقبول	50 - 59	Work meets minimum criteria
<b>Fail Group</b>	<b>FX</b> - Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
<b>(0 - 49)</b>	<b>F</b> - Fail	راسب	(0-44)	Considerable amount of work required

**Note:** Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

# MODULE DESCRIPTION FORM

## نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
اسم المقرر	الرسم الهندسي	طريقة تلقي المقرر	
نوع المقرر	متطلبات الكلية	<input type="checkbox"/> نظري <input type="checkbox"/> محاضرة <input checked="" type="checkbox"/> مختبر <input checked="" type="checkbox"/> تعليمي <input checked="" type="checkbox"/> عملي <input type="checkbox"/> ندوة	
رمز المقرر	TAMO 102		
عدد الوحدات	1		
عدد الساعات الاسبوعية	3		
المستوى الدراسي	الاول		
القسم العلمي	تقنيات الانتاج النباتي PLP	الكلية	الكلية التقنية الزراعية
مسؤول المقرر	محمود شاكر محمود	الايمل	<a href="mailto:Msh41551@ntu.edu.iq">Msh41551@ntu.edu.iq</a>
اللقب العلمي	مدرس مساعد	الشهادة الجامعية لمسؤول المقرر	
مدرس المادة	محمود شاكر محمود	الايمل	<a href="mailto:Msh41551@ntu.edu.iq">Msh41551@ntu.edu.iq</a>
المقيم العلمي للمقرر	Name	الايمل	E-mail
تاريخ مصادقة اللجنة العلمية	01/06/2021	رقم الجلسة	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
المتطلبات الاساسية	اساسيات الرسم الهندسي	الفصل الدراسي	الاول

## Module Aims, Learning Outcomes and Indicative Contents

### أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<b>Module Objectives</b> أهداف المادة الدراسية	تعليم الطلاب كيفية التعرف واستخدام أدوات الرسم الهندسي وبعض العمليات في الرسم الهندسي والمسقطات والأشكال ثلاثية الأبعاد والأقسام وبعض الأشكال البسيطة في أقسام قنوات الري والمنشآت الزراعية.
<b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية	1. استخدام التقنيات الحديثة في تصميم الحقول والمباني الزراعية والحدائق 2. إمكانية إدارة النشاط الزراعي والحيواني في مناطق الزراعة الجافة بما يحقق أفضل كفاءة ممكنة من خلال التوزيع الأمثل لأنظمة الري. 3. تطوير الوسائل والمعدات والآلات بما يتناسب مع سوق العمل.
<b>Indicative Contents</b> المحتويات الإرشادية	<p><b>الجزء الأول:</b> الحصول على فكرة عامة عن مادة الرسم الهندسي وبرنامج الأوتوكاد وأدوات الرسم واختصاراتها وكيفية رسم الخطوط المستقيمة والدوائر والمستطيلات ثنائية الأبعاد (9 ساعات).</p> <p><b>الجزء الثاني:</b> رسم الأقواس والمضلعات وتعلم طرق الحذف والإضافة في الرسم وكذلك تعلم رسم المسقطات المثلثية (9 ساعات).</p> <p><b>الجزء الثالث:</b> إيجاد المخطط الثالث للشلالات الأخرى ورسم نماذج للشلالات الثلاثة بالإضافة إلى القيام بتمارين تطبيقية لرسم المسجات وقنوات الري (9 ساعات).</p>

## Learning and Teaching Strategies

### استراتيجيات التعلم والتعليم

الاستراتيجيات	<p>العمل على زيادة المعرفة لاكتساب الخبرة العملية من الآخرين من خلال الفيديوهات التعليمية والدورات التدريبية للحصول على معلومات علمية جديدة في المجال المعرفي. التدريب الميداني العملي وكيفية أخذ القياسات الميدانية. الوصول إلى الأدبيات العلمية الحديثة. المختبرات العلمية مع الجامعات الأخرى.</p>
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## Student Workload (SWL)

### الحمل الدراسي للطالب محسوب لـ 45 ساعة

<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	45	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعياً	2
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطالب خلال الفصل	5	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطالب أسبوعياً	1
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	<b>45</b>		

## Module Evaluation

### تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
<b>Formative assessment</b>	<b>Quizzes</b>	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	<b>Assignments</b>	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	<b>Projects / Lab.</b>	1	10% (10)	Continuous	All
	<b>Report</b>	1	10% (10)	13	LO #5, #8 and #10
<b>Summative assessment</b>	<b>Midterm Exam</b>	2hr	10% (10)	7	LO #1 - #7
	<b>Final Exam</b>	3hr	50% (50)	16	All
<b>Total assessment</b>			100% (100 Marks)		



## Delivery Plan (Weekly Syllabus)

### المنهاج الاسبوعي النظري

Week	Material Covered
الاسبوع 1	فكرة عامة عن مادة الرسم الهندسي- اهميتها- التعرف على استخدام ادوات الرسم الهندسي- رسم اطار اللوحة والعنوان
الاسبوع 2	انواع الخطوط - الاحرف الهندسية العربية - امثلة توضيحية
الاسبوع 3	اقامة عمود على مستقيم من نقطة عليه وخارج عنه- تنصيف الخط المستقيم- تنصيف زاوية معلومة- رسم مستقيم موازي لآخر- تقسيم الخط المستقيم
الاسبوع 4	رسم دائرة تمر برؤوس زوايا مثلث من الخارج والداخل - ايجاد مركز دائرة أو قوس رسم مماس لدائرة من نقطة معلومة على محيطها وخارج عنه
الاسبوع 5	رسم قوس بنصف قطر معلوم يمس دائرتين من الخارج ومن الداخل ومن الخارج والداخل
الاسبوع 6	رسم مقطع الكامة - رسم منظور لدائرة على زاوية 30 أو 40 درجة
الاسبوع 7	المساقط الثلاثة ( تمارين تطبيقية )
الاسبوع 8	ايجاد المسقط الثالث من المساقط الاخرى
الاسبوع 9	رسم المجسمات من المساقط الثلاثة
الاسبوع 10	رسم المجسمات من المساقط الثلاثة
الاسبوع 11	تمارين تطبيقية لرسم المجسمات
الاسبوع 12	رسم القطاعات وتمارين تطبيقية عليها
الاسبوع 13	رسم المبازل وقنوات الري بانواعها
الاسبوع 14	رسم مقاطع في السدود والخزانات
الاسبوع 15	كيفية تحبير الرسومات وكيفية استخدام اقلام التحبير
الاسبوع 16	الامتحان

## Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

week	Material Covered
الاسبوع 1	فكرة عامة عن مادة الرسم الهندسي- اهميتها- التعرف على استخدام ادوات الرسم الهندسي- رسم اطار اللوحة والعنوان
الاسبوع 2	انواع الخطوط - الاحرف الهندسية العربية - امثلة توضيحية
الاسبوع 3	اقامة عمود على مستقيم من نقطة عليه وخارج عنه- تصنيف الخط المستقيم- تصنيف زاوية معلومة- رسم مستقيم موازي لآخر - تقسيم الخط المستقيم
الاسبوع 4	رسم دائرة تمر برؤوس زوايا مثلث من الخارج والداخل - ايجاد مركز دائرة أو قوس رسم مماس لدائرة من نقطة معلومة على محيطها وخارج عنه
الاسبوع 5	رسم قوس بنصف قطر معلوم يمس دائرتين من الخارج ومن الداخل ومن الخارج والداخل
الاسبوع 6	رسم مقطع الكامة - رسم منظور لدائرة على زاوية 30 أو 40 درجة
الاسبوع 7	المساقط الثلاثة ( تمارين تطبيقية )
الاسبوع 8	ايجاد المسقط الثالث من المساقط الاخرى
الاسبوع 9	رسم المجسمات من المساقط الثلاثة
الاسبوع 10	رسم المجسمات من المساقط الثلاثة
الاسبوع 11	تمارين تطبيقية لرسم المجسمات
الاسبوع 12	رسم القطاعات وتمارين تطبيقية عليها
الاسبوع 13	رسم المبازل وقنوات الري بانواعها
الاسبوع 14	رسم مقاطع في السدود والخزانات
الاسبوع 15	كيفية تحبير الرسومات وكيفية استخدام اقلام التحبير
الاسبوع 16	الامتحان

## Learning and Teaching Resources

مصادر التعلم والتدريس

اسم المادة	هل يتوفر في المكتبات؟
المنهج الدراسي Autocad 2014	نعم
المصادر الداعمة	نعم

<https://www.google.iq/books/edition/%D8%A7%D9%84%D8%B1%D8%B3%D9%85-%D8%A7%D9%84%D9%87%D9%86%D8%AF%D8%B3%D9%8A-%D8%A8%D8%A7%D8%B3%D8%AA%D8%AE%D8%AF%D8%A7/lnIDwAAQBAJ?hl=ar&gbpv=1&dq=%D8%A8%D8%B1%D9%86%D8%A7%D9%85%D8%AC%20%D8%A7%D9%88%D8%AA%D9%88%D9%83%D8%A7%D8%AF&pg=PA17&printsec=frontcover>

## Grading Scheme

### مخطط الدرجات

Group	Grade	التقدير	Marks %	Definition
درجة النجاح (100 - 50)	A - Excellent	امتياز	90 - 100	امتياز
	B - Very Good	جيد جداً	80 - 89	جيد جداً
	C - Good	جيد	70 - 79	جيد
	D - Satisfactory	متوسط	60 - 69	متوسط
	E - Sufficient	مقبول	50 - 59	مقبول
Fail Group	FX - Fail	راسب (قيد المعالجة)	(45-49)	ضعيف
(0 - 49)	F - Fail	راسب	(0-44)	راسب

ملاحظة: سيتم تقريب العلامات العشرية التي تزيد أو تقل عن 0.5 إلى العلامة الكاملة الأعلى أو الأدنى (على سبيل المثال، سيتم تقريب علامة 54.5 إلى 55، في حين سيتم تقريب علامة 54.4 إلى 54). لدى الجامعة سياسة عدم التغاضي عن فشل التمريرة القريبة لذا فإن التعديل الوحيد للعلامات الممنوحة بواسطة العلامة (العلامات) الأصلية سيكون التقريب التلقائي الموضح أعلاه.

## MODULE DESCRIPTION FORM

### نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	English Language	Module Delivery	
Module Type	Option	<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar	
Module Code	NTU 101		
ECTS Credits	2		
SWL (hr/sem)	2		
Module Level	First	Semester of Delivery	First

<b>Administering Department</b>	<b>Plant Production PLP</b>	<b>College</b>	<b>Technical Agricultural College</b>
<b>Module Leader</b>	Fahad Khalaf Yassein	<b>e-mail</b>	fahadbiologymycology@ntu.edu.iq
<b>Module Leader's Acad. Title</b>	Asst.prof.	<b>Module Leader's Qualification</b>	
<b>Module Tutor</b>	Bashar Mohsin Mohammed able	<b>e-mail</b>	Bashar_mohsin.m@ntu.edu.iq
<b>Peer Reviewer Name</b>	Name	<b>e-mail</b>	E-mail
<b>Scientific Committee Approval Date</b>	<b>01/06/2021</b>	<b>Version Number</b>	<b>1.0</b>

<b>Relation with other Modules</b> العلاقة مع المواد الدراسية الأخرى			
<b>Prerequisite module</b>	<b>Conversation in English</b>	<b>Semester</b>	<b>Second</b>
<b>Co-requisites module</b>	<b>The rules of the English language</b>	<b>Semester</b>	<b>Second</b>

## Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<p><b>Module Objectives</b> أهداف المادة الدراسية</p>	<p>22. Enabling students to obtain knowledge and introduction to the rules of the English language</p> <p>23. Enabling students to obtain knowledge of the origins of speech and sentences and what they consist of and their types</p> <p>24. Enabling students to obtain knowledge of the correct pronunciation of English vocabulary</p>
<p><b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية</p>	<p>6. Students acquire general knowledge of the English language</p> <p>7. Gaining students the ability to speak properly and in accordance with the principles of the language</p> <p>8. Acquire and require the ability to correctly pronounce letters and vocabulary</p> <p>9. Students acquire the skill of writing sentences correctly and with the fewest possible errors</p>
<p><b>Indicative Contents</b> المحتويات الإرشادية</p>	<p>Indicative content includes the following.</p> <p><u>Part A - theoretical part</u></p> <p>4. Relying on accumulated information on the topic [2]</p> <p>5. Relying on the ability to focus on information[2]</p> <p>6. Clarifying the idea and defining the goal of the lesson[2]</p> <p>7. The ability to collect information about the topic by asking questions[2]</p>

	<p><u>Part B - practical part</u></p> <ol style="list-style-type: none"> <li>7. The skill of thinking according to the student's ability, and the goal of this skill is for the student to believe in what is tangible. [2]</li> <li>8. Understanding when, what and how one should think and working to improve the ability to think sensibly. [2]</li> <li>9. Observation and perception[2]</li> <li>10. Analysis and interpretation[2]</li> <li>11. Preparation and calendar[2]</li> <li>12. Critical thinking strategy in learning[2]</li> </ol>
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<b>Learning and Teaching Strategies</b> استراتيجيات التعلم والتعليم	
<b>Strategies</b>	<p>The necessity of visiting to gain experience from others.Obtaining new scientific information in the field of scientific research (videos).</p>

<b>Student Workload (SWL)</b> الحمل الدراسي للطالب محسوب ل60 ساعة			
<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	25	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعيا	2
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غيرالمنتظم للطالب خلال الفصل	5	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غيرالمنتظم للطالب أسبوعيا	0
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	<b>30</b>		

## Module Evaluation

### تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
<b>Formative assessment</b>	<b>Quizzes</b>	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	<b>Assignments</b>	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	<b>Projects / Lab.</b>	1	10% (10)	Continuous	All
	<b>Report</b>	1	10% (10)	13	LO #5, #8 and #10
<b>Summative assessment</b>	<b>Midterm Exam</b>	2hr	10% (10)	7	LO #1 - #7
	<b>Final Exam</b>	3hr	50% (50)	16	All
<b>Total assessment</b>			100% (100 Marks)		

## Delivery Plan (Weekly Syllabus)

### المنهاج الاسبوعي النظري

Week	Material Covered
<b>Week 1</b>	<b>Hello!</b>
<b>Week 2</b>	<b>Your world</b>
<b>Week 3</b>	<b>All about you</b>
<b>Week 4</b>	<b>Family and friends</b>
<b>Week 5</b>	<b>The way I live</b>
<b>Week 6</b>	<b>Every day</b>
<b>Week 7</b>	<b>My favourites</b>
<b>Week 8</b>	<b>Where I live</b>
<b>Week 9</b>	<b>Time past</b>
<b>Week 10</b>	<b>We had a great time</b>
<b>Week 11</b>	<b>I can do that</b>

Week 12	Please and thank you
Week 13	Here and now
Week 14	Its time to go
Week 15	Review of the article
Week 16	final exam

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	1. Headway plus , pre-intermediate student's book	Yes
Recommended Texts	2. Headway plus , intermediate student's book	Yes
Websites		

Grading Scheme مخطط الدرجات				
Group	Grade	التقدير	Marks %	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group	FX - Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded



(0 - 49)	F - Fail	راسب	(0-44)	Considerable amount of work required
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**Note:** Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

## MODULE DESCRIPTION FORM

Module Information				
Module Title	Fundamental of soil science		Module Delivery	
Module Type	Core		<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input checked="" type="checkbox"/> Practical <input type="checkbox"/> Seminar	
Module Code	PLP 102			
ECTS Credits	3			
SWL (hr/sem)	5			
Module Level	First level	Semester of Delivery		
Administering Department	Plant Production PLP	College	TAMO	
Module Leader	Fahad Khalaf Yassein		Technical Agricultural College of Mosul	
Module Leader's Acad. Title	Asst.prof.	e-mail	fahadbiologymycology@ntu.edu.iq	
Module Tutor	Omar Younis	Module Leader's Qualification	Master	
Peer Reviewer Name	Omar Younis	e-mail	E-mail	
Scientific Committee Approval Date	01/06/2021	Version Number	1.0	

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	Soil chemistry		Semester
Co-requisites module	Soil fertility		Semester

## Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<b>Module Objectives</b>	<p>Course objectives</p> <ul style="list-style-type: none"><li>- Learn about soil science and related sciences:</li><li>1- Identify the factors of soil formation and its formation processes.</li><li>2- Identify the morphological characteristics of the soil and how to collect soil data from the field. Preparing the samples taken to conduct estimates on them.</li><li>3- Measuring morphological characteristics in the field, such as color, composition, and humidity.</li><li>4- Measuring soil chemical characteristics - colloids - organic matter - exchange capacity - ion exchange - ph - E.C.</li><li>5- Measuring physical characteristics such as humidity, true density, and calculating porosity - knowing the mechanical analysis of soil to determine its components.</li></ul>
<b>Module Learning Outcomes</b>	<p>g-Cognitive objectives</p> <ul style="list-style-type: none"><li>9- Identify the composition of the soil and its organic states.</li><li>10- The relationship between soil components and plant condition</li><li>11- Paying attention to the quality of soil water, air, soil temperature, and moisture stress.</li><li>12- Identify colloids, their types, and their relationship with the organic state.</li><li>13- Learn how to manage soil, manage water, and maintain soil fertility and productivity.</li><li>14- Submitting reports on the quality of the soil, its organic state, the quality of irrigation water, and the suitability of groundwater wells for irrigation.</li></ul> <p>D- The skills objectives of the course.</p> <ul style="list-style-type: none"><li>2- Estimating soil moisture and its potential to achieve agricultural production.</li><li>3- Estimating the soil texture to determine the quality of the soil.</li><li>4- Estimating the cation exchange capacity in relation to fertilization.</li><li>5- Determine the salinity of river irrigation water or groundwater</li><li>6- The ability to determine the salinity and acidity of the soil, which is related to fertilization, salinization, and agriculture.</li></ul>

<b>Indicative Contents</b>	<ol style="list-style-type: none"><li>1- That what the student studies should be consistent with his inclinations and thinking trends</li><li>2- That the student feels the importance of correcting refractive errors in the eye</li><li>3- The student should listen carefully to the professor's explanation</li><li>4- That the student feels what cognitive excellence and excellence mean</li><li>5- That the student recognizes the impact of science and scientists</li><li>6- The student must pay attention to respecting the time and class system</li></ol>
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## Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

<b>Strategies</b>	1-Types of communication in the field of work 2- The ability to express ideas clearly and reliably 3- Teamwork.
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## Student Workload (SWL)

<b>Structured SWL (h/sem)</b>	75	<b>Structured SWL (h/w)</b>	5
<b>Unstructured SWL (h/sem)</b>	-	<b>Unstructured SWL (h/w)</b>	4
<b>Total SWL (h/sem)</b>	75		

## Module Evaluation

### تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO #5, #8 and #10
Summative assessment	Midterm Exam	2hr	10% (10)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

## Delivery Plan (Weekly Syllabus)

	Material Covered
Week 1	What is soil, the purpose of studying it, soil science, its branches, and the basic components of soil.
Week 2	Weathering, its types, factors, composition of the original material.
Week 3	Soil formation and development, soil formation factors.
Week 4	Soil morphology, soil depth, soil horizons, soil color, and other morphological characteristics.
Week 5	Physical properties of soil and their relationship to plant growth.
Week 6	Physical properties of soil and their relationship to plant growth
Week 7	Liquid phase of soil, soil relationship with water, water constants, soil water classification.
Week 8	Soil colloids, clay minerals.
Week 9	Chemical properties of soil, soil interaction, ion exchange, cation exchange capacity.
Week 10	Organic matter in the soil, its sources, importance, components, and decomposition.

<b>Week 12</b>	<b>Soil fertility, macro and micro nutrients, their importance, sources, and symptoms of deficiency.</b>
<b>Week 13</b>	<b>The relationship of soil, water and plants.</b>
<b>Week 14</b>	<b>Soil classification</b>
<b>Week 15</b>	<b>Iraqi soil</b>
<b>Week 16</b>	<b>Exam</b>

### Delivery Plan (Weekly Practical Syllabus)

	<b>Material Covered</b>
<b>Week 1</b>	<b>Soil laboratory, definition, tools and equipment used in it, definition of occupational safety requirements and conditions that must be applied.</b>
<b>Week 2</b>	<b>Methods of collecting samples, soil collection and procedures adopted in its description, training in conducting a qualitative description of some morphological characteristics such as color, texture and composition.</b>
<b>Week 3</b>	<b>Preparing the plant for laboratory procedures and analyses</b>
<b>Week 4</b>	<b>Physical properties, estimation of moisture content, preparation of saturated dough and identification of its properties.</b>
<b>Week 5</b>	<b>Apparent density, true density.</b>
<b>Week 6</b>	<b>Mechanical analysis of soil by absorbent and hydrogen methods to estimate texture.</b>
<b>Week 7</b>	<b>Training in preparing standard solutions</b>
<b>Week 8</b>	<b>Training on preparing soil suspensions and extracts.</b>
<b>Week 9</b>	<b>Soil chemical properties, PH and EC.</b>
<b>Week 10</b>	<b>Organic matter, calcium carbonate</b>
<b>Week 11</b>	<b>Estimation of some nutrients in the soil, potassium, sodium.</b>

Week 12	Dynamic properties of soil.
Week 13	Identify the types of fertilizers and fertilization methods.
Week 14	Conducting an experiment in the field of soil restoration.
Week 15	Using informatics in studying and classifying soil, reviewing reports submitted by students

### Learning and Teaching Resources

	Text	Available in the Library?
Required Texts	Basics of soil science / translated by Saleh Mahmoud	yes
Recommended Texts	Recommended books and references (scientific journals, reports,...)	yes
Websites	Electronic references, Internet sites	

### Grading Scheme

#### مخطط الدرجات

Group	Grade	التقدير	Marks %	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group	FX - Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
(0 - 49)	F - Fail	راسب	(0-44)	Considerable amount of work required

**Note:** Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

## MODULE DESCRIPTION FORM

### نموذج وصف المادة الدراسية

<b>Module Information</b> معلومات المادة الدراسية			
<b>Module Title</b>	<b>General Botany</b>		<b>Module Delivery</b>
<b>Module Type</b>	<b>Core</b>		<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input checked="" type="checkbox"/> Practical <input type="checkbox"/> Seminar
<b>Module Code</b>	<b>PLP 101</b>		
<b>ECTS Credits</b>	<b>3</b>		
<b>SWL (hr/sem)</b>	<b>4</b>		
<b>Module Level</b>	<b>First</b>	<b>Semester of Delivery</b>	
<b>Administering Department</b>	<b>Plant Production PLP</b>	<b>College</b>	<b>Technical Agricultural College</b>
<b>Module Leader</b>	Fahad Khalaf Yassein	<b>e-mail</b>	fahadbiologymycology@ntu.edu.iq
<b>Module Leader's Acad. Title</b>	Asst.prof.	<b>Module Leader's Qualification</b>	<b>Ph.D.</b>
<b>Module Tutor</b>	Dr. Wadhah Thabit Abeed	<b>e-mail</b>	Wadah8324@ntu.edu.iq
<b>Peer Reviewer Name</b>	Name	<b>e-mail</b>	E-mail
<b>Scientific Committee Approval Date</b>	<b>01/06/2021</b>	<b>Version Number</b>	<b>1.0</b>

<b>Relation with other Modules</b> العلاقة مع المواد الدراسية الأخرى			
<b>Prerequisite module</b>	<b>Plant Taxonomy</b>	<b>Semester</b>	<b>Two</b>
<b>Co-requisites module</b>	<b>Plant Physiology</b>	<b>Semester</b>	<b>Two</b>



## Module Aims, Learning Outcomes and Indicative Contents

### أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<p><b>Module Objectives</b> أهداف المادة الدراسية</p>	<p>25. Introducing the student to the most important basic information about different plants, their reproduction, propagation, and breeding 26. Teaching and training the student to know its plant classification . 27. Teaching and training the student to take plants tissue.</p>
<p><b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية</p>	<ol style="list-style-type: none"><li>1. The use of techniques to confront desertification and moisture tension</li><li>2. The possibility of managing agricultural and livestock activity in dry agriculture areas in order to achieve the best possible efficiency</li><li>3. Developing means, equipment and machinery in line with the nature of dry areas.</li><li>4. The student has knowledge about dry areas and their nature</li><li>5. Identify the available techniques to cope with drought</li><li>6. Identifying the nature of plants and their types and the extent to which they are affected by the environment of this region.</li></ol>
<p><b>Indicative Contents</b> المحتويات الإرشادية</p>	<p>Indicative content includes the following. <u>Part A - theoretical part</u> Kingdom monerans,protests Structure of Euglena, fission and action, The Fungi, Growth of mushroom. [3 hrs] The plant kingdom, Vascular plants, Cell structure . [3 hrs] Cell division, The flowering plants, Root system, the region of cell division. [3 hrs] Structure of stem, buds, Leaf Structure, Flowers(describe, pollination and fertilization). [3 hrs] Fruits and seeds, Energy transfer in green leaves, stomata), Seed Germination. [3 hrs]</p>

	<p><u>Part B - practical part</u></p> <p><b>Plant classification, Using a light microscope to study cell division. [9 hrs].</b></p> <p><b>Chemical compounds of plants, Plant body study, Gymnosperm plants. [9 hrs].</b></p> <p><b>Angiosperm plants, Experiment about diffusion and osmosis, Absorption and transport of water. [9 hrs].</b></p> <p><b>Transport across cell membranes, Anatomy of roots, stems, leaves and flowers, Show scientific films. [9 hrs].</b></p> <p><b>Seed structure and Germination, Vegetative reproduction, Plant hormones. [9 hrs].</b></p>
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<b>Learning and Teaching Strategies</b> استراتيجيات التعلم والتعليم	
<b>Strategies</b>	<p><b>The necessity of visiting to gain experience from others. Obtaining new scientific information in the field of scientific research (videos). Practical training in the field. Access to modern scientific literature. Participation in relevant scientific conferences. Scientific laboratories with other universities.</b></p>

<b>Student Workload (SWL)</b> الحمل الدراسي للطالب محسوب لـ 60 ساعة			
<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	45	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعياً	3
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطالب خلال الفصل	15	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطالب أسبوعياً	1
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	<b>60</b>		

## Module Evaluation

### تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO #5, #8 and #10
Summative assessment	Midterm Exam	2hr	10% (10)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
<b>Total assessment</b>			100% (100 Marks)		

## Delivery Plan (Weekly Syllabus)

### المنهاج الاسبوعي النظري

Week	Material Covered
Week 1	Kingdom monerans, protests
Week 2	Structure of Euglena, fission and action
Week 3	The Fungi, Growth of mushroom
Week 4	The plant kingdom
Week 5	Vascular plants
Week 6	Cell structure
Week 7	Cell division
Week 8	The flowering plants
Week 9	Root system, the region of cell division
Week 10	Structure of stem, buds
Week 11	Leaf Structure

Week 12	Flowers(describe, pollination and fertilization)
Week 13	Fruits and seeds
Week 14	Energy transfer in green leaves, stomata)
Week 15	Seed Germination
Week 16	Preparatory week before the final Exam

### Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

week	Material Covered
Week 1	Plant classification
Week 2	Using a light microscope to staining cell
Week 3	Cell division
Week 4	Chemical compound of plant
Week 5	Plant body study
Week 6	Gymnosperm plants
Week 7	Angiosperm plants
Week 8	Experiment about diffusion and osmosis
Week 9	Absorption and transport of water
Week 10	Transport Across cell membranes
Week 11	Anatomy of roots, stems, leaves and flowers
Week 12	Show scientific films
Week 13	Seed structure and Germination
Week 14	Vegetative reproduction
Week 15	Plant hormones
Week 16	Exam

### Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	General Botany, 2014 علم النبات، 2014، د. عبدالعزيز الصباغ، د. عماد القاضي	Yes
Recommended Texts	General Botany, 2020	No
Websites	<a href="https://www.everand.com/book/282617930/General-Botany">https://www.everand.com/book/282617930/General-Botany</a>	

## Grading Scheme

### مخطط الدرجات

Group	Grade	التقدير	Marks %	Definition
<b>Success Group (50 - 100)</b>	<b>A - Excellent</b>	امتياز	90 - 100	Outstanding Performance
	<b>B - Very Good</b>	جيد جدا	80 - 89	Above average with some errors
	<b>C - Good</b>	جيد	70 - 79	Sound work with notable errors
	<b>D - Satisfactory</b>	متوسط	60 - 69	Fair but with major shortcomings
	<b>E - Sufficient</b>	مقبول	50 - 59	Work meets minimum criteria
<b>Fail Group</b>	<b>FX - Fail</b>	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded

<b>(0 - 49)</b>	<b>F - Fail</b>	راسب	(0-44)	Considerable amount of work required
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**Note:** Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

# MODULE DESCRIPTION FORM

## نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	General Chemistry		Module Delivery
Module Type	Core		<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input checked="" type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	TAMO104		
ECTS Credits	3		
SWL (hr/sem)	5		
Module Level	First	Semester of Delivery	
Administering Department	Plant Production PLP	College	Technical Agricultural College
Module Leader	Fahad Khalaf Yassein	e-mail	fahadbiologymycology@ntu.edu.iq
Module Leader's Acad. Title	Asst.prof	Module Leader's Qualification	Ph.D.
Module Tutor	Hala awf abdalrahman	e-mail	Hala chilmeran 20@gmail .com
Peer Reviewer Name	Name	e-mail	E-mail
Scientific Committee Approval Date	01/06/2021	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	Anatical Chemistry	Semester	Second
Co-requisites module	biochemistry	Semester	Third

## Module Aims, Learning Outcomes and Indicative Contents

### أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<p><b>Module Objectives</b> أهداف المادة الدراسية</p>	<p>The student becomes familiar with the classification of chemical elements, types of acids, salts, and bases and their properties, and is able to detect them.</p>
<p><b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية</p>	<ul style="list-style-type: none"><li>- Identify solutions and methods of preparing them.</li><li>- Identify the preparation of diluted and concentrated acids and stimulants.</li><li>- Identify the principles of chromatographic analysis.</li></ul>
<p><b>Indicative Contents</b> المحتويات الإرشادية</p>	<p><b>Indicative content includes the following.</b></p> <p>General Chemistry: You learn basic concepts such as atomic structure, electronic structure, ions, and forces operating between molecules.[10]</p> <p>Accurate analysis: To learn how to collect and extract a sample, analyze statistics, and use advanced technological measurements.[10]</p> <p>Thermodynamics and Kinetics: For practice in understanding the laws of thermodynamics and how they relate to chemical systems.[10]</p> <p>Spectrometry and Spectroscopy: Ratios between electromagnetic readings and matter have been discovered.[10].</p>

## Learning and Teaching Strategies

### استراتيجيات التعلم والتعليم

<b>Strategies</b>	<ul style="list-style-type: none"><li>- <b>The necessity of visiting to gain experience from others. Obtaining new scientific information in the field of scientific research (videos). Practical training in the field. Access to modern scientific literature. Participation in relevant scientific conferences. Scientific laboratories with other universities.</b></li></ul>
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## Student Workload (SWL)

### الحمل الدراسي للطالب محسوب ل75 ساعة

<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	70	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعياً	4
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطالب خلال الفصل	5	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطالب أسبوعياً	1
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	<b>75</b>		



## Module Evaluation

### تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO #5, #8 and #10
Summative assessment	Midterm Exam	2hr	10% (10)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

## Delivery Plan (Weekly Syllabus)

### المنهاج الاسبوعي النظري

Week	Material Covered
Week 1	Periodic classification of elements
Week 2	Atomic structure
Week 3	Electronic distribution of atoms in the periodic table
Week 4	Electronic theory of valence
Week 5	Chemical bonds
Week 6	Acids base and salts
Week 7	Reduction and oxidation reactions
Week 8	Balancing in acidic and basic media
Week 9	Standard electrode voltage
Week 10	Nuclear chemistry
Week 11	The predominant nonmetallic elements

Week 12	Ideal gases
Week 13	Halogens, their properties and preparation, general properties of group six elements
Week 14	General characteristics of the elements in the fifth group
Week 15	General properties of the elements in group four

### Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

week	Material Covered
Week 1	A visit to the chemistry laboratory and learning about the devices and equipment
Week 2	Safety in chemical laboratories, dealing with chemicals (simple distillation, crystallization and filtration)
Week 3	Use of some laboratory equipment
Week 4	Data processing and results
Week 5	Estimate the boiling point
Week 6	Estimation of melting point
Week 7	Purification of chemical materials (simple distillation, crystallization and filtration)
Week 8	Estimation of dissolution yield
Week 9	Determination of molecular weight by the Victormier method
Week 10	Estimating the molecular weights of non-ionized substances
Week 11	Estimation of equivalent weights (electrochemical method)
Week 12	Estimation of equivalent weights (electrochemical method)
Week 13	Estimating the reaction rate
Week 14	Estimation of chemical equilibrium
Week 15	Estimation of chemical equilibrium
Week 16	Exam

### Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	General chemistry, 2014 مبادئ الكيمياء العامة، د.محي الدين البكوش 2024	Yes
Recommended Texts	General Chemistry, 2020	No
Websites	<a href="https://praxilabs.com/arabic/blog/6-most-important-chemistry-laws/">https://praxilabs.com/arabic/blog/6-most-important-chemistry-laws/</a>	

## Grading Scheme

### مخطط الدرجات

Group	Grade	التقدير	Marks %	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group	FX - Fail	راسب (فقد المعالجة)	(45-49)	More work required but credit awarded

(0 - 49)	F - Fail	راسب	(0-44)	Considerable amount of work required
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**Note:** Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

# MODULE DESCRIPTION FORM

## نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	General Insects		Module Delivery
Module Type	Option		<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input checked="" type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	PLP154		
ECTS Credits	2		
SWL (hr/sem)	4		
Module Level	First	Semester of Delivery	
Administering Department	Plant Production PLP	College	Technical Agricultural College
Module Leader	Fahad Khalaf Yassein	e-mail	fahadbiologymycology@ntu.edu.iq
Module Leader's Acad. Title	Asst.prof	Module Leader's Qualification	Ph.D.
Module Tutor	Dr.Alaa younis zanoun	e-mail	Alaa.alsafawy89@ntu.edu.iq
Peer Reviewer Name	Name	e-mail	E-mail
Scientific Committee Approval Date	01/06/2021	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	Plant Taxonomy	Semester	Second
Co-requisites module	Plant Physiology	Semester	Second

## Module Aims, Learning Outcomes and Indicative Contents

### أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<b>Module Objectives</b> أهداف المادة الدراسية	Introducing the student to the economic importance of insects and knowing the plant host for each type of them and able to classify them and how to combat them.
<b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية	<ol style="list-style-type: none"><li>1. The use of special techniques for detecting insects</li><li>2. Identify the specialties available for the diagnosis and examination of insects</li></ol>
<b>Indicative Contents</b> المحتويات الإرشادية	<p>Indicative content includes the following.</p> <p><b><u>Part A - theoretical part</u></b></p> <p>An overview of microbiology screening and diagnosis centers in Iraq [3 hrs]</p> <p>. Factors affecting entomology [3 hrs]</p>
	<p><b><u>Part B - practical part</u></b></p> <p>Insect morphology study [9 hrs].</p> <p>. Devices and tools used in microbiology examination [9 hrs].</p> <p>. Sample extraction [9 hrs].</p>

## Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

<b>Strategies</b>	<b>The necessity of visiting to gain experience from others. Obtaining new scientific information in the field of scientific research (videos). Practical training in the field. Access to modern scientific literature. Participation in relevant scientific conferences. Scientific laboratories with other universities.</b>
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## Student Workload (SWL)

الحمل الدراسي للطالب محسوب لـ 60 ساعة

<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	45	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعياً	3
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطالب خلال الفصل	15	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطالب أسبوعياً	1
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	<b>60</b>		

## Module Evaluation

### تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO #5, #8 and #10
Summative assessment	Midterm Exam	2hr	10% (10)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

## Delivery Plan (Weekly Syllabus)

### المنهاج الاسبوعي النظري

Week	Material Covered
Week 1	The economic importance of insects and ways to combat them
Week 2	Insects with multiple damage - order similar-winged - aphids, whiteflies
Week 3	Wheat and barley insects - saana, corn insects - corn stalk bore
Week 4	Bean insects - from beans - from black beans, jet insects and alfalfa - weevil
Week 5	Diabetic beet insects, sunflower insects
Week 6	Cotton insects, safflower insects
Week 7	Onion and garlic insects – onion fly – lettuce insects – aphids
Week 8	Insects of the Solanaceae family – Potato tuber moth – Insects of the cucurbitacea family – Donkey beetle
Week 9	Pomegranate insects - Pomegranate fruit worm - fig insects - fig fruit worm
Week 10	Grape insects - gloves - citrus insects - citrus leafworm
Week 11	Olive insects – olive leaf fly – buckthorn insects – fruit worm
Week 12	Stem excavators - types - control
Week 13	Apple bugs – apple fruit worm
Week 14	Palm insects – Dubas palm – Donkey
Week 15	nsects of ornamental plants- cutworms
Week 16	exame

## Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

week	Material Covered
Week 1	The relationship of insects with other animals, the description of insects - their advantages - the most important insect ranks of economic importance
Week 2	Straight-winged rank - locust field cockroach, equal ptera - ground
Week 3	Wheat and barley insects - spike breaker worm, scale insects, corn insects - from the leaves - cornworm
Week 4	Peas - legume worm - stem borer, jet insects and alfalfa
Week 5	Sugar beet insects, sunflower insects
Week 6	Cotton insects, safflower insects
Week 7	Onion and garlic insects – lahana and cauliflower insects
Week 8	Insects of the Solanaceae family - insects of the cucurbitaceae family
Week 9	Pomegranate insects - fig insects
Week 10	Grape insects- citrus insects
Week 11	Olive bugs - buckthorn insects
Week 12	Walnut insects
Week 13	Almond insects
Week 14	Palm insects
Week 15	Insects of ornamental plants
Week 16	exame

## Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	General Insects الدكتور نزار مصطفى الملاح	Yes
Recommended Texts	معجم الملاح في مصطلحات علم الحشرات 2022	No
Websites	<a href="https://www.google.com/url?sa=t&amp;source=web&amp;rct=j&amp;opi=89978449&amp;url=https://www.seip-eg.com/%3Fp%3D1366&amp;ved=2ahUKEwihpNKczr6FAxXVYPEDHaNwBHgQFn0ECBIQAQ&amp;usg=AOvVaw3yHTA-lk9LVMVFIRz-k_5u">https://www.google.com/url?sa=t&amp;source=web&amp;rct=j&amp;opi=89978449&amp;url=https://www.seip-eg.com/%3Fp%3D1366&amp;ved=2ahUKEwihpNKczr6FAxXVYPEDHaNwBHgQFn0ECBIQAQ&amp;usg=AOvVaw3yHTA-lk9LVMVFIRz-k_5u</a>	



## Grading Scheme

### مخطط الدرجات

Group	Grade	التقدير	Marks %	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group	FX - Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded

(0 - 49)	F - Fail	راسب	(0-44)	Considerable amount of work required

**Note:** Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

# MODULE DESCRIPTION FORM

## نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Mathematics		Module Delivery
Module Type	Department requirements		<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input type="checkbox"/> Lab <input checked="" type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	TAMO101		
ECTS Credits	1		
SWL (hr/sem)	1		
Module Level	first	Semester of Delivery	
Administering Department	Plant Production PLP	College	Technical Agricultural College
Module Leader	Fahad Khalaf Yassein		e-mail fahadbiologymycology@ntu.edu.iq
Module Leader's Acad. Title	Asst.prof	Module Leader's Qualification	M.S.EC
Module Tutor	Qahtan Diab Salman		e-mail Version Qahtan.Th.Salman@ntu.edu.iq
Peer Reviewer Name	Name	e-mail	E-mail
Scientific Committee Approval Date	10/06/2021		1.0

## Relation with other Modules

العلاقة مع المواد الدراسية الأخرى

Prerequisite module	Functions	Semester	Two
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## Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<p><b>Module Objectives</b> أهداف المادة الدراسية</p>	<p><b>Mathematics aims to empower the learner in the areas of research, interpretation, and the ability to make sound decisions based on a solid foundation of measurement and forecasting while calculating risks, and anticipating the probabilities of success and failure. It aims to give the learner the mathematical skills that enable him to work in the fields of economics, trade, production, and consumption.</b></p>
<p><b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية</p>	<p><b>1- Increasing the opportunity for students to practice sound thinking methods, such as reflective, deductive, and inductive thinking.</b></p> <p><b>2- Increasing students' skills in using problem-solving methods.</b></p> <p><b>3- Helping students recognize the impact of mathematics on cultural development.</b></p> <p><b>4- Increasing students' skills necessary to comprehend what they are studying and to discover new relationships.</b></p> <p><b>5- Helping students to rely on themselves in academic achievement in mathematics.</b></p> <p><b>Develop some good habits, such as cooperation, constructive criticism, mutual respect, and accuracy.</b></p> <p><b>6- Developing scientific innovations and mental skills.</b></p>
<p><b>Indicative Contents</b> المحتويات الإرشادية</p>	<p><b>Part one: theoretical</b></p> <p>1- Studies related to guidance programs to change negative attitudes towards all educational subjects, and in early educational stages.</p> <p>2- Comparative studies between behavioral counseling techniques and cognitive counseling to modify behavior, change, or create another behavior.</p> <p>-3- Studying the effect of rational-emotional guidance in modifying irrational (negative) thoughts towards studying in some specializations Education is repulsive to students, at various educational levels, including the university stage.</p> <p>4- Preparing various illustrated guidance programs, and using them in a self-guidance manner, to solve some problems and dilemmas Educational.</p> <p>5- The role of the school guidance and counseling counselor in preparing, managing and using guidance programs.</p> <p>6 - The role of the school guidance and counseling counselor in taking care of religious students who suffer from academic, educational and psychological problems.</p> <p>7- Conduct similar studies to modify and change the negative attitudes towards other basic substances, which still cause a reduction Students' results in official exams.</p> <p>8- In view of the importance of mathematics in the academic learning path for all students at the level of all educational levels, and in view of what is witnessed by the students' results in the official examinations, especially the intermediate education certificates, the general secondary school certificate, and the baccalaureate) and in each annual session, the decline in results,</p>

and the resulting decline in Success rates, he suggests (Therefore, through it, modern techniques and methods are extracted to overcome these difficulties and negative preconceptions about...Researcher) Conducting many studies and field research to diagnose difficulties in learning mathematics and suggest remedial programs Mathematics, at all levels of education, in a simple, easy, and non-offensive manner, helps provide guidance students, and provides them with modern learning skills.

## Learning and Teaching Strategies

### استراتيجيات التعلم والتعليم

<b>Strategies</b>	<b>Working to increase knowledge to gain practical experience from others through educational videos and training courses to obtain new scientific information in the field of knowledge. Practical field training and how to take field measurements. Access to modern scientific literature. Scientific laboratories with other universities.</b>
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## Student Workload (SWL)

### الحمل الدراسي للطالب محسوب لـ 60 ساعة

<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	50	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعياً	5
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطالب خلال الفصل	10	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطالب أسبوعياً	1
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	<b>60</b>		

## Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO #5, #8 and #10
Summative assessment	Midterm Exam	2hr	10% (10)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

## Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

Week	Material Covered
Week 1	Functions
Week 2	Different functions
Week 3	Integration of algebraic functions
Week 4	Unconscious Functions: Logarithmic Function - Derivative Logarithmic Function
Week 5	Integration of logarithmic function
Week 6	The Asian Function: Derivative Function
Week 7	Integration of the Asi Function
Week 8	Trigonometric functions: derivatives homosexuality
Week 9	Trigonometric functions
Week 10	Differences of the implied functions
Week 11	Differences of the implied functions
Week 12	Integration methods: Retail integration
Week 13	Integration after fragmentation fragmentation
Week 14	Solve differential equations
Week 15	Solve differential equations

## Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

week	
Week 1	
Week 2	
Week 3	
Week 4	
Week 5	
Week 6	
Week 7	
Week 8	
Week 9	
Week 10	
Week 11	
Week 12	
Week 13	
Week 14	
Week 15	
Week 16	

## Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	<p><b>Applications in calculus</b></p> <p>Written by Dr. Salman bin Abdul Rahman Al-Salman Dr.. Ibrahim Deeb Sarmini</p> <p><b>INTRODUCTION TO MATHEMATICAL ECONOMICS Third Edition</b></p> <p><b>EDWARD T. DOWLING, Ph.D.</b></p>	Yes
Websites	<a href="https://images.app.goo.gl/dGye5GgMEnfibiWm6">https://images.app.goo.gl/dGye5GgMEnfibiWm6</a>	



## Grading Scheme

### مخطط الدرجات

Group	Grade	التقدير	Marks %	Definition
<b>Success Group (50 - 100)</b>	<b>A - Excellent</b>	امتياز	90 - 100	Outstanding Performance
	<b>B - Very Good</b>	جيد جدا	80 - 89	Above average with some errors
	<b>C - Good</b>	جيد	70 - 79	Sound work with notable errors
	<b>D - Satisfactory</b>	متوسط	60 - 69	Fair but with major shortcomings
	<b>E - Sufficient</b>	مقبول	50 - 59	Work meets minimum criteria
<b>Fail Group</b>	<b>FX - Fail</b>	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
<b>(0 - 49)</b>	<b>F - Fail</b>	راسب	(0-44)	Considerable amount of work required

**Note:** Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

# MODULE DESCRIPTION FORM

## نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Microbiology		Module Delivery
Module Type	Option		<input checked="" type="checkbox"/> Theory
Module Code	PLP153		<input type="checkbox"/> Lecture
ECTS Credits	2		<input checked="" type="checkbox"/> Lab
SWL (hr/sem)	4		<input type="checkbox"/> Tutorial
			<input type="checkbox"/> Practical
			<input type="checkbox"/> Seminar
Module Level	First level	Semester of Delivery	one
Administering Department	Plant Production PLP	College	Technical Agricultural College
Module Leader	Fahad Khalaf Yassein	e-mail	fahadbiologymycology@ntu.edu.iq
Module Leader's Acad. Title	Asst.prof	Module Leader's Qualification	Ph.D.
Module Tutor	Dr.Alaa younis zanoun	e-mail	Alaa.alsafawy89@ntu.edu.iq
Peer Reviewer Name	Name	e-mail	E-mail
Scientific Committee Approval Date	01/06/2021	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	Plant Disease		Semester
Co-requisites module			First
		Semester	

## Module Aims, Learning Outcomes and Indicative Contents

### أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<b>Module Objectives</b> أهداف المادة الدراسية	Introducing the student to microbiology and its development, the types of bacteria and fungi that infect plants the most important diseases they cause the environmental factors that affect the severity of the injury and he is able to characterize biology from the external appearance of the plant and how to be immune from them
<b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية	<ol style="list-style-type: none"><li>1. Use special techniques to detect bacteria fungi and algae</li><li>2. Identify the available specialties for the diagnosis and examination of microbiology</li></ol>
<b>Indicative Contents</b> المحتويات الإرشادية	<p>Indicative content includes the following.</p> <p><b><u>Part A - theoretical part</u></b></p> <p>An overview of microbiology screening and diagnosis centers in Iraq [3 hrs]</p> <p>. Factors affecting microbiology [3 hrs]</p>

	<p><u>Part B - practical part</u></p> <p><b>Study of microbiology morphology [9 hrs].</b></p> <ul style="list-style-type: none"> <li>. Devices and tools used in microbiology examination [9 hrs].</li> <li>. Sample extraction [9 hrs].</li> </ul>
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<b>Learning and Teaching Strategies</b> استراتيجيات التعلم والتعليم	
<b>Strategies</b>	<p><b>The necessity of visiting to gain experience from others. Obtaining new scientific information in the field of scientific research (videos). Practical training in the field. Access to modern scientific literature. Participation in relevant scientific conferences. Scientific laboratories with other universities.</b></p>

<b>Student Workload (SWL)</b> الحمل الدراسي للطالب محسوب ل60 ساعة			
<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	45	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعيا	3
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطالب خلال الفصل	15	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطالب أسبوعيا	1
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	<b>60</b>		

## Module Evaluation

### تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO #5, #8 and #10
Summative assessment	Midterm Exam	2hr	10% (10)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

## Delivery Plan (Weekly Syllabus)

### المنهاج الاسبوعي النظري

Week	Material Covered
Week 1	Definition of microbiology, its position in the world of living organisms, prokaryotic and eukaryotic organisms, development of microbiology
Week 2	Characteristics of microorganisms, naming of microorganisms, classification of microorganisms
Week 3	Bacteria, phenotypic traits, bacterial testing, bacteria dyeing methods, bacterial anatomy, bacterial development
Week 4	Fungus, mold, reproduction, types, development, relationship to other organisms
Week 5	Yeasts, types of yeasts, their reproduction, agricultural characteristics
Week 6	Algae, Morphological characteristics of algae, Reproduction, Algae isolation and purification, Economic importance
Week 7	primary, taxonomy, adenoids, flagella, cilia, sporidia
Week 8	Viruses, their characteristics, construction, classification, replication, methods of growing viruses
Week 9	Ecclesiastia, general properties, its divisions and importance, reproductive and development media, diseases caused by it
Week 10	Metabolism in microorganisms
Week 11	Microbiology genetics, physicochemical agents, antibiotics and therapeutic agents
Week 12	Microbiology control
Week 13	The relationship of microbiology to diseases, pathogens, injury, factors affecting the severity of injury
Week 14	Applied Microbiology, Soil Microbiology, Water and Food Biology.
Week 15	Immunity
Week 16	exame

## Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

week	Material Covered
Week 1	General instructions, hardware recognition, microscope and how to use it
Week 2	Chemicals, solutions, dyes and their preparation
Week 3	Agricultural media, division, how to sterilize, disinfectants and detergents
Week 4	Study of bacterial shape, movement, Cram dye, special dyes
Week 5	Isolation and development of bacteria and how to count them
Week 6	Mold and yeasts, Flosse, Mycocell, Massilium, Types of spores
Week 7	Development of fungi in soil, organic matter, water, food
Week 8	Fungus development, study of their forms and phenotypic characteristics
Week 9	Algae isolation and purification
Week 10	Classification of primary schools and how to isolate them, the environment in which they are located
Week 11	Study the forms of viruses, how to extract and purify them
Week 12	Types of antibiotics, concentrations used and inhibition rates
Week 13	Study of the Effect of Temperature and Hydrogen Ion Concentration on Bacterial Growth
Week 14	Contrast and cooperation between living organisms
Week 15	Study of certain physiological factors that affect the growth of fungi
Week 16	Exam

## Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Microbiology كتاب الاحياء المجهرية التشخيصي /د. عبد النبي جويد المعموري	Yes
Recommended Texts	معجم مصطلحات الاحياء المجهرية 2020	No
Websites	<a href="https://www.google.iq/books/edition/%D8%A7%D9%84%D9%83%D8%AA%D8%A7%D8%A8_%D8%A7%D9%84%D8%B9%D9%85%D9%84%D9%8A_%D9%84%D9%84%D8%A3%D8%AD%D9%8A%D8%A7%D8%A1/j_cjDgAAQBAJ?hl=ar&amp;gbpv=1&amp;dq=%D9%83%D8%AA%D8%A7%D8%A8%20%D8%A7%D9%84%D8%A7%D8%AD%D9%8A%D8%A7%D8%A1%20%D8%A7%D9%84%D9%85%D8%AC%D9%87%D8%B1%D9%8A%D8%A9&amp;pg=PA1&amp;printsec=frontcover">https://www.google.iq/books/edition/%D8%A7%D9%84%D9%83%D8%AA%D8%A7%D8%A8_%D8%A7%D9%84%D8%B9%D9%85%D9%84%D9%8A_%D9%84%D9%84%D8%A3%D8%AD%D9%8A%D8%A7%D8%A1/j_cjDgAAQBAJ?hl=ar&amp;gbpv=1&amp;dq=%D9%83%D8%AA%D8%A7%D8%A8%20%D8%A7%D9%84%D8%A7%D8%AD%D9%8A%D8%A7%D8%A1%20%D8%A7%D9%84%D9%85%D8%AC%D9%87%D8%B1%D9%8A%D8%A9&amp;pg=PA1&amp;printsec=frontcover</a>	

## Grading Scheme

### مخطط الدرجات

Group	Grade	التقدير	Marks %	Definition
<b>Success Group (50 - 100)</b>	<b>A - Excellent</b>	امتياز	90 - 100	Outstanding Performance
	<b>B - Very Good</b>	جيد جدا	80 - 89	Above average with some errors
	<b>C - Good</b>	جيد	70 - 79	Sound work with notable errors
	<b>D - Satisfactory</b>	متوسط	60 - 69	Fair but with major shortcomings
	<b>E - Sufficient</b>	مقبول	50 - 59	Work meets minimum criteria
<b>Fail Group</b>	<b>FX - Fail</b>	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded

<b>(0 - 49)</b>	<b>F - Fail</b>	راسب	(0-44)	Considerable amount of work required

**Note:** Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

# MODULE DESCRIPTION FORM

## نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Plane surveying		Module Delivery
Module Type	Option		<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input checked="" type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	TAMO 103		
ECTS Credits	2		
SWL (hr/sem)	4		
Module Level	First	Semester of Delivery	
Administering Department	Plants Production PLP	College	Technical Agricultural College
Module Leader	Fahad Khalaf Yassein	e-mail	fahadbiologymycology@ntu.edu.iq
Module Leader's Acad. Title	Asst.prof	Module Leader's Qualification	
Module Tutor	Farooq Dawas Mahmood	e-mail	Mti.lec174.farooq@ntu.edu.iq
Peer Reviewer Name	Name	e-mail	E-mail
Scientific Committee Approval Date	1/6/2021	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	Mathematics	Semester	First
Co-requisites module	Engineering Drawing	Semester	First



## Module Aims, Learning Outcomes and Indicative Contents

### أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<p><b>Module Objectives</b> أهداف المادة الدراسية</p>	<ol style="list-style-type: none"><li>4. Introducing the student to the principles of surveying, the tools and equipment used, and some operations. and the activities used in flat space, in addition to the principles of measuring angles and directions.</li><li>5. Training the student to perform some operations, such as measuring distances, errors and obstacles therein, and using a flat board to draw and project maps and measure areas, roads, and machines used in them.</li><li>6. Teaching the student to use the compass in measuring angles and directions and the principles of space distribution in agricultural projects.</li></ol>
<p><b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية</p>	<ol style="list-style-type: none"><li>1. Know the space, its divisions, types, and uses.</li><li>2. Learn how to make measurements and set up and drop columns.</li><li>3. The student must have knowledge of errors, their types, and ways to overcome them.</li><li>4. Learn about cartography and drawing scales</li><li>5. Identifying the obstacles and obstacles in measuring distances and recording them in the field notebook.</li></ol>
<p><b>Indicative Contents</b> المحتويات الإرشادية</p>	<p>Indicative content includes the following.</p> <p><u>Part A - theoretical part</u></p> <p><b>Cartography - types of maps - map scales - ways to reduce and enlarge maps. [3 hours]</b></p> <p><b>Measuring areas using the field method - dividing the plot into triangles - erecting columns at equal intervals. [3 hours]</b></p> <p><b>Measurements on the map - dividing the plot into triangles - using squares. [3 hours]</b></p> <p><b>Prismatic compass - magnetic and true north - angles of all kinds. [3 hours]</b></p> <p><b>Calculate interior angles and directions of polygons using a compass. [3 hours]</b></p>

	<p><u>Part B - practical part</u></p> <p><b>Field exercises in measuring distances with different tools and using a field notebook. [9 hours].</b></p> <p><b>Correcting errors in measuring distances from the previous week. [9 hours].</b></p> <p><b>Learn about the flat plate and its tools and raise beams using the beam method + front cross. [9 hours].</b></p> <p><b>Exercises in measuring areas by dividing into triangles. [9 hours].</b></p> <p><b>Identifying the prismatic compass - its parts - its uses - taking readings from it. [9 hours].</b></p>
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<b>Learning and Teaching Strategies</b> استراتيجيات التعلم والتعليم	
<b>Strategies</b>	<p><b>The necessity of visiting to gain experience from others. Obtaining new scientific information in the field of scientific research (videos). Practical training in laboratories. Access to modern scientific literature. Participate in relevant scientific conferences, communicate with scientific laboratories in other universities.</b></p>

<b>Student Workload (SWL)</b> الحمل الدراسي للطالب محسوب لـ 60 ساعة			
<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	45	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعياً	3
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطالب خلال الفصل	15	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطالب أسبوعياً	1
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	<b>60</b>		

## Module Evaluation

### تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
<b>Formative assessment</b>	<b>Quizzes</b>	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	<b>Assignments</b>	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	<b>Projects / Lab.</b>	1	10% (10)	Continuous	All
	<b>Report</b>	1	10% (10)	13	LO #5, #8 and #10
<b>Summative assessment</b>	<b>Midterm Exam</b>	2hr	10% (10)	7	LO #1 - #7
	<b>Final Exam</b>	3hr	50% (50)	16	All
<b>Total assessment</b>			100% (100 Marks)		

## Delivery Plan (Weekly Syllabus)

### المنهاج الاسبوعي النظري

Week	Material Covered
<b>Week 1</b>	Definition of surveying - its sections - types - uses - field notebook
<b>Week 2</b>	Measuring distances - their cases - erecting and dropping columns
<b>Week 3</b>	Types of errors and ways to overcome them in measuring distances
<b>Week 4</b>	Obstacles and obstacles in measuring distances
<b>Week 5</b>	Cartography - types of maps - map scales - ways to reduce and enlarge maps
<b>Week 6</b>	Surveying with a flat plate - its tools - its advantages - its disadvantages - its conditions for use
<b>Week 7</b>	Methods of using a plane plate - the beam method - the forward intersection method
<b>Week 8</b>	Methods of using a flat plate - rotation method - inverse intersection method
<b>Week 9</b>	Measuring areas using the field method - dividing the plot into triangles - erecting columns at equal intervals
<b>Week 10</b>	Smyson's rule - setting up columns at unequal intervals
<b>Week 11</b>	Measurements on the map - dividing the plot into triangles - using squares
<b>Week 12</b>	Using a planometer
<b>Week 13</b>	Prismatic compass - magnetic and true north - angles of all kinds
<b>Week 14</b>	Reading the angles between sides using a compass
<b>Week 15</b>	Calculating interior angles and directions of polygons using a compass

## Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

week	Material Covered
<b>Week 1</b>	Field exercise using the field notebook on the college grounds
<b>Week 2</b>	Field exercises in measuring distances with different tools and using a field notebook
<b>Week 3</b>	Correcting errors in measuring distances from the previous week
<b>Week 4</b>	Drawing a polygon around one of the buildings to overcome the obstacles drawn
<b>Week 5</b>	From the previous information, draw a map of a specific location in the institute, while training students on some symbols and terminology in cartography.
<b>Week 6</b>	Identifying the flat plate and its tools and raising beams using the beam method + front cross
<b>Week 7</b>	Rotation and reverse intersection method
<b>Week 8</b>	Exercises in measuring areas by dividing into triangles
<b>Week 9</b>	Exercises in measuring areas by setting up columns at equal intervals + two centimeters
<b>Week 10</b>	Exercises in measuring areas by erecting columns at unequal intervals
<b>Week 11</b>	Exercises on maps to measure areas by dividing them into triangles + squares
<b>Week 12</b>	Using a planometer to measure areas on maps
<b>Week 13</b>	Identifying the prismatic compass - its parts - its uses - taking readings from it
<b>Week 14</b>	Draw a polygon around one of the buildings and take its angles
<b>Week 15</b>	Conduct calculations from the previous week and draw a map of the building
<b>Week 16</b>	Exam

## Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
<b>Required Texts</b>	Pinciples of Plane & Topographic Surveying Riadh Salih AL-khafaf	Yes
<b>Recommended Texts</b>		
<b>Websites</b>		

## Grading Scheme

### مخطط الدرجات

Group	Grade	التقدير	Marks %	Definition
<b>Success Group (50 - 100)</b>	<b>A - Excellent</b>	امتياز	90 - 100	Outstanding Performance
	<b>B - Very Good</b>	جيد جدا	80 - 89	Above average with some errors
	<b>C - Good</b>	جيد	70 - 79	Sound work with notable errors
	<b>D - Satisfactory</b>	متوسط	60 - 69	Fair but with major shortcomings
	<b>E - Sufficient</b>	مقبول	50 - 59	Work meets minimum criteria
<b>Fail Group</b>	<b>FX - Fail</b>	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded

<b>(0 - 49)</b>	<b>F - Fail</b>	راسب	(0-44)	Considerable amount of work required
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**Note:** Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

# MODULE DESCRIPTION FORM

## نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Plant anatomy		Module Delivery
Module Type	core		<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input checked="" type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	PLP 104		
ECTS Credits	2		
SWL (hr/sem)	4		
Module Level	First	Semester of Delivery	
Administering Department	Plant Production PLP	College	Technical Agricultural College
Module Leader	Fahad Khalaf Yassein	e-mail	fahadbiologymycology@ntu.edu.iq
Module Leader's Acad. Title	Asst.prof.	Module Leader's Qualification	
Module Tutor	Amer Moqbel Abdul Hameed	e-mail	E-mail amer.m@ntu.edu.iq
Peer Reviewer Name	Amer Moqbel Abdul Hameed	e-mail	E-mail amer.m@ntu.edu.iq
Scientific Committee Approval Date	01/06/2021	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	Plant Taxonomy	Semester	Second
Co-requisites module	General Botany	Semester	Second

## Module Aims, Learning Outcomes and Indicative Contents

### أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<p><b>Module Objectives</b> أهداف المادة الدراسية</p>	<p>28. Introducing the student to the most important basic information about different plants Definition of the plant cell, its types, and its difference from the animal cell.</p> <p>29. Teaching and training the student to know its plants parts .</p> <p>30. Teaching and training the student to take plants tissue.</p>
<p><b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية</p>	<ol style="list-style-type: none"><li>1 . The student must have knowledge of the importance of plant parts.</li><li>2. Identify the anatomical parts of the plant.</li><li>3. Knowledge of permanent tissues.</li><li>4. Identify all the different plant tissues.</li><li>5. Identify the function of each plant tissue.</li><li>6. Identify the living and non-living contents of the plant cell.</li></ol>
<p><b>Indicative Contents</b> المحتويات الإرشادية</p>	<p>Indicative content includes the following.</p> <p><u>Part A - theoretical part</u></p> <p>. Definition of the plant cell. Plant tissues are distinguished by some characteristics from animal tissues. The plant cell differs in shape, size, function, and type. The difference between a prokaryotic and eukaryotic cell. [3 hrs]</p> <p>. Plant cell structure, how the cell wall is formed, types of plasma bonds. [3 hrs]</p> <p>. Protoplasm, cytoplasm, precise structure of the plasma membrane. [3 hrs]</p> <p>. Endoplasmic reticulum, types, Golgi apparatus, function. [3 hrs]</p> <p>. Ribosomes, the nucleus, the difference between DNA and RNA, types of plant tissues [3 hrs]</p>

	<p><u>Part B - practical part</u></p> <p><b>Installing a microscope or a compound microscope. . [9 hrs].</b></p> <p><b>Cell division. . [9 hrs].</b></p> <p><b>Plant cell contents. . [9 hrs].</b></p> <p><b>Leg anatomy. . [9 hrs].</b></p> <p><b>Root anatomy. [9 hrs].</b></p>
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<b>Learning and Teaching Strategies</b> استراتيجيات التعلم والتعليم	
<b>Strategies</b>	<p><b>The necessity of visiting to gain experience from others. Obtaining new scientific information in the field of scientific research (videos). Practical training in the field. Access to modern scientific literature. Participation in relevant scientific conferences. Scientific laboratories with other universities.</b></p>

<b>Student Workload (SWL)</b> الحمل الدراسي للطالب محسوب ل60 ساعة			
<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	45	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعيا	3
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطالب خلال الفصل	15	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطالب أسبوعيا	1
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	<b>60</b>		



## Module Evaluation

### تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
<b>Formative assessment</b>	<b>Quizzes</b>	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	<b>Assignments</b>	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	<b>Projects / Lab.</b>	1	10% (10)	Continuous	All
	<b>Report</b>	1	10% (10)	13	LO #5, #8 and #10
<b>Summative assessment</b>	<b>Midterm Exam</b>	2hr	10% (10)	7	LO #1 - #7
	<b>Final Exam</b>	3hr	50% (50)	16	All
<b>Total assessment</b>			100% (100 Marks)		

## Delivery Plan (Weekly Syllabus)

### المنهاج الاسبوعي النظري

Week	Material Covered
<b>Week 1</b>	<b>Division of meristematic tissue</b>
<b>Week 2</b>	<b>Division of permanent tissues</b>
<b>Week 3</b>	<b>Skin (functions, types of skin cells)</b>
<b>Week 4</b>	<b>Layers of epiderm (cork, cork cambium, secondary cortex)</b>
<b>Week 5</b>	<b>Parenchymal tissue, sclerenchymal tissue</b>
<b>Week 6</b>	<b>Wood texture</b>
<b>Week 7</b>	<b>Bark texture</b>
<b>Week 8</b>	<b>Secretory cells and tissues</b>
<b>Week 9</b>	<b>Internal structure of the root</b>
<b>Week 10</b>	<b>Internal structure of the leg</b>
<b>Week 11</b>	<b>Internal structure of the sheet</b>

Week 12	Secondary thickening
Week 13	Secondary xylem and phloem
Week 14	Prederm
Week 15	The internal structure of the plant and its relationship to the environment
Week 16	Exam

### Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

week	Material Covered
Week 1	Installation of an electron and optical microscope
Week 2	Identify the materials and tools used in dissection
Week 3	Prepare temporary glass slides
Week 4	Preparing permanent glass slides
Week 5	Preparing permanent glass slides
Week 6	Examination of cell wall components
Week 7	Examination of plant cell organelles
Week 8	Examination of some types of cells and tissues
Week 9	Displaying posters explaining the types of clicks and crystals and their drawing
Week 10	Anatomy of root, stem and leaf
Week 11	Watch and draw the types of human hairs and appendages
Week 12	Watch and draw the shapes of starch granules and parenchyma cells
Week 13	Identify the types of parenchymal cells, secondary thickening, and types of pitting
Week 14	Identify the types of wood and the stages of secondary growth
Week 15	Identify the naked and covered seeds
Week 16	Exam

### Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	<b>Plant anatomy,</b> تشريح النبات ، اساسيات علم تشريح النبات الدكتور بدري عويد الغاني الدكتور قيصر مجيب صالح الطبعة الثالثة 1988	Yes
Recommended Texts	<b>Plant anatomy</b>	Yes

<b>Websites</b>	<a href="https://www.agro-lib.site/2019/10/blog-post_592.html">https://www.agro-lib.site/2019/10/blog-post_592.html</a>
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<b>Grading Scheme</b> مخطط الدرجات				
Group	Grade	التقدير	Marks %	Definition
<b>Success Group (50 - 100)</b>	<b>A - Excellent</b>	امتياز	90 - 100	Outstanding Performance
	<b>B - Very Good</b>	جيد جدا	80 - 89	Above average with some errors
	<b>C - Good</b>	جيد	70 - 79	Sound work with notable errors
	<b>D - Satisfactory</b>	متوسط	60 - 69	Fair but with major shortcomings
	<b>E - Sufficient</b>	مقبول	50 - 59	Work meets minimum criteria
<b>Fail Group</b>	<b>FX - Fail</b>	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded

(0 - 49)	F - Fail	راسب	(0-44)	Considerable amount of work required
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**Note:** Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

## MODULE DESCRIPTION FORM

### نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Principle of Horticulture		Module Delivery
Module Type	Core		<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input checked="" type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	PLP 103		
ECTS Credits	3		
SWL (hr/sem)	4		
Module Level	One	Semester of Delivery	
Administering Department	Plant Production PLP	College	Technical Agricultural College
Module Leader	Fahad Khalaf Yassein	e-mail	fahadbiologymycology@ntu.edu.iq
Module Leader's Acad. Title	Asst.prof.	Module Leader's Qualification	M.S.A
Module Tutor	Zeyad Amer Mostfa	e-mail	mti.lec96.Zeyad@ntu.edu.iq
Peer Reviewer Name	Name	e-mail	E-mail
Scientific Committee Approval Date	01/06/2021	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	Plant Taxonomy	Semester	Two
Co-requisites module	Plant Physiology	Semester	Two

## Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<p><b>Module Objectives</b> أهداف المادة الدراسية</p>	<p><b>31. Learn about gardening basics</b> <b>32. Differentiate between the main horticultural science departments</b></p>
<p><b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية</p>	<p>The student learns about the types of plants: fruits, vegetables, and ornamental plants The student studies plant families The student learns the effect of environmental factors on plant growth The student learns about different methods of planting seeds The student learns about methods of creating orchards</p>
<p><b>Indicative Contents</b> المحتويات الإرشادية</p>	<p>Indicative content includes the following. <b><u>Part A - theoretical part</u></b> <b>Definition of horticulture, its divisions, and methods of dividing plants</b> . [3 hrs] <b>Plant families and their importance in identifying plants to know their needs and planting times</b> [3 hrs]  <b>Growth problems and environmental needs are fundamental</b> [3 hrs]</p>

	<p><u>Part B - practical part</u></p> <p><b>Preparing different growing media and identifying their types in the field</b>  . [9 hrs].</p> <p><b>Identify the different horticultural facilities and tools for agriculture</b>  . [9 hrs].</p> <p><b>Planting seeds of ornamental plants, fruits and vegetables</b>  . [9 hrs].</p> <p><b>Conducting various vegetative propagation operations</b>  . [9 hrs].</p> <p><b>Following up on planted plants, fertilizing them, and combating diseases that affect plants</b>  [9 hrs].</p>
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<b>Learning and Teaching Strategies</b> استراتيجيات التعلم والتعليم	
<b>Strategies</b>	<p><b>The necessity of visiting to gain experience from others. Obtaining new scientific information in the field of scientific research (videos). Practical training in the field. Access to modern scientific literature. Participation in relevant scientific conferences. Scientific laboratories with other universities.</b></p>

<b>Student Workload (SWL)</b> الحمل الدراسي للطالب محسوب ل60 ساعة			
<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	45	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعيا	3
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطالب خلال الفصل	15	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطالب أسبوعيا	1
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	<b>60</b>		

## Module Evaluation

### تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
<b>Formative assessment</b>	<b>Quizzes</b>	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	<b>Assignments</b>	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	<b>Projects / Lab.</b>	1	10% (10)	Continuous	All
	<b>Report</b>	1	10% (10)	13	LO #5, #8 and #10
<b>Summative assessment</b>	<b>Midterm Exam</b>	2hr	10% (10)	7	LO #1 - #7
	<b>Final Exam</b>	3hr	50% (50)	16	All
<b>Total assessment</b>			100% (100 Marks)		

## Delivery Plan (Weekly Syllabus)

### المنهاج الاسبوعي النظري

Week	Material Covered
<b>Week 1</b>	Definition of horticulture, the economic and nutritional importance of horticultural crops, division of crops
<b>Week 2</b>	The effect of environmental factors on the production of horticultural crops
<b>Week 3</b>	Soil service operations
<b>Week 4</b>	Propagation of horticultural plants by seeds
<b>Week 5</b>	Vegetative propagation of crops
<b>Week 6</b>	Physiology of reproduction
<b>Week 7</b>	Morphological structures of plant parts
<b>Week 8</b>	The most important methods of propagation - varieties - the most important service operations - economic and nutritional importance
<b>Week 9</b>	The most important deciduous fruit trees in Iraq - importance - methods of propagation - varieties - most important service operations
<b>Week 10</b>	Fruit tree service
<b>Week 11</b>	The most important summer vegetables in Iraq

<b>Week 12</b>	The most important winter vegetables in Iraq
<b>Week 13</b>	The most important ornamental and shade plants, methods of propagation
<b>Week 14</b>	Alarm crops
<b>Week 15</b>	Spices and medicinal crops
<b>Week 16</b>	<b>Preparatory week before the final Exam</b>

### Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

week	Material Covered
<b>Week 1</b>	View propagation facilities and gardening fields
<b>Week 2</b>	Identify the fruit trees grown in the area
<b>Week 3</b>	Learn about ornamental seeds and different vegetables
<b>Week 4</b>	Preparing different growth media
<b>Week 5</b>	Cultivation of seeds in different agricultural environments
<b>Week 6</b>	Methods of planting seeds in panels, terraces, and terraces
<b>Week 7</b>	How to take cuttings for fruit trees and plant them
<b>Week 8</b>	Propagation of some plants by tubers and bulbs
<b>Week 9</b>	Planning a regular fruit orchard
<b>Week 10</b>	Orchard service operations
<b>Week 11</b>	Growing and caring for vegetable plants in greenhouses and greenhouses
<b>Week 12</b>	Vegetable crop service
<b>Week 13</b>	Identifying ornamental plants in the laboratory
<b>Week 14</b>	Individualization, transplantation and service of ornamental plants
<b>Week 15</b>	How to implement a geometric garden
<b>Week 16</b>	<b>Exam</b>

### Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
<b>Required Texts</b>	<p><b>Principle of Horticulture 2017</b>  الحدائق وهندسة البستنة علم مبادئ  أ.م. أياد هاني إسماعيل العلاف  كلية الزراعة والغابات / جامعة الموصل</p>	Yes
<b>Recommended Texts</b>		No



Websites	Ayad_alalaf@yahoo.com
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Grading Scheme مخطط الدرجات				
Group	Grade	التقدير	Marks %	Definition
<b>Success Group (50 - 100)</b>	<b>A - Excellent</b>	امتياز	90 - 100	Outstanding Performance
	<b>B - Very Good</b>	جيد جدا	80 - 89	Above average with some errors
	<b>C - Good</b>	جيد	70 - 79	Sound work with notable errors
	<b>D - Satisfactory</b>	متوسط	60 - 69	Fair but with major shortcomings
	<b>E - Sufficient</b>	مقبول	50 - 59	Work meets minimum criteria
<b>Fail Group</b>	<b>FX - Fail</b>	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded

(0 - 49)	F - Fail	راسب	(0-44)	Considerable amount of work required
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**Note:** Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

## MODULE DESCRIPTION FORM

### نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Sport		Module Delivery
Module Type			<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input checked="" type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	NTU 104		
ECTS Credits	2		
SWL (hr/sem)	2		
Module Level	One	Semester of Delivery	
Administering Department	Plants medicinal and natural Products	College	Technical Agricultural College
Module Leader	Fahad Khalaf Yassein	e-mail	fahadbiologymycology@ntu.edu.iq
Module Leader's Acad. Title	Asst.prof.	Module Leader's Qualification	
Module Tutor	Amina mahir azeez	e-mail	Amina.mahir@ntu.edu.iq
Peer Reviewer Name	Name	e-mail	E-mail
Scientific Committee Approval Date	1/6/2023	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	....	Semester	
Co-requisites module	....	Semester	....

## Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<p><b>Module Objectives</b> أهداف المادة الدراسية</p>	<p>7. Introducing the student to the most important basic information about the types of sports 8. Teaching and training the student to know the classification of sports games. 9. Teaching and training the student to deal with sportsmanship.</p>
<p><b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية</p>	<p>1. Learn about the laws of sports 2. Developing students' sports skills for various sports. 3. The student must have full knowledge of the laws of sports. 4. Learn about the laws of arbitration in sports. 5. The ability to participate effectively in most sporting activities</p>
<p><b>Indicative Contents</b> المحتويات الإرشادية</p>	<p>Indicative content includes the following. <b>Part A - theoretical part</b> <b>Sports needs, stadiums, types, and material needs. [3 hours]</b>  <b>The basic sport, football, and its needs. [3 hours]</b>  <b>Volleyball, its physical and spatial needs. [3 hours]</b>  <b>Types of sports, their formations, sports participation (internal and external). [3 hours]</b> <b>Positive results achieved from participation. [3 hours]</b></p>

	<p><u>Part B - practical part</u></p> <p><b>Classification of sports games. [9 hours].</b>  <b>Active participation in sports activities. [9 hours].</b>  <b>Focus on major sports. [9 hours].</b>  <b>Adherence to sports laws. [9 hours].</b>  <b>Performing as a team in the stadiums. [9 hours].</b></p>
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<b>Learning and Teaching Strategies</b> استراتيجيات التعلم والتعليم	
<b>Strategies</b>	<p><b>The necessity of visiting to gain experience from others. Obtaining new scientific information in the field of sports (videos). Practical training in the field. Access to modern scientific literature. Participation in local and international tournaments.</b></p>

<b>Student Workload (SWL)</b> الحمل الدراسي للطالب محسوب لـ 60 ساعة			
<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	15	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعياً	1
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطالب خلال الفصل	15	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطالب أسبوعياً	1
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	<b>30</b>		

## Module Evaluation

### تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
<b>Formative assessment</b>	<b>Quizzes</b>	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	<b>Assignments</b>	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	<b>Projects / Lab.</b>	1	10% (10)	Continuous	All
	<b>Report</b>	1	10% (10)	13	LO #5, #8 and #10
<b>Summative assessment</b>	<b>Midterm Exam</b>	2hr	10% (10)	7	LO #1 - #7
	<b>Final Exam</b>	3hr	50% (50)	16	All
<b>Total assessment</b>			100% (100 Marks)		

## Delivery Plan (Weekly Syllabus)

### المنهاج الاسبوعي النظري

Week	Material Covered
<b>Week 1</b>	Sports, its definition, importance, and types
<b>Week 2</b>	Mechanism of human body movement
<b>Week 3</b>	Common sports injuries
<b>Week 4</b>	basketball
<b>Week 5</b>	Basketball law
<b>Week 6</b>	Table tennis (table tennis), basic skills
<b>Week 7</b>	Volleyball
<b>Week 8</b>	swimming sport
<b>Week 9</b>	Tennis
<b>Week 10</b>	handball
<b>Week 11</b>	Handball law

<b>Week 12</b>	Athletics
<b>Week 13</b>	soccer
<b>Week 14</b>	Management of competitions and sports competitions
<b>Week 15</b>	Sports laws and legislation
<b>Week 16</b>	Athletics

### Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

<b>week</b>	<b>Material Covered</b>
<b>Week 1</b>	Sports, its definition, importance, and types
<b>Week 2</b>	Mechanism of human body movement
<b>Week 3</b>	Common sports injuries
<b>Week 4</b>	basketball
<b>Week 5</b>	Basketball law
<b>Week 6</b>	Table tennis (table tennis), basic skills
<b>Week 7</b>	Volleyball
<b>Week 8</b>	swimming sport
<b>Week 9</b>	Tennis
<b>Week 10</b>	handball
<b>Week 11</b>	Handball law
<b>Week 12</b>	Athletics
<b>Week 13</b>	soccer
<b>Week 14</b>	Management of competitions and sports competitions
<b>Week 15</b>	Sports laws and legislation
<b>Week 16</b>	Exam

### Learning and Teaching Resources

مصادر التعلم والتدريس

	<b>Text</b>	<b>Available in the Library?</b>
<b>Required Texts</b>	ملزمة مادة الرياضة	Yes
<b>Recommended Texts</b>		
<b>Websites</b>		

Grading Scheme مخطط الدرجات				
Group	Grade	التقدير	Marks %	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group	FX - Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded

(0 - 49)	F - Fail	راسب	(0-44)	Considerable amount of work required
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**Note:** Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

## MODULE DESCRIPTION FORM

### نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية				
Module Title	Beneficial Insects		Module Delivery	
Module Type	Option		<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input checked="" type="checkbox"/> Practical <input type="checkbox"/> Seminar	
Module Code	PLP154			
ECTS Credits	2			
SWL (hr/sem)	4			
Module Level	Third level	Semester of Delivery		
Administering Department	Plant Production PLP	College	Technical Agricultural College	
Module Leader	Fahad Khalaf Yassein		e-mail	fahadbiologymycology@ntu.edu.iq
Module Leader's Acad. Title	Asst.prof.		Module Leader's Qualification	Ph.D.
Module Tutor	Dr.Alaa younis zanoun		e-mail	Alaa.alsafawy89@ntu.edu.iq

<b>Peer Reviewer Name</b>	Name	<b>e-mail</b>	E-mail
<b>Scientific Committee Approval Date</b>	<b>01/06/2021</b>	<b>Version Number</b>	<b>1.0</b>

<b>Relation with other Modules</b> العلاقة مع المواد الدراسية الأخرى			
<b>Prerequisite module</b>	<b>Genral Insects</b>	<b>Semester</b>	<b>First</b>
<b>Co-requisites module</b>		<b>Semester</b>	



## Module Aims, Learning Outcomes and Indicative Contents

### أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<b>Module Objectives</b> أهداف المادة الدراسية	<ul style="list-style-type: none"><li>- Introducing the student to the importance of bees and honey production and the important cycle in the pollination process and increasing crop productivity and the student becomes able to manage and breed beehives and address their problems.</li></ul>
<b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية	<ol style="list-style-type: none"><li>1. The use of special techniques for detecting insects</li><li>2. Identify the specialties available for the diagnosis and examination of insects</li></ol>
<b>Indicative Contents</b> المحتويات الإرشادية	<p>Indicative content includes the following.</p> <p><b><u>Part A - theoretical part</u></b></p> <p>An overview of microbiology screening and diagnosis centers in Iraq [3 hrs]</p> <p>. Factors affecting entomology [3 hrs]</p>

	<p><u>Part B - practical part</u></p> <p><b>Insect morphology study [9 hrs].</b></p> <ul style="list-style-type: none"> <li>. <b>Devices and tools used in microbiology examination [9 hrs].</b></li> <li>. <b>Sample extraction [9 hrs].</b></li> </ul>
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<b>Learning and Teaching Strategies</b> استراتيجيات التعلم والتعليم	
<b>Strategies</b>	<p><b>The necessity of visiting to gain experience from others. Obtaining new scientific information in the field of scientific research (videos). Practical training in the field. Access to modern scientific literature. Participation in relevant scientific conferences. Scientific laboratories with other universities.</b></p>

<b>Student Workload (SWL)</b> الحمل الدراسي للطالب محسوب ل60 ساعة			
<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	45	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعياً	3
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطالب خلال الفصل	15	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطالب أسبوعياً	1
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	<b>60</b>		

## Module Evaluation

### تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO #5, #8 and #10
Summative assessment	Midterm Exam	2hr	10% (10)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

## Delivery Plan (Weekly Syllabus)

### المنهاج الاسبوعي النظري

Week	Material Covered
Week 1	The economic importance of beekeeping, the development of beekeeping, beekeeping in Iraq
Week 2	Honey bee sect, the queen.
Week 3	Honey bee community, workers.
Week 4	Activities and jobs of workers, mothers, males
Week 5	Types and breeds of honey bees
Week 6	Expulsion, its signs, types, seasons of expulsion
Week 7	You want it, the methods of dispersion
Week 8	Feeding communities, their importance, alternatives and supplements.
Week 9	Breeding honey queen bees, breeding success factors, their causes
Week 10	Apiary, types, conditions of spread
Week 11	Diseases and enemies of bees
Week 12	Honey Bee Products
Week 13	Pollinating insects
Week 14	Pollination of bee populations for the purpose of pollinating crops
Week 15	Insects feeding on insects.
Week 16	exame

## Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

week	Material Covered
Week 1	External anatomy of honey bee workers (head chest appendages).
Week 2	External anatomy of honey bee workers (abdomen and appendages)
Week 3	External anatomy of honey bee workers (abdomen and appendages).
Week 4	Beekeeper tools (cells and their types, cell opening tools)
Week 5	Bee tools (personal foundations, foundation fixing tools)
Week 6	Honey bee sect examination
Week 7	Expulsion (parcel holding, division methods)
Week 8	Types of nutrients and feeding methods.
Week 9	Methods of breeding queens, methods of producing queens naturally.
Week 10	Bee pest control (symptoms of bee pest infestation)
Week 11	Preparing honey bee populations for honey sorting, sorting tools, sorting procedure
Week 12	The most important groups of accessory insects
Week 13	Management of honey bee populations for pollination
Week 14	Silkworm, types of silkworm breeding tools
Week 15	External and internal anatomy of silkworm, silkworm breeding methods
Week 16	exame

## Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Usefull Insects تربية سلالات النحل 2012	Yes
Recommended Texts	معجم الملاح في مصطلحات علم الحشرات 2022	No
Websites	<a href="https://www.lib-books.com/book/61836/%E2%80%8Fhttps://ajax/subscribe.php">https://www.lib-books.com/book/61836/%E2%80%8Fhttps://ajax/subscribe.php</a>	

## Grading Scheme

### مخطط الدرجات

Group	Grade	التقدير	Marks %	Definition
<b>Success Group (50 - 100)</b>	<b>A - Excellent</b>	امتياز	90 - 100	Outstanding Performance
	<b>B - Very Good</b>	جيد جدا	80 - 89	Above average with some errors
	<b>C - Good</b>	جيد	70 - 79	Sound work with notable errors
	<b>D - Satisfactory</b>	متوسط	60 - 69	Fair but with major shortcomings
	<b>E - Sufficient</b>	مقبول	50 - 59	Work meets minimum criteria
<b>Fail Group</b>	<b>FX - Fail</b>	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded

<b>(0 - 49)</b>	<b>F - Fail</b>	راسب	(0-44)	Considerable amount of work required

**Note:** Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

# MODULE DESCRIPTION FORM

## نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Biochemistry		Module Delivery
Module Type	Core		<input checked="" type="checkbox"/> Theory
Module Code	TAMO 201		<input type="checkbox"/> Lecture
ECTS Credits	3		<input checked="" type="checkbox"/> Lab
SWL (hr/sem)	5		<input type="checkbox"/> Tutorial
			<input type="checkbox"/> Practical
			<input type="checkbox"/> Seminar
Module Level	Third	Semester of Delivery	Third
Administering Department	Plant Production PLP	College	Technical Agricultural College
Module Leader	Fahad Khalaf Yassein	e-mail	fahadbiologymycology@ntu.edu.iq
Module Leader's Acad. Title	Asst.prof.	Module Leader's Qualification	Ph.D.
Module Tutor	Hala awf abdalrahman	e-mail	Hala chilmeran 20@gmail .com
Peer Reviewer Name	Name	e-mail	E-mail
Scientific Committee Approval Date	01/06/2021	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	Anatical Chemistry	Semester	Second
Co-requisites module	Organig Chemistry	Semester	Second

## Module Aims, Learning Outcomes and Indicative Contents

### أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<b>Module Objectives</b> أهداف المادة الدراسية	<p>The student learns about the biochemical processes that occur within a plant in order for it to obtain food, grow, and produce.</p>
<b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية	<ol style="list-style-type: none"><li>1- The course mainly identifies students on how to find out their military membership and non-vehicle status</li><li>2- Membership is focused on medically relevant topics</li><li>3- Knowledge of the biological and metabolic interactions within the human body and their relationship to diseases arising from disorders Metabolites and antiviral chemical clothing</li><li>4- Scientific knowledge of scientific techniques in a new medical procedure</li></ol>
<b>Indicative Contents</b> المحتويات الإرشادية	<ul style="list-style-type: none"><li>- Part A</li><li>-</li><li>- Definition of the biochemistry , historical brief scope of the biochemistry . correlation [5]</li><li>- Lipids ( fatty materials ) and fatty acids [5].</li><li>- Enzymes , vitamins , coenzymes [5].</li><li>- Metabolism of carbohydrates ( brief ) [5]</li> <li>- Part B</li><li>- PH , Buffer solution , indicators , Physical Biochemistry colloids , imbibitions , viscosity . adsorption [10].</li><li>- Effect of the bases and acids on sacchorides, Physical properties of fatty material [10].</li><li>- iodine No. polenski No. , Acydy no. , Millons test , sakoguchs test Aldenyde test .[10].</li><li>- Nucleo acids , metabolism of protam , and others .[10].</li></ul>

## Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

<b>Strategies</b>	<b>The necessity of visiting to gain experience from others. Obtaining new scientific information in the field of scientific research (videos). Practical training in the field. Access to modern scientific literature. Participation in relevant scientific conferences. Scientific laboratories with other universities.</b>
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## Student Workload (SWL)

الحمل الدراسي للطالب محسوب ل75 ساعة

<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	65	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعياً	4
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطالب خلال الفصل	10	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطالب أسبوعياً	1
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	<b>60</b>		



## Module Evaluation

### تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
<b>Formative assessment</b>	<b>Quizzes</b>	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	<b>Assignments</b>	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	<b>Projects / Lab.</b>	1	10% (10)	Continuous	All
	<b>Report</b>	1	10% (10)	13	LO #5, #8 and #10
<b>Summative assessment</b>	<b>Midterm Exam</b>	2hr	10% (10)	7	LO #1 - #7
	<b>Final Exam</b>	3hr	50% (50)	16	All
<b>Total assessment</b>			100% (100 Marks)		

## Delivery Plan (Weekly Syllabus)

### المنهاج الاسبوعي النظري

Week	Material Covered
<b>Week 1</b>	Definition of the biochemistry , historical brief scope of the biochemistry . correlation
<b>Week 2</b>	Importance of the cell in the study of the biochemistry , Brief deception to the physical
<b>Week 3</b>	Water and reaction degree ( PH)
<b>Week 4</b>	Chemistry of the carbohydrates
<b>Week 5</b>	Amino acids
<b>Week 6</b>	Peptides
<b>Week 7</b>	Lipids ( fatty materials ) and fatty acids
<b>Week 8</b>	Nudeo acids
<b>Week 9</b>	Enzymes , vitamins , coenzymes
<b>Week 10</b>	Bioenergetic ( out lines )
<b>Week 11</b>	Bioenergetic ( out lines )

<b>Week 12</b>	Metabolism of carbohydrates ( brief )
<b>Week 13</b>	Metabolism of carbohydrates ( brief )
<b>Week 14</b>	Metabolism of carbohydrates ( brief )
<b>Week 15</b>	Metabolism of carbohydrates ( brief )

### Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

week	Material Covered
<b>Week 1</b>	PH , Buffer solution , indicators .
<b>Week 2</b>	Physical Biochemistry colloids , imbibitions , viscosity . adsorption .
<b>Week 3</b>	Reduction of the Benedict solutions Bar foods solution .
<b>Week 4</b>	Reduction of the, mono sacehordes formations of the ozazon fchilink test .
<b>Week 5</b>	Effect of the bases and acids on sacchorides
<b>Week 6</b>	Physical properties of different types of sacchorides
<b>Week 7</b>	Physical properties of fatty material
<b>Week 8</b>	Fat constant's acid number saponifcation number .
<b>Week 9</b>	iodine No. polenski No. , Acdy no .
<b>Week 10</b>	Testes on the oils .
<b>Week 11</b>	Millons test , sakoguchs test Aldenylde test .
<b>Week 12</b>	Chemical analysis of the material prsteis solubility .
<b>Week 13</b>	Biuret test .
<b>Week 14</b>	Sengers test .
<b>Week 15</b>	Nudeo acids , metabolism of protam , and others .
<b>Week 16</b>	<b>Exam</b>

### Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
<b>Required Texts</b>	الكيمياء الحياتية د. طارق يونس احمد ولؤي عبد علي الهلالي 2012	Yes
<b>Recommended Texts</b>	bioChemistry,2020	No
<b>Websites</b>	<a href="http://ocw.mit.edu/courses/biology/7-013-introductory-biology-spring-2013/">http://ocw.mit.edu/courses/biology/7-013-introductory-biology-spring-2013/</a>	

## Grading Scheme

### مخطط الدرجات

Group	Grade	التقدير	Marks %	Definition
<b>Success Group (50 - 100)</b>	<b>A - Excellent</b>	امتياز	90 - 100	Outstanding Performance
	<b>B - Very Good</b>	جيد جدا	80 - 89	Above average with some errors
	<b>C - Good</b>	جيد	70 - 79	Sound work with notable errors
	<b>D - Satisfactory</b>	متوسط	60 - 69	Fair but with major shortcomings
	<b>E - Sufficient</b>	مقبول	50 - 59	Work meets minimum criteria
<b>Fail Group</b>	<b>FX - Fail</b>	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded

(0 - 49)	F - Fail	راسب	(0-44)	Considerable amount of work required
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**Note:** Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

## MODULE DESCRIPTION FORM

### نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Decoration Plants		Module Delivery
Module Type	Core		<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input checked="" type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	PLP 304		
ECTS Credits	3		
SWL (hr/sem)	4		
Module Level	Third	Semester of Delivery	
Administering Department	Plant Production PLP	College	Technical Agricultural College
Module Leader	Fahad Khalaf Yassein	e-mail	fahadbiologymycology@ntu.edu.iq
Module Leader's Acad. Title	Asst.prof.	Module Leader's Qualification	Ph.D.
Module Tutor	Khawla Mahmood Yahya AL-Nooh	e-mail	kawllamhmoood@ntu.edu.iq
Peer Reviewer Name		e-mail	E-mail
Scientific Committee Approval Date	01/06/2021	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	Ornamental and Decoration Plants	Semester	Second
Co-requisites module	landscape Design	Semester	Second

## Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<p><b>Module Objectives</b> أهداف المادة الدراسية</p>	<p>33. Introducing the student to the most important basic information about different Ornamental and Decoration Plants, their reproduction, propagation, and breeding</p> <p>34. Teaching and training the student to know Ornamental and decoration plants classification .</p> <p>35. Teaching and training the student to how to care Ornamental and decoration plants and breeding its.</p>
<p><b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية</p>	<p>1. The student has knowledge about the importance of Ornamental and decoration plants</p> <p>2. Learn about the importance of Identifying cut flowers</p> <p>3. Learn about the techniques available for caring for indoor decorative plants</p> <p>4. Identify the groups included in the different types of ornamental plants</p> <p>5. Identifying the nature of plants and their types and the extent to which they are affected by the environment of this region.</p> <p>6-Learn about Medical and Aromatic Herbs</p>
<p><b>Indicative Contents</b> المحتويات الإرشادية</p>	<p>Indicative content includes the following.</p> <p><u>Part A - theoretical part</u></p> <p>1. The science of cultivation and production of ornamental plants, The importance of ornamental plants, Totals included in the different types of ornamental plants [6 hrs]</p> <p>2. ornamental trees and The basic characteristics that determine the value of ornamental trees Street trees and Windbreak trees [6 hrs]</p> <p>3. Environmental requirements for trees [6 hrs]</p> <p>4. Shrubs Ornamental shrubs, their importance, types and places of planting [6 hrs]</p> <p>5. Fences and climbers, their types and their coordination value [6 hrs]</p>

	<p><u>Part B - practical part</u></p> <ol style="list-style-type: none"> <li>1. Identify ornamental and cultivated plants in the garden, [6 hrs].</li> <li>2. Identify the types of ornamental bulbs [6 hrs].</li> <li>3. Planting seeds of summer annuals [6 hrs].</li> <li>4. Cut flowers: their types, seasons of production, and marketing methods [6 hrs].</li> <li>5. Shade plants and indoor landscaping plants [6 hrs].</li> </ol>
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<b>Learning and Teaching Strategies</b> استراتيجيات التعلم والتعليم	
<b>Strategies</b>	<p><b>The necessity of visiting to gain experience from others. Obtaining new scientific information in the field of scientific research (videos). Practical training in the field. Access to modern scientific literature. Participation in relevant scientific conferences. Scientific laboratories with other universities.</b></p>

<b>Student Workload (SWL)</b> الحمل الدراسي للطالب محسوب ل60 ساعة			
<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	45	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعياً	3
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطالب خلال الفصل	15	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطالب أسبوعياً	1
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	<b>60</b>		

## Module Evaluation

### تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO #5, #8 and #10
Summative assessment	Midterm Exam	2hr	10% (10)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
<b>Total assessment</b>			100% (100 Marks)		

## Delivery Plan (Weekly Syllabus)

### المنهاج الاسبوعي النظري

Week	Material Covered
<b>Week 1</b>	<b>Ornamental plants (floriculture)</b>
<b>Week 2</b>	<b>Classified Ornamental plants according to its used .</b>
<b>Week 3</b>	<b>Ornamental trees (The basic characteristics that determine the value of ornamental trees)</b>
<b>Week 4</b>	<b>Environmental supplies for decorative trees</b>
<b>Week 5</b>	<b>Ornamental shrubs, their types and the purpose of growing them</b>
<b>Week 6</b>	<b>Hedge and climber plants</b>
<b>Week 7</b>	Flowering bulbs
<b>Week 8</b>	Annual and Biennial plants
<b>Week 9</b>	Perennial plants
<b>Week 10</b>	Green house and shade plant
<b>Week 11</b>	Medical and Aromatic Herbs

<b>Week 12</b>	Aquatic and sim- aquatic plants
<b>Week 13</b>	Cacti and succulent plant
<b>Week 14</b>	Cut flower
<b>Week 15</b>	Green landscapes and Green sports fields
<b>Week 16</b>	Exam

### Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

week	Material Covered
Week 1	Plant classification
Week 2	Methods of propagation of ornamental plants
Week 3	Multiplication by seeds (types and methods of cultivation)
Week 4	Field application for multiplication of summer annual seeds
Week 5	Vegetative propagation (types, propagation by cuttings)
Week 6	Field application for propagation by vegetative cuttings
Week 7	Visit the nurseries to learn about ornamental plants
Week 8	Practical exam
Week 9	Symptoms of mineral deficiency in ornamental plants and methods of treating them
Week 10	Insect and disease pests that affect ornamental plants and methods of treating them
Week 11	Ways to care for indoor landscaping plants
Week 12	Show scientific films
Week 13	Seed structure and Germination
Week 14	Vegetative reproduction
Week 15	Plant hormones
Week 16	Exam

### Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
<b>Required Texts</b>	Plant Propagation ( American Horticultural Society) ALAN TOOGOOD	Yes
<b>Recommended Texts</b>	The House Plant Expert Dr.D.G. Hessayon 2021	No
<b>Websites</b>		



## Grading Scheme

### مخطط الدرجات

Group	Grade	التقدير	Marks %	Definition
<b>Success Group (50 - 100)</b>	<b>A - Excellent</b>	امتياز	90 - 100	Outstanding Performance
	<b>B - Very Good</b>	جيد جدا	80 - 89	Above average with some errors
	<b>C - Good</b>	جيد	70 - 79	Sound work with notable errors
	<b>D - Satisfactory</b>	متوسط	60 - 69	Fair but with major shortcomings
	<b>E - Sufficient</b>	مقبول	50 - 59	Work meets minimum criteria
<b>Fail Group</b>	<b>FX - Fail</b>	راسب (فقد المعالجة)	(45-49)	More work required but credit awarded

(0 - 49)	F - Fail	راسب	(0-44)	Considerable amount of work required
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**Note:** Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

## MODULE DESCRIPTION FORM

### نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	English language	Module Delivery	
Module Type	Core	<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar	
Module Code	NTU 301		
ECTS Credits	2		
SWL (hr/sem)	2		
Module Level	third		
Administering Department	Plant Production PLP	College	Technical Agricultural College
Module Leader	Fahad Khalaf Yassein	e-mail	fahadbiologymycology@ntu.edu.iq
Module Leader's Acad. Title	Asst.Professor	Module Leader's Qualification	Ph.D.
Module Tutor	Janan kassim khorshed	e-mail	E-mail Janankhorshed@ntu.edu.iq
Peer Reviewer Name	Name	e-mail	E-mail
Scientific Committee Approval Date	01/06/2021	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	English level one	Semester	first
Co-requisites module	english level two	Semester	second

## Module Aims, Learning Outcomes and Indicative Contents

### أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<p><b>Module Objectives</b> أهداف المادة الدراسية</p>	<p>36. Introducing the student to the basics of the English language with regard to developing the four language skills (speaking, listening, reading, and writing). 37. Introducing the student to the vocabulary of communication and academic writing in English.</p>
<p><b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية</p>	<p>Grammar/ Vocabulary/ Everyday English/ Reading/ Speaking Listening/ Writing</p>
<p><b>Indicative Contents</b> المحتويات الإرشادية</p>	<p>Indicative content includes the following. Part A - theoretical part 1. Relying on accumulated information on the topic [2] 2. Relying on the ability to focus on information[2] 3. Clarifying the idea and defining the goal of the lesson[2] 4. The ability to collect information about the topic by asking questions[2]  Part B - practical part 1. The skill of thinking according to the student's ability, and the goal of this skill is for the student to believe in what is tangible. [2] 2. Understanding when, what and how one should think and working to improve the ability to think sensibly. [2] 3. Observation and perception[2] 4. Analysis and interpretation[2] 5. Preparation and calendar[2] 6. Critical thinking strategy in learning[2]</p>

## Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

<b>Strategies</b>	<b>The necessity of visiting to gain experience from others. Obtaining new scientific information in the field of scientific research (videos).</b>
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## Student Workload (SWL)

الحمل الدراسي للطالب محسوب ل 32 ساعة

<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	32	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعيا	2
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطالب خلال الفصل	0	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطالب أسبوعيا	0
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	<b>32</b>		

## Module Evaluation

### تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
<b>Formative assessment</b>	<b>Quizzes</b>	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	<b>Assignments</b>	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	<b>Projects / Lab.</b>	1	10% (10)	Continuous	All
	<b>Report</b>	1	10% (10)	13	LO #5, #8 and #10
<b>Summative assessment</b>	<b>Midterm Exam</b>	2hr	10% (10)	7	LO #1 - #7
	<b>Final Exam</b>	3hr	50% (50)	16	All
<b>Total assessment</b>			100% (100 Marks)		

## Delivery Plan (Weekly Syllabus)

### المنهاج الاسبوعي النظري

Week	Material Covered
<b>Week 1</b>	<b>Unit 1 / It's a wonderful world!</b>
<b>Week 2</b>	<b>Unit 2 / Get happy!</b>
<b>Week 3</b>	<b>Unit 3 / Telling tales</b>
<b>Week 4</b>	<b>Unit 4 / Doing the right thing</b>
<b>Week 5</b>	<b>Unit 5 / On the move</b>
<b>Week 6</b>	<b>Unit 6 / I just love it!</b>
<b>Week 7</b>	<b>Unit 7 / The world of work</b>
<b>Week 8</b>	<b>Unit 8 / Just imagine!</b>
<b>Week 9</b>	<b>Unit 9 / Getting on together</b>
<b>Week 10</b>	<b>Unit 10 / Obsessions</b>
<b>Week 11</b>	<b>Unit 11 / Tell me about it!</b>

<b>Week 12</b>	<b>Unit 12 / Life's great events!</b>
<b>Week 13</b>	<b>Review</b>
<b>Week 14</b>	<b>Review</b>
<b>Week 15</b>	<b>Review</b>
<b>Week 16</b>	<b>Review</b>

<b>Learning and Teaching Resources</b> مصادر التعلم والتدريس		
	<b>Text</b>	<b>Available in the Library?</b>
<b>Required Texts</b>	New Headway Plus / Beginner/ John and Liz Soars / Oxford University Press / 2014	Yes
<b>Recommended Texts</b>	1. An A-Z of English Grammar & Usage / Geoffrey Leech / Longman / 1990 2. Common Mistakes in English / T.J. Fitikides / Longman 2002 3. English Grammar in Use / Raymond Murphy / Cambridge University Press 2004	No
<b>Websites</b>	1. Express English / Omer Al- Hourani / Jordan	

<b>Grading Scheme</b> مخطط الدرجات				
<b>Group</b>	<b>Grade</b>	<b>التقدير</b>	<b>Marks %</b>	<b>Definition</b>
<b>Success Group (50 - 100)</b>	<b>A - Excellent</b>	امتياز	90 - 100	Outstanding Performance
	<b>B - Very Good</b>	جيد جدا	80 - 89	Above average with some errors
	<b>C - Good</b>	جيد	70 - 79	Sound work with notable errors
	<b>D - Satisfactory</b>	متوسط	60 - 69	Fair but with major shortcomings
	<b>E - Sufficient</b>	مقبول	50 - 59	Work meets minimum criteria
<b>Fail Group</b>	<b>FX - Fail</b>	راسب (فقد المعالجة)	(45-49)	More work required but credit awarded

(0 - 49)	F - Fail	راسب	(0-44)	Considerable amount of work required
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**Note:** Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

## MODULE DESCRIPTION FORM

### نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Forage crops and Pastures		Module Delivery
Module Type	Core		<input checked="" type="checkbox"/> Theory <input checked="" type="checkbox"/> Lecture <input checked="" type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	PLP 352		
ECTS Credits	2		
SWL (hr/sem)	3		
Module Level	four	Semester of Delivery	
Administering Department	Plant Production PLP	College	Technical Agricultural College
Module Leader	Fahad Khalaf Yassein	e-mail	fahadbiologymycology@ntu.edu.iq
Module Leader's Acad. Title	Asst.prof.	Module Leader's Qualification	
Module Tutor	Azhar Idrees Dhanoon	e-mail	azharadrees16@ntu.edu.iq
Peer Reviewer Name	Name	e-mail	E-mail
Scientific Committee Approval Date	01/06/2021	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	Field crops, Seed technology		Semester
			Two

## Module Aims, Learning Outcomes and Indicative Contents

### أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<b>Module Objectives</b> أهداف المادة الدراسية	Teaching the student the foundations and principles of producing forage and pasture crops and their impact on agricultural livestock.
<b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية	The student will be able to know:- 1- Preparing and preparing the land for cultivation. 2- Cultivation and service of fodder crops. 3- The appropriate stage for cutting plants and presenting them to animals. 4- Exploiting natural pastures and methods of improving them. 5- Preparation of feed mixtures.
<b>Indicative Contents</b> المحتويات الإرشادية	Indicative content includes the following. Part A-theoretical: *The importance of various fodder crops.{3 hrs} * Division of crops used for fodder and their modern scientific names.{3 hrs} *Common scientific names for fodder crops.{3 hrs} *The student's knowledge of methods for storing fodder crops in the form of hay or silage.{3 hrs}



	<p>Indicative content includes the following.</p> <p>Part B-practical part:</p> <p>*A general evaluation of coarse and concentrated plant feed materials. The nutritional value of plant feed materials. {9 hrs }</p> <p>* Studying the phenotypic appearance and diagnosing the seeds of the following crops: barley, oats, Sudanese grass, millet, white and yellow corn, beans, jet, clover, and hartman, preparing the soil, amending the panels designated for planting .{9 hrs }</p> <p>*Cultivation of the views field with fodder crops .{9 hrs }</p>
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<b>Learning and Teaching Strategies</b> استراتيجيات التعلم والتعليم	
<b>Strategies</b>	<p>The necessity of visiting to gain experience from others. Obtaining new scientific information in the field of scientific research (videos). Practical training in the field. Access to modern scientific literature. Participation in relevant scientific conferences. Scientific laboratories with other universities.</p>

<b>Student Workload (SWL)</b> ساعة 45 الحمل الدراسي للطالب محسوب ل			
<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	45	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعيا	3
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطالب خلال الفصل	15	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطالب أسبوعيا	1
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	<b>60</b>		

## Module Evaluation

### تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO #5, #8 and #10
Summative assessment	Midterm Exam	2hr	10% (10)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

## Delivery Plan (Weekly Syllabus) ,

### المنهاج الاسبوعي النظري

Week	Material Covered
Week 1	The importance of livestock, the importance of fodder crops and their role in meeting the fodder needs of livestock, the reality of growing fodder crops in Iraq.
Week 2	Factors affecting fodder production and quality, exploitation of saline and dry lands in the production of fodder crops.
Week 3	Production of leguminous fodder crops (1) (Jet) Economic importance, suitable environmental conditions, production of Jet seeds.
Week 4	(2) - (Clover) is the same vocabulary as Jat
Week 5	(3) - (hartman, karat, kakouz) the same vocabulary as before
Week 6	Production of cereal fodder crops (1) Yellow corn, including economic importance, suitable environmental conditions, production foundations, and its fodder uses.
Week 7	(2) - (Sorghum, Sudanese cannabis) The same vocabulary as before, with the mention of species belonging to the genus Sorghum (Soryhum). The danger of green feeding to animals as a result of poisoning with hydrocyanic acid (HCN).
Week 8	(3) - (Barley, oats, millet) economic importance, foundations of production, species used for the purpose of fodder, and their exploitation for the purpose of fodder
Week 9	Concentrated feed materials, their importance in animal nutrition, their sources, their nutritional content (chemical composition).
Week 10	Feed mixtures, their definition, importance, types, and the basics of the elements included in the feed mixture.

Week 12	Silage, its definition, the importance of its manufacture, manufacturing steps, determining the stages of cutting, chemical changes to the feed during preservation, methods of preserving silage, preservatives, types of loss in nutritional value resulting from preservation.
Week 13	Pastures, their definition, importance, and types.
Week 14	Foundations of quantitative assessment of pasture germination and determination of pasture productivity.
Week 15	Reasons for the deterioration of natural pastures, methods for improving natural pastures and how to preserve them.

### Delivery Plan (Weekly Lab. Syllabus)

#### المنهاج الاسبوعي التطبيقي

Week	Material Covered
Week 1	General evaluation of coarse and concentrated plant feed materials. Nutritional value of plant feed materials.
Week 2	Studying the phenotypic appearance and diagnosing the seeds of the following crops: barley, oats, Sudanese grass, millet, white and yellow corn, beans, jet, clover, and hartman, preparing the soil, and amending the panels designated for planting.
Week 3	The importance of conducting experiments and research in the field of fodder crop production and natural grazing areas, explaining a plan for growing summer fodder crops in the field designated for them, preparing the soil (continuation).
Week 4	Cultivation of the views field with fodder crops.
Week 5	Botanical description of the crop, its types and groups, use of the forage crop in animal nutrition (mowing, grazing, preservation), completion of the remaining field operations.
Week 6	Botanical description of clover, embroidery, exploitation of clover in animal feed (mowing, grazing, preserving).
Week 7	Botanical description of the following crops: hartaman, cocoa, kachun, peas, fodder, and turmeric, and the exploitation of these crops in animal feed.
Week 8	Botanical description of the following cereal fodder crops, yellow and white corn, exploitation of these crops in animal feed, showing scientific films.
Week 9	Botanical description of Sudanese grass, millet, barley, oats, exploitation of these crops in animal feed, field follow-up.
Week 10	Manufacturing green fodder as fodder, preparing work supplies, manufacturing fodder as fodder in the natural and industrial way.
Week 11	Manufacturing green fodder as silage, steps to prepare silage, preparing work supplies, showing a scientific film.
Week 12	Discussing students' reports on their observations, conducting seminars.

<b>Week 13</b>	Scientific visit.
<b>Week 14</b>	Collecting and preserving models of fodder plants, displaying preserved models.
<b>Week 15</b>	Collecting and preserving models of fodder plants, displaying preserved models.

<b>Learning and Teaching Resources</b> مصادر التعلم والتدريس		
	Text	Available in the Library?
	<p>Al-Ani, Tariq Ali and Mr. Irfan Muhammad Rashid (1983). Production of fodder crops and pastures. Technical Institutes Foundation.</p> <p>Al-Tikriti, Ramadan Ahmed Al-Tayef, Tawakkol Younis Rizk, and Hikmat Askar Al-Rumi (1981). Fodder crops and pastures, Dar Al-Kutub Foundation for Printing and Publishing, University of Mosul.</p> <p>Mayouf, Mahmoud Ahmed and Abdullah Qasim Al-Fakhri (1982). Introduction of legumes in Iraq.</p> <p>Abdullah, Ghazi Mahmoud (1976). Some methods used in studies of natural pastures. Ministry of Agriculture and Agrarian Reform, Natural Pastures Directorate, Agricultural Affairs Department, Bulletin No. 97.</p>	
<b>Recommended Texts</b>		No
<b>Websites</b>		

<b>Grading Scheme</b> مخطط الدرجات				
Group	Grade	التقدير	Marks %	Definition
<b>Success Group (50 - 100)</b>	<b>A</b> - Excellent	امتياز	90 - 100	Outstanding Performance
	<b>B</b> - Very Good	جيد جدا	80 - 89	Above average with some errors
	<b>C</b> - Good	جيد	70 - 79	Sound work with notable errors
	<b>D</b> - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	<b>E</b> - Sufficient	مقبول	50 - 59	Work meets minimum criteria
<b>Fail Group</b>	<b>FX</b> - Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded

(0 - 49)	F - Fail	راسب	(0-44)	Considerable amount of work required
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**Note:** Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

## MODULE DESCRIPTION FORM

### نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Harvesting Equipments		Module Delivery
Module Type	Department requirements		<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input type="checkbox"/> Lab <input checked="" type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	PLP 357		
ECTS Credits	3		
SWL (hr/sem)	4		
Module Level	Three	Semester of Delivery	
Administering Department	Plant Production PLP	College	Technical Agricultural College
Module Leader	Fahad Khalaf Yassein		e-mail
Module Leader's Acad. Title	Asst.Prof.	Module Leader's Qualification	Ph.D.
Module Tutor	Mahmood Shaker Mahmood		e-mail
Peer Reviewer Name	Name	e-mail	E-mail
Scientific Committee Approval Date	01/06/2021	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	Tractors and Agricultural Equipment		Semester
			Two

## Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<b>Module Objectives</b> أهداف المادة الدراسية	<b>Introducing the student to the most important machines and machines used in harvesting and reaping crops, what their components are, performing calculations on how to calibrate them, and becoming able to perform maintenance operations on them and how to choose the appropriate type of them.</b>
<b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية	<ol style="list-style-type: none"><li>1. The ability to handle various agricultural machines.</li><li>2. Know the main parts that make up the harvester.</li><li>3. Know how to carry out the organizational processes for the harvesting process.</li><li>4. Possibility of handling the harvester during work.</li></ol>
<b>Indicative Contents</b> المحتويات الإرشادية	<p><b>Part one: theoretical</b></p> <ol style="list-style-type: none"><li>1. Get an overview of the importance of agricultural mechanization in the field of agricultural production. And types of harvest. (1 hour )</li><li>2. Identify the main parts that make up a grain harvester (1 hour)</li><li>3. Familiarization with the parts and transportation group (2 hours)</li><li>4. Getting to know the study system in the classroom (3 hours)</li><li>5. Identifying the separation and cleaning system (1 hour)</li><li>6. How to detect malfunctions in the harvester (1 hour)</li><li>7. Cotton harvesting machine and factors affecting cotton harvesting (1 hour)</li><li>8. Sugar beet harvesting machine and potato harvesting machine (2 hours)</li></ol> <p><b>Part Two: Practical</b></p> <ol style="list-style-type: none"><li>1. Identify the main parts that make up a grain harvester (3 hours)</li><li>3. Familiarization with the parts and transportation group (6 hours)</li><li>4. Getting to know the study system in the classroom (9 hours)</li><li>5. Identifying the separation and cleaning system (6 hours)</li><li>6. How to detect malfunctions in the harvester (3 hours)</li><li>7. Cotton harvesting machine and factors affecting cotton harvesting (3 hours)</li><li>8. Sugar beet harvesting machine and potato harvesting machine (6 hours)</li></ol>

## Learning and Teaching Strategies

### استراتيجيات التعلم والتعليم

<b>Strategies</b>	<b>Working to increase knowledge to gain practical experience from others through educational videos and training courses to obtain new scientific information in the field of knowledge. Practical field training and how to take field measurements. Access to modern scientific literature. Scientific laboratories with other universities.</b>
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## Student Workload (SWL)

### الحمل الدراسي للطالب محسوب ل60 ساعة

<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	60	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعيا	5
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطالب خلال الفصل	10	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطالب أسبوعيا	1
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	<b>60</b>		

## Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
<b>Formative assessment</b>	<b>Quizzes</b>	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	<b>Assignments</b>	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	<b>Projects / Lab.</b>	1	10% (10)	Continuous	All
	<b>Report</b>	1	10% (10)	13	LO #5, #8 and #10
<b>Summative assessment</b>	<b>Midterm Exam</b>	2hr	10% (10)	7	LO #1 - #7
	<b>Final Exam</b>	3hr	50% (50)	16	All
<b>Total assessment</b>			100% (100 Marks)		

## Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

Week	Material Covered
Week 1	Automated harvesting and its benefits, methods of automated harvesting
Week 2	The cutting set (cutting knife, pressing paddle, propellers) and its parts are operated and changed
Week 3	The transport group in the harvester and its operating parts
Week 4	Harvester treadmill assembly and its parts
Week 5	Factors influencing the process of policing, both fixed and variable
Week 6	Separation and cleaning group in the harvester, crop flow and change line
Week 7	The packing group has its parts and the function of each part
Week 8	How to detect a malfunction in the harvester, treat every malfunction and repair it
Week 9	Mathematical problems
Week 10	Machine for picking fallen cotton, mechanical style, spindles
Week 11	Cotton collecting machine, its types, parts and the function of each part
Week 12	Factors affecting cotton harvest
Week 13	Sugar beet harvesting machine, its parts and the function of each part
Week 14	Potato harvesting machine, its types, parts and the function of each part
Week 15	Fodder cutting machine, its functions and parts
Week 16	Preparatory week before the final Exam



## Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

week	Material Covered
Week 1	Identify the main parts of the harvester
Week 2	The cutting set (cutting knife, pinching paddle), its parts and operation
Week 3	The transportation assembly has its working parts and the function of each part
Week 4	The tread assembly (the tread cylinder), its operation, its parts, and its maintenance
Week 5	The harvester's separation and cleaning group, its operation, its parts, and its maintenance
Week 6	The packing group has its parts and the function of each part
Week 7	Harvester malfunctions treated (treatment of all malfunctions)
Week 8	The cotton pulp has its parts and the function of each part
Week 9	Cotton collecting machine, its parts and function of collecting cotton
Week 10	Cotton collecting machine, its parts and function of collecting cotton
Week 11	Sugar beet harvesting machine, its parts, operation, and maintenance
Week 12	The potato harvester has its parts and maintenance
Week 13	Fodder cutting machine, parts, operation and maintenance
Week 14	Daily and seasonal maintenance of the harvester
Week 15	Maintenance and repair of harvester units
Week 16	Exam

## Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Reaping and harvesting equipment Aziz Ramo Al-Banna	Yes
Websites	<a href="https://www.agro-lib.site/2023/09/blog-post_173.html">https://www.agro-lib.site/2023/09/blog-post_173.html</a>	

## Grading Scheme

### مخطط الدرجات

Group	Grade	التقدير	Marks %	Definition
<b>Success Group (50 - 100)</b>	<b>A - Excellent</b>	امتياز	90 - 100	Outstanding Performance
	<b>B - Very Good</b>	جيد جدا	80 - 89	Above average with some errors
	<b>C - Good</b>	جيد	70 - 79	Sound work with notable errors
	<b>D - Satisfactory</b>	متوسط	60 - 69	Fair but with major shortcomings
	<b>E - Sufficient</b>	مقبول	50 - 59	Work meets minimum criteria
<b>Fail Group</b>	<b>FX - Fail</b>	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
<b>(0 - 49)</b>	<b>F - Fail</b>	راسب	(0-44)	Considerable amount of work required

**Note:** Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

# MODULE DESCRIPTION FORM

## نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
اسم المقرر	معدات الجني والحصاد		طريقة تلقي المقرر
نوع المقرر	متطلبات القسم		<input checked="" type="checkbox"/> نظري <input type="checkbox"/> محاضرة <input type="checkbox"/> مختبر <input checked="" type="checkbox"/> تعليمي <input checked="" type="checkbox"/> عملي <input type="checkbox"/> ندوة
رمز المقرر	PLP 210		
عدد الوحدات	PLP 357		
عدد الساعات الاسبوعية	3		
المستوى الدراسي	الثالث	الفصل الدراسي	
القسم العلمي	تقنيات الانتاج النباتي PLP	الكلية	الكلية التقنية الزراعية
مسؤول المقرر	محمود شاكر محمود		الايمل <a href="mailto:Msh41551@ntu.edu.iq">Msh41551@ntu.edu.iq</a>
اللقب العلمي	مدرس مساعد	الشهادة الجامعية لمسؤول المقرر	
مدرس المادة	محمود شاكر محمود		الايمل <a href="mailto:Msh41551@ntu.edu.iq">Msh41551@ntu.edu.iq</a>
المقيم العلمي للمقرر	Name	الايمل	E-mail
تاريخ مصادقة اللجنة العلمية	01/06/2021	رقم الجلسة	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
المتطلبات الاساسية	الساحبات والالات الزراعية		الفصل الدراسي
			الاول

## Module Aims, Learning Outcomes and Indicative Contents

### أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<b>Module Objectives</b> أهداف المادة الدراسية	تعريف الطالب بأهم الآلات والألات المستخدمة في حصاد وجني المحاصيل وما هي مكوناتها وإجراء العمليات الحسابية حول كيفية معايرتها والتمكن من إجراء عمليات الصيانة عليها وكيفية اختيار النوع المناسب منها.
<b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية	<ol style="list-style-type: none"><li>1. القدرة على التعامل مع الآلات الزراعية المختلفة.</li><li>2. معرفة الأجزاء الرئيسية التي تتكون منها الحاصدة.</li><li>3. معرفة كيفية تنفيذ العمليات التنظيمية لعملية الحصاد.</li><li>4. إمكانية التعامل مع الحصادة أثناء العمل.</li></ol>
<b>Indicative Contents</b> المحتويات الإرشادية	<p>الجزء الأول: نظري</p> <ol style="list-style-type: none"><li>1. الحصول على لمحة عامة عن أهمية الميكنة الزراعية في مجال الإنتاج الزراعي. وأنواع الحصاد . (1 ساعة)</li><li>2. التعرف على الأجزاء الرئيسية التي تتكون منها حصادة الحبوب (ساعة واحدة)</li><li>3. التعرف على مجموعة قطع الغيار والنقل (ساعتان)</li><li>4. التعرف على نظام الدراسة داخل الفصل (3 ساعات)</li><li>5. التعرف على نظام الفصل والتنظيف (ساعة واحدة)</li><li>6. كيفية اكتشاف الأعطال في الحاصدة (ساعة واحدة)</li><li>7. آلة حصاد القطن والعوامل المؤثرة على حصاد القطن (ساعة واحدة)</li><li>8. آلة حصاد بنجر السكر وآلة حصاد البطاطس (ساعتان)</li></ol> <p>الجزء الثاني: عملي</p> <ol style="list-style-type: none"><li>1. التعرف على الأجزاء الرئيسية التي تتكون منها حصادة الحبوب (3 ساعات)</li><li>3. التعرف على مجموعة قطع الغيار والنقل (6 ساعات)</li><li>4. التعرف على نظام الدراسة داخل الفصل (9 ساعات)</li><li>5. التعرف على نظام الفصل والتنظيف (6 ساعات)</li><li>6. كيفية اكتشاف الأعطال في الحاصدة (3 ساعات)</li><li>7. آلة حصاد القطن والعوامل المؤثرة على حصاد القطن (3 ساعات)</li><li>8. آلة حصاد بنجر السكر وآلة حصاد البطاطس (6 ساعات)</li></ol>

## Learning and Teaching Strategies

### استراتيجيات التعلم والتعليم

الاستراتيجيات	<p>العمل على زيادة المعرفة لاكتساب الخبرة العملية من الآخرين من خلال الفيديوهات التعليمية والدورات التدريبية للحصول على معلومات علمية جديدة في المجال المعرفي. التدريب الميداني العملي وكيفية أخذ القياسات الميدانية. الوصول إلى الأدبيات العلمية الحديثة. المختبرات العلمية مع الجامعات الأخرى.</p>
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## Student Workload (SWL)

### الحمل الدراسي للطالب محسوب لـ 45 ساعة

<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	60	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعياً	5
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطالب خلال الفصل	10	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطالب أسبوعياً	1
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	<b>60</b>		

## Module Evaluation

### تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
<b>Formative assessment</b>	<b>Quizzes</b>	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	<b>Assignments</b>	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	<b>Projects / Lab.</b>	1	10% (10)	Continuous	All
	<b>Report</b>	1	10% (10)	13	LO #5, #8 and #10
<b>Summative assessment</b>	<b>Midterm Exam</b>	2hr	10% (10)	7	LO #1 - #7
	<b>Final Exam</b>	3hr	50% (50)	16	All
<b>Total assessment</b>			100% (100 Marks)		

## Delivery Plan (Weekly Syllabus)

### المنهاج الاسبوعي النظري

الاسبوع	Material Covered
الاسبوع 1	الحصاد الالي وفوائد ، طرق الحصاد الالي
الاسبوع 2	مجموعة القطع ( سكين القطع ، مضرب الضم ، المراوح ) اجزاؤها تشغيلها تغييرها
الاسبوع 3	مجموعة النقل في الحاصدة اجزاؤها تشغيلها
الاسبوع 4	مجموعة الدياسة في الحاصدة اجزاؤها
الاسبوع 5	العوامل المؤثرة على عملية الدياسة بنوعيتها الثابتة والمتغيرة
الاسبوع 6	مجموعة الفصل والتنظيف في الحاصدة خط سير المحصول والتغير
الاسبوع 7	مجموعة التعبئة اجزاها ووظيفة كل جزء
الاسبوع 8	كيفية اكتشاف عطل الحاصده علاج كل عطل واصلاحه
الاسبوع 9	مسائل رياضية
الاسبوع 10	اله جني القطن المتساقط ارضا الاسلوب الميكانيكي ، المغازل
الاسبوع 11	اله جمع القطن ، انواعها ، اجزاؤها ووظيفة كل جزء
الاسبوع 12	العوامل المؤثرة على جني القطن
الاسبوع 13	اله جني البنجر السكري ، اجزاؤها ووظيفة كل جزء
الاسبوع 14	اله جني البطاطا انواعها ، اجزاؤها ووظيفة كل جزء
الاسبوع 15	اله تقطيع الأعلاف وظائفها اجزاؤها
الاسبوع 16	الامتحان

## Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

الاسبوع	Material Covered
الاسبوع 1	التعرف على اجزاء الحاصده الرئيسية
الاسبوع 2	مجموعة القطع ( سكين القطع، مضرب الضم ) اجزاؤها وعملها
الاسبوع 3	مجموعه النقل اجزاها وعملها ووظيفة كل جزء
الاسبوع 4	مجموعة الدياسة ( اسطوانة الدياسة ) عملها اجزاؤها صيانتها
الاسبوع 5	مجموعه الفصل والتنظيف في الحاصده عملها اجزاؤها صيانتها
الاسبوع 6	مجموعة التعبئه اجزاؤها ووظيفة كل جزء
الاسبوع 7	عطلات الحاصده معالجتها ( علاج كل عطل )
الاسبوع 8	جانبية القطن اجزاؤها ووظيفة كل جزء
الاسبوع 9	اله جمع القطن اجزاؤها ووظيفة جمع القطن
الاسبوع 10	استخدام الحاصده عمليا في الحصاد بعد اجراء المعايير لاجزاؤها
الاسبوع 11	اله حصاد البنجر السكري اجزاؤها ، عملها ، صيانتها
الاسبوع 12	جانبية البطاطا اجزاؤها وعملها صيانتها
الاسبوع 13	اله تقطيع الاعلاف اجزاها عملها صيانتها
الاسبوع 14	الادامه اليومية والموسمية للحاصده
الاسبوع 15	صيانه وتصليح وحدات الحاصده
الاسبوع 16	الامتحان

## Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	هل يتوفر في المكتبات؟
المنهج الدراسي	معدات الجني والحصاد عزيز رمو البنا	Yes
رابط الوصول	<a href="https://www.agro-lib.site/2023/09/blog-post_173.html">https://www.agro-lib.site/2023/09/blog-post_173.html</a>	

## Grading Scheme

### مخطط الدرجات

Grading Scheme				
مخطط الدرجات				
Group	Grade	التقدير	Marks %	Definition
درجة النجاح (100 - 50)	A - Excellent	امتياز	90 - 100	امتياز
	B - Very Good	جيد جداً	80 - 89	جيد جداً
	C - Good	جيد	70 - 79	جيد
	D - Satisfactory	متوسط	60 - 69	متوسط
	E - Sufficient	مقبول	50 - 59	مقبول
<b>Fail Group</b>	<b>FX - Fail</b>	راسب (فقد المعالجة)	(45-49)	ضعيف
(0 - 49)	<b>F - Fail</b>	راسب	(0-44)	راسب
<p>ملاحظة: سيتم تقريب العلامات العشرية التي تزيد أو تقل عن 0.5 إلى العلامة الكاملة الأعلى أو الأدنى (على سبيل المثال، سيتم تقريب علامة 54.5 إلى 55، في حين سيتم تقريب علامة 54.4 إلى 54). لدى الجامعة سياسة عدم التغاضي عن فشل التمريرة القريبة لذا فإن التعديل الوحيد للعلامات الممنوحة بواسطة العلامة (العلامات) الأصلية سيكون التقريب التلقائي الموضح أعلاه.</p>				

## MODULE DESCRIPTION FORM

### نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Industrial Crops		Module Delivery
Module Type	Option		<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input checked="" type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	PLP 307		
ECTS Credits	2		
SWL (hr/sem)	1 + 2 (3)		
Module Level	Third	Semester of Delivery	
Administering Department	Plant Production PLP	College	Technical Agricultural College
Module Leader	Fahad Khalaf Yassein	e-mail	fahadbiologymycology@ntu.edu.iq



<b>Module Leader's Acad. Title</b>	Asst.prof.	<b>Module Leader's Qualification</b>	Ph.D.
<b>Module Tutor</b>	Zahraa Abdulrahman Sabri	<b>e-mail</b>	85zahraa@ntu.edu.iq
<b>Peer Reviewer Name</b>	Name	<b>e-mail</b>	E-mail
<b>Scientific Committee Approval Date</b>	01/06/2021	<b>Version Number</b>	1.0

### Relation with other Modules

العلاقة مع المواد الدراسية الأخرى

<b>Prerequisite module</b>		<b>Semester</b>	
<b>Co-requisites module</b>	<b>Summer crops</b>	<b>Semester</b>	

## Module Aims, Learning Outcomes and Indicative Contents

### أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<p><b>Module Objectives</b> أهداف المادة الدراسية</p>	<p>Knowing the suitability of the environment for a number of industrial agricultural crops that can be grown in the study area according to the data of the minimum and maximum tolerance and suitability of each crop in terms of soil type, surface, climatic elements, water quantity and salinity.</p>
<p><b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية</p>	<p>The student should know the importance of industrial crops in Iraq The student should have an idea about the reality of industrial crop cultivation in Iraq and become familiar with the botanical description of industrial crops</p>
<p><b>Indicative Contents</b> المحتويات الإرشادية</p>	<p>Indicative content includes the following. <u>Part A - theoretical part</u></p> <p>Industrial crops are defined by their economic importance</p>

	Part B - practical part
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Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	<b>The necessity of visiting to gain experience from others. Obtaining new scientific information in the field of scientific research (videos). Practical training in the field. Access to modern scientific literature. Participation in relevant scientific conferences. Scientific laboratories with other universities.</b>

Student Workload (SWL) الحمل الدراسي للطالب محسوب ل60 ساعة			
<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	45	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعياً	3
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطالب خلال الفصل	15	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطالب أسبوعياً	1
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	<b>60</b>		

## Module Evaluation

### تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO #5, #8 and #10
Summative assessment	Midterm Exam	2hr	10% (10)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

## Delivery Plan (Weekly Syllabus)

### المنهاج الاسبوعي النظري

Week 1	Industrial crops are defined by their economic importance
Week 2	General characteristics of oils, partitioning, dietary fats, development of sugar production, fibres
Week 3	Sesame crop, economic importance, original habitat, environment and cultivation of the crop, sesame seed manufacturing processes
Week 4	Flax crop, economic importance, original habitat, environment and cultivation of the crop, manufacturing processes for flax seeds
Week 5	Cotton crop, economic importance, original habitat, environment and cultivation of the crop, manufacturing processes for cotton and flax fiber seeds
Week 6	Soybean crop, economic importance, original habitat, environment and cultivation of the crop, manufacturing processes for soybean seeds
Week 7	Sunflower crop, economic importance, original habitat, environment and cultivation of the crop, manufacturing processes for sunflower seeds
Week 8	Field pistachio crop, economic importance, original habitat, environment and cultivation of the crop, manufacturing processes for field pistachio seeds .
Week 9	Safflower crop, economic importance, original habitat, environment and cultivation of the crop, manufacturing processes for safflower seeds
Week 10	Mustard rape crop, economic importance, original habitat, environment and cultivation of the crop, manufacturing processes for mustard seeds
Week 11	Jute crop, economic importance, original habitat, environment and cultivation of the crop, manufacturing processes for jute fibers
Week 12	Castor crop, economic importance, original habitat, environment and cultivation of the crop, manufacturing processes for castor seeds
Week 13	Sugar beet crop, economic importance, original habitat, environment and cultivation of the crop, manufacturing processes for sugar production
Week 14	Sugarcane crop, economic importance, original habitat, environment and cultivation of the crop, manufacturing processes for sugar production
Week 15	exame

## Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

Week 1	Laboratory diagnosis of industrial crop seeds, vitality tests, germination
Week 2	Sesame, botanical description, cultivated varieties, cultivation of the sesame crop, service operations, harvesting and harvesting, cleaning and storage.
Week 3	Flax, botanical description, cultivated varieties, cultivation of the flax crop, service operations, harvesting and harvesting, cleaning and storage
Week 4	Cotton, botanical description, cultivated varieties, cotton crop cultivation, service operations, harvesting and harvesting, cleaning and storage.
Week 5	Soybeans, botanical description, cultivated varieties, soybean crop cultivation, service operations, harvesting and harvesting, cleaning and storage.
Week 6	A field visit to the General Company for Cotton Industries
Week 7	Sunflower, botanical description, cultivated varieties, cultivation of the sunflower crop, service operations, harvesting and harvesting, cleaning and storage.
Week 8	Field pistachios, botanical description, cultivated varieties, cultivation of field pistachios, service operations, harvesting and harvesting, cleaning and storage.
Week 9	Safflower, botanical description, cultivated varieties, cultivation of the safflower crop, service operations, harvesting and harvesting, cleaning and storage
Week 10	Rape (mustard), botanical description, cultivated varieties, mustard crop cultivation, service operations, harvesting and harvesting, cleaning and storage
Week 11	Sugar beets, botanical description, cultivated varieties, cultivation of the sugar beet crop, service operations, harvesting and harvesting, cleaning and storage.
Week 12	Sugarcane, botanical description, cultivated varieties, sugarcane crop cultivation, service operations, harvesting and harvesting, cleaning and storage
Week 13	Jute, botanical description, cultivated varieties, jute crop cultivation, service operations, harvesting and harvesting, cleaning and storage
Week 14	A field visit to the General Company for Vegetable Oil Manufacturing
Week 15	exame

## Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	زراعة المحاصيل الصناعية في العراق / عبد الحميد اليونس 1977 /	Yes
Recommended Texts		No

Websites	
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Grading Scheme مخطط الدرجات				
Group	Grade	التقدير	Marks %	Definition
<b>Success Group (50 - 100)</b>	<b>A - Excellent</b>	امتياز	90 - 100	Outstanding Performance
	<b>B - Very Good</b>	جيد جدا	80 - 89	Above average with some errors
	<b>C - Good</b>	جيد	70 - 79	Sound work with notable errors
	<b>D - Satisfactory</b>	متوسط	60 - 69	Fair but with major shortcomings
	<b>E - Sufficient</b>	مقبول	50 - 59	Work meets minimum criteria
<b>Fail Group</b>	<b>FX - Fail</b>	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded

<b>(0 - 49)</b>	<b>F - Fail</b>	راسب	(0-44)	Considerable amount of work required
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**Note:** Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

# MODULE DESCRIPTION FORM

## نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Molecular Genetics	Module Delivery	
Module Type	Core	<input checked="" type="checkbox"/> Theory	
Module Code	PLP 306	<input type="checkbox"/> Lecture	
ECTS Credits	2	<input checked="" type="checkbox"/> Lab	
SWL (hr/sem)	2	<input type="checkbox"/> Tutorial	
Module Level		Third	Semester of Delivery
Administering Department	Plant Production PLP	College	Technical Agricultural College
Module Leader	Fahd Khalaf Yassin	e-mail	fahadbiologymycology@ntu.edu.iq
Module Leader's Acad. Title	Assistant Professor	Module Leader's Qualification	Ph.D.
Module Tutor	Haitham AbdulSattar Saeed AlMamary	e-mail	E-mail <a href="mailto:Haytem.a.abdullah@ntu.edu.iq">Haytem.a.abdullah@ntu.edu.iq</a>
Peer Reviewer Name	Haitham AbdulSattar Saeed AlMamary	e-mail	E-mail <a href="mailto:Haytem.a.abdullah@ntu.edu.iq">Haytem.a.abdullah@ntu.edu.iq</a>
Scientific Committee Approval Date	01/06/2021	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	Molecular Genetics	Semester	Two
Co-requisites module	Molecular Genetics	Semester	Two

## Module Aims, Learning Outcomes and Indicative Contents

### أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<p><b>Module Objectives</b> أهداف المادة الدراسية</p>	<p>38. genes in particular and heredity in general. It constitutes the cornerstone of biology and overlaps with many other fields, such as: medicine, agriculture, and biotechnology.</p> <p>39. A science that studies the ways in which physical and congenital characteristics are transmitted to children from parents through genes (which are sections of genetic material "DNA"). Inherited characteristics include height, skin color, hair and eyes, susceptibility to certain diseases, mental abilities and some talents.</p> <p>40. Familiarity with genetic material</p> <p>41. What is the structure of DNA</p> <p>42. Training on genetic issues</p> <p>43. Enable the student to understand and understand crop genetics</p> <p>44. define genetics as the science that deals with precise knowledge of</p>
<p><b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية</p>	<p>1. A1- Giving an introduction to genetics and its importance in the agricultural reality</p> <p>2- Explaining and simplifying Mendel's laws and their importance in explaining the results of pollination and hybridization between crops.</p> <p>3- Training students to solve genetic problems, which is an application of Mendel's laws.</p> <p>4- Conducting continuous tests on students' understanding of genetics.</p> <p>Genetic mutations can cause some diseases that can be transmitted from parents to children, and some people have a genetic predisposition to developing certain diseases, such as: cancer, diabetes, cardiovascular disease, and mental disorders.</p> <p>5- Increased understanding of human genetics has made it possible to predict how people, based on their precise genetic makeup, will respond to certain drugs (genetic makeup and drug response). For example, some genes can predict the amount of warfarin, an anticoagulant ("thinner"). This prediction is very important because taking too much warfarin can cause serious bleeding, while taking too little makes the dose ineffective, which is also risky..</p>



<p><b>Indicative Contents</b> المحتويات الإرشادية</p>	<p>Indicative content includes the following.</p> <p><u>Part A - theoretical part</u></p> <p><b>Introduction, development of plant breeding and improvement. [3 hrs]</b></p> <p><b>Genetic variations, their importance, origin, and development.. [3 hrs]</b></p> <p><b>Cell division, The flowering plants, Root system, the region of cell division. [3 hrs]</b></p> <p><b>Hybridization methods: single hybridization, pair hybridization, and multiple hybridization.. [3 hrs]</b></p>
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	<p><u>Part B - practical part</u></p> <p><b>1 - Conduct experiments on Mendel's theoretical laws and demand weekly reports. [9 hrs].</b></p> <p><b>2 - Using educational videos for the purpose of approximating the idea of the transmission of genetic traits. [9 hrs].</b></p> <p><b>3 - Involving students in the practical application of field experiments in groups. [9 hrs].</b></p>
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<b>Learning and Teaching Strategies</b> استراتيجيات التعلم والتعليم	
<b>Strategies</b>	<p><b>The necessity of visiting to gain experience from others. Obtaining new scientific information in the field of scientific research (videos). Practical training in the field. Access to modern scientific literature. Participation in relevant scientific conferences. Scientific laboratories with other universities.</b></p>

<b>Student Workload (SWL)</b> الحمل الدراسي للطالب محسوب ل60 ساعة			
<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	45	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعياً	3
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطالب خلال الفصل	15	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطالب أسبوعياً	1
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	<b>60</b>		

## Module Evaluation

### تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
<b>Formative assessment</b>	<b>Quizzes</b>	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	<b>Assignments</b>	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	<b>Projects / Lab.</b>	1	10% (10)	Continuous	All
	<b>Report</b>	1	10% (10)	13	LO #5, #8 and #10
<b>Summative assessment</b>	<b>Midterm Exam</b>	2hr	10% (10)	7	LO #1 - #7
	<b>Final Exam</b>	3hr	50% (50)	16	All
<b>Total assessment</b>			100% (100 Marks)		

## Delivery Plan (Weekly Syllabus)

### المنهاج الاسبوعي النظري

Week	Material Covered
<b>Week 1</b>	Definition, composition and replication of nucleic acids
<b>Week 2</b>	Enzymes controlling the replication process
<b>Week 3</b>	Protein construction
<b>Week 4</b>	Protein construction
<b>Week 5</b>	How to organize sexual activities inside the cell
<b>Week 6</b>	What do we mean by chromosomes and the materials used in chromosome examination?
<b>Week 7</b>	The division and duplication of a chemical compound containing genetic information
<b>Week 8</b>	Between the parts of the cell, DNA is the mechanism of transmission of genetic information stored
<b>Week 9</b>	How is genetic information stored in a chemical compound?
<b>Week 10</b>	How are genetic activities regulated within the cell?
<b>Week 11</b>	Cutting enzymes, cleavage enzymes, vectors, and methods of introducing vectors

<b>Week 12</b>	<b>Methods of isolating, examining and separating genes</b>
<b>Week 13</b>	Mutations and genetic diseases
<b>Week 14</b>	Genetic cloning
<b>Week 15</b>	Definition of genetic engineering and the most important terms in the field of genetic engineering

### Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

<b>Week</b>	<b>Material Covered</b>
<b>Week 1</b>	Techniques used in tissue sectioning
<b>Week 2</b>	Optical microscope and its uses
<b>Week 3</b>	Techniques used in isolating cutting and meat enzymes
<b>Week 4</b>	Vectors used in genetic techniques
<b>Week 5</b>	Chromosomal staining
<b>Week 6</b>	Gene isolation methods
<b>Week 7</b>	Using optical interference microscopy to obtain information about the concentration of substances in the cell
<b>Week 8</b>	How to insert vectors
<b>Week 9</b>	Monitoring the behavior of cells and tissues
<b>Week 10</b>	Practical applications in the field of agricultural production
<b>Week 11</b>	Store genetic information in a chemical compound
<b>Week 12</b>	How genetic information stored in the parts of the cell is transmitted
<b>Week 13</b>	Methods of diagnosing genetic diseases
<b>Week 14</b>	Methods of causing genetic mutations
<b>Week 15</b>	Genetic cloning
<b>Week 16</b>	<b>Exam</b>

### Learning and Teaching Resources

مصادر التعلم والتدريس

	<b>Text</b>	<b>Available in the Library?</b>
<b>Required Texts</b>	<b>Molecular Genetics</b> <b>Dr. Abbas Abdullah Al-Janabi 2013</b>	Yes
<b>Recommended Texts</b>	<b>Molecular Genetics</b>	No
<b>Websites</b>		

## Grading Scheme

### مخطط الدرجات

Group	Grade	التقدير	Marks %	Definition
<b>Success Group (50 - 100)</b>	<b>A - Excellent</b>	امتياز	90 - 100	Outstanding Performance
	<b>B - Very Good</b>	جيد جدا	80 - 89	Above average with some errors
	<b>C - Good</b>	جيد	70 - 79	Sound work with notable errors
	<b>D - Satisfactory</b>	متوسط	60 - 69	Fair but with major shortcomings
	<b>E - Sufficient</b>	مقبول	50 - 59	Work meets minimum criteria
<b>Fail Group</b>	<b>FX - Fail</b>	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded

(0 - 49)	F - Fail	راسب	(0-44)	Considerable amount of work required
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**Note:** Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

## MODULE DESCRIPTION FORM

### نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	<b>Farming Organic</b>		Module Delivery
Module Type	Core		<input checked="" type="checkbox"/> Theory <input checked="" type="checkbox"/> Lecture <input checked="" type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	TAMO352		
ECTS Credits	2		
SWL (hr/sem)	3		
Module Level	therd	Semester of Delivery	
Administering Department	Plant Production PLP	College	Technical Agricultural College
Module Leader	fahadbiologymycology@ntu.edu.iq	e-mail	fahadbiologymycology@ntu.edu.iq
Module Leader's Acad. Title	Asst.prof.	Module Leader's Qualification	Ph.D.
Module Tutor	Azhar Idrees Dhanoon	e-mail	<a href="mailto:azharadrees16@ntu.edu.iq">azharadrees16@ntu.edu.iq</a>
Peer Reviewer Name	Name	e-mail	E-mail
Scientific Committee Approval Date	01/06/2021	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	<b>Organic fertilizers</b>	Semester	Two
Co-requisites module	<b>Soil properties material</b>	Semester	Two

## Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<p><b>Module Objectives</b> أهداف المادة الدراسية</p>	<p>The student learns about organic agriculture, its developments and characteristics compared to conventional agriculture, and appreciates the components of soil and their importance in organic agriculture, as well as the use of safe chemicals in organic agriculture.</p>
<p><b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية</p>	<p>1-The student must be familiar with the concepts of organic agriculture.</p> <p>2-Identify agricultural cycles that help improve soil properties using modern agricultural methods instead of traditional agriculture.</p> <p>3-Emphasizing the importance of soil for plants and the most important physical properties of soil.</p>
<p><b>Indicative Contents</b> المحتويات الإرشادية</p>	<p>Indicative content includes the following.</p> <p>Part A-theoretical</p> <ul style="list-style-type: none"><li>* The concept of organic farming. {3 hrs }</li><li>* Organic farming requirements . {3 hrs }</li><li>* Organic farming requirements. {3 hrs }</li></ul>

	<p>Indicative content includes the following.</p> <p>Part B-practical part:</p> <ul style="list-style-type: none"> <li>*The concept of the organic farming system. {9 hrs }</li> <li>* Establishment steps and standards that must be followed to establish organic farms. {9 hrs }</li> </ul>
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<b>Learning and Teaching Strategies</b> استراتيجيات التعلم والتعليم	
<b>Strategies</b>	<p><b>The necessity of visiting to gain experience from others. Obtaining new scientific information in the field of scientific research (videos). Practical training in the field. Access to modern scientific literature. Participation in relevant scientific conferences. Scientific laboratories with other universities.</b></p>

<b>Student Workload (SWL)</b> ساعة 45 الحمل الدراسي للطالب محسوب ل			
<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	45	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعيا	3
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطالب خلال الفصل	15	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطالب أسبوعيا	1
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	<b>60</b>		



## Module Evaluation

### تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
<b>Formative assessment</b>	<b>Quizzes</b>	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	<b>Assignments</b>	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	<b>Projects / Lab.</b>	1	10% (10)	Continuous	All
	<b>Report</b>	1	10% (10)	13	LO #5, #8 and #10
<b>Summative assessment</b>	<b>Midterm Exam</b>	2hr	10% (10)	7	LO #1 - #7
	<b>Final Exam</b>	3hr	50% (50)	16	All
<b>Total assessment</b>			100% (100 Marks)		

## Delivery Plan (Weekly Syllabus) ,

### المنهاج الاسبوعي النظري

Week	Material Covered
<b>Week 1</b>	The concept of organic farming.
<b>Week 2</b>	Organic farming requirements.
<b>Week 3</b>	
<b>Week 4</b>	Humic acids, composition of humus.
<b>Week 5</b>	Organic fertilizers and soil conditioners Types of organic fertilizers.
<b>Week 6</b>	Industrial organic fertilizer (compost).
<b>Week 7</b>	Biofertilizers.
<b>Week 8</b>	Pollution.
<b>Week 9</b>	Soil and its importance in organic agriculture.
<b>Week 10</b>	Agricultural cycles.
<b>Week 11</b>	Agricultural soil pollution.

Week 12	
Week 13	
Week 14	
Week 15	

### Delivery Plan (Weekly Lab. Syllabus)

#### المنهاج الاسبوعي التطبيقي

Week	Material Covered
Week 1	The concept of the organic farming system.
Week 2	Establishment steps and standards that must be followed to establish organic farms.
Week 3	The agricultural processes and techniques that are followed.
Week 4	Compost.
Week 5	The nitrogen cycle in nature.
Week 6	Natural fertilization (organic and biological fertilizers).
Week 7	Pollution using chemical fertilizers.
Week 8	Pollution.
Week 9	Soil
Week 10	Agricultural soil pollution.
Week 11	
Week 12	
Week 13	
Week 14	
Week 15	

### Learning and Teaching Resources

#### مصادر التعلم والتدريس

	Text	Available in the Library?
	<p>-Sami Abdel Hamid Hammad, El Metwally Mustafa Selim, Magdy Mohamed El Shazly, 2011, Environment and Organic Agriculture.</p> <p>-Ibrahim Adam Al-Dakhiri, June 2020, Guide to Organic Agriculture in the Arab World, Sudan.</p> <p>-Tamar Tawfik, 2017a, Organic agriculture as a source of sustainable food security in Algeria, Journal of Studies Contemporary Economy, Issue 03/, Algeria.</p>	no

	<p>-Nadia SCIALABBA, 2015, Training manual for ORGANIC AGRICULTURE.</p> <p>-Donatella Privitera, 2010, THE IMPORTANCE OF ORGANIC AGRICULTURE IN TOURISM RURAL, Applied Studies in Agribusiness and Commerce, Agroinform Publishing House, Budapest.</p> <p>- FiBL &amp; IFOAM,2021, organics international: The world of organic agriculture statistics &amp; emerging trends, GERMANY.</p>	
<b>Recommended Texts</b>		No
<b>Websites</b>		

### Grading Scheme

#### مخطط الدرجات

Group	Grade	التقدير	Marks %	Definition
<b>Success Group (50 - 100)</b>	<b>A</b> - Excellent	امتياز	90 - 100	Outstanding Performance
	<b>B</b> - Very Good	جيد جدا	80 - 89	Above average with some errors
	<b>C</b> - Good	جيد	70 - 79	Sound work with notable errors
	<b>D</b> - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	<b>E</b> - Sufficient	مقبول	50 - 59	Work meets minimum criteria
<b>Fail Group</b>	<b>FX</b> - Fail	راسب (فقد المعالجة)	(45-49)	More work required but credit awarded

(0 - 49)	F - Fail	راسب	(0-44)	Considerable amount of work required
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**Note:** Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

## MODULE DESCRIPTION FORM

### نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Plant Disease		Module Delivery
Module Type	Option		<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input checked="" type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	PLP351		
ECTS Credits	2		
SWL (hr/sem)	4		
Module Level	Third level	Semester of Delivery	
Administering Department	Plant Production PLP	College	Technical Agricultural College
Module Leader	Fahad Khalaf Yassein	e-mail	fahadbiologymycology@ntu.edu.iq
Module Leader's Acad. Title	Asst.prof.	Module Leader's Qualification	Ph.D.
Module Tutor	Dr.Alaa younis zanoun	e-mail	Alaa.alsafawy89@ntu.edu.iq
Peer Reviewer Name	Name	e-mail	E-mail
Scientific Committee Approval Date	01/06/2021	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	Plant Physiology		Semester Second
Co-requisites module	Microbiology		Semester First

## Module Aims, Learning Outcomes and Indicative Contents

### أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<b>Module Objectives</b> أهداف المادة الدراسية	<ul style="list-style-type: none"><li>- Introducing the student to the most important diseases that affect plants and in the various stages of their growth, and what are the factors affecting the increase in the severity of disease infection, and to be able to diagnose the type and severity of the infection.</li></ul>
<b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية	<ol style="list-style-type: none"><li>1. Use special techniques to detect bacteria fungi and algae</li><li>2. Identify the available specialties for the diagnosis and examination of microbiology</li></ol>
<b>Indicative Contents</b> المحتويات الإرشادية	<p>Indicative content includes the following.</p> <p><b><u>Part A - theoretical part</u></b></p> <p>An overview of microbiology screening and diagnosis centers in Iraq [3 hrs]</p> <p>. Factors affecting microbiology [3 hrs]</p>

	<p><u>Part B - practical part</u></p> <p><b>Study of microbiology morphology [9 hrs].</b></p> <ul style="list-style-type: none"> <li>. Devices and tools used in microbiology examination [9 hrs].</li> <li>. Sample extraction [9 hrs].</li> </ul>
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<b>Learning and Teaching Strategies</b> استراتيجيات التعلم والتعليم	
<b>Strategies</b>	<p><b>The necessity of visiting to gain experience from others. Obtaining new scientific information in the field of scientific research (videos). Practical training in the field. Access to modern scientific literature. Participation in relevant scientific conferences. Scientific laboratories with other universities.</b></p>

<b>Student Workload (SWL)</b> الحمل الدراسي للطالب محسوب ل60 ساعة			
<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	45	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعيا	3
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطالب خلال الفصل	15	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطالب أسبوعيا	1
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	<b>60</b>		

## Module Evaluation

### تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO #5, #8 and #10
Summative assessment	Midterm Exam	2hr	10% (10)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
<b>Total assessment</b>			100% (100 Marks)		

## Delivery Plan (Weekly Syllabus)

### المنهاج الاسبوعي النظري

Week	Material Covered
Week 1	Importance –Identification –Koch's postulates – disease symptoms
Week 2	Host –pathogen relationship – disease Incitants-Levels of parasitism
Week 3	Effect of the pathogens on their hosts-Toxins –Enzymes –phytohormons
Week 4	Epidemiology of Plant diseases. Pathogens- source of Inoculums-dispersal and deposition of Inoculum.
Week 5	Survival of Inoculums –Inoculums potential –Environmental factors to Plant disease
Week 6	Plant diseases caused by fungi .-characterization Reproduction of fungi-Asexual and sexual reproduction. diseases caused byOomycetes
Week 7	Downy Mildew, Diagnosis Genesis of Downy Mildew fungi.
Week 8	Plant diseases caused by Zygomycetes.
Week 9	Plant diseases caused byAscomycetes
Week 10	Diseases caused by Basidiomycetes.,Smut diseases
Week 11	Rust diseases.
Week 12	Bacteria as Plant pathogens-Bacterial Soft Rot of vegetables . Fire Blight of Pome fruits
Week 13	Viruses causal agents of plant diseases
Week 14	Nematode as plant pathogens ,life cycle ,Nature of parasitism, Mechanism of Nematode Effects.
Week 15	Resistant and control of plant pathogen
Week 16	exame

## Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

week	Material Covered
Week 1	Identification of apparatus in the laboratory of plant disease. How used the microscopes ,incubator,and oven
Week 2	Kinds of culture media
Week 3	Isolation and Identification of plant pathogenic fungi 0
Week 4	Koch's postulates to plant pathogenic fungi
Week 5	Symptom diseases that caused by plant pathogen.
Week 6	Diseases caused by Oomycetes.
Week 7	Downy Mildew disease ,Downy Mildew disease on cucurbits and grape
Week 8	Plant diseases caused by Zygomycetes. Soft Rot disease
Week 9	Plant diseases caused by Ascomycetes.leaf curl of beach. Powdery Mildew of cucurbits and pepper.
Week 10	Smut diseases. . Loose Smut of cereals, covered Smut of bunt wheat .common Smut of Maize
Week 11	Rust diseases. Stem Rust on wheat
Week 12	Plant diseases caused by Bacteria
Week 13	Diseases caused by viruses, Tomato Yellow , leaf curl ,Tobacco Mosaic viruse
Week 14	Diseases caused by Nematodes Root Knot Disease .Ear-cockle disease of wheat .
Week 15	
Week 16	Exam

## Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Plant Disease ابراهيم صادق عليوي دريه ابراهيم حرفوش فوزي موسى ابو العباس	Yes
Recommended Texts	اساسيات علم الفطريات 2018	No
Websites	<a href="https://www.noor-publishing.com/catalog/details/store/ae/book/978-620-2-34667-2/%D8%A3%D8%B3%D8%A7%D8%B3%D9%8A%D8%A7%D8%AA-%D8%B9%D9%84%D9%85-%D8%A7%D9%84%D9%81%D8%B7%D8%B1%D9%8A%D8%A7%D8%AA">https://www.noor-publishing.com/catalog/details/store/ae/book/978-620-2-34667-2/%D8%A3%D8%B3%D8%A7%D8%B3%D9%8A%D8%A7%D8%AA-%D8%B9%D9%84%D9%85-%D8%A7%D9%84%D9%81%D8%B7%D8%B1%D9%8A%D8%A7%D8%AA</a>	



## Grading Scheme

### مخطط الدرجات

Group	Grade	التقدير	Marks %	Definition
<b>Success Group (50 - 100)</b>	<b>A - Excellent</b>	امتياز	90 - 100	Outstanding Performance
	<b>B - Very Good</b>	جيد جدا	80 - 89	Above average with some errors
	<b>C - Good</b>	جيد	70 - 79	Sound work with notable errors
	<b>D - Satisfactory</b>	متوسط	60 - 69	Fair but with major shortcomings
	<b>E - Sufficient</b>	مقبول	50 - 59	Work meets minimum criteria
<b>Fail Group</b>	<b>FX - Fail</b>	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded

<b>(0 - 49)</b>	<b>F - Fail</b>	راسب	(0-44)	Considerable amount of work required

**Note:** Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

# MODULE DESCRIPTION FORM

## نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Plant Growth Regulator		Module Delivery
Module Type	Core		<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input checked="" type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	PLP 305		
ECTS Credits	2		
SWL (hr/sem)	4		
Module Level	third	Semester of Delivery	
Administering Department	Plant Production PLP	College	Technical Agricultural College
Module Leader	Fahad Khalaf Yassein	e-mail	fahadbiologymycology@ntu.edu.iq
Module Leader's Acad. Title	Asst.prof.	Module Leader's Qualification	Mcs
Module Tutor	Waad S. Faizy	e-mail	Waadwaad1970@ntu.edu.iq
Peer Reviewer Name	Name	e-mail	E-mail
Scientific Committee Approval Date	01/06/2021	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	Plant tissue culture	Semester	second
Co-requisites module	Plant Physiology	Semester	second

## Module Aims, Learning Outcomes and Indicative Contents

### أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<p><b>Module Objectives</b> أهداف المادة الدراسية</p>	<ol style="list-style-type: none"><li>1. Introduce the student to basic information about plant growth regulators.</li><li>2. Understanding the growth mechanisms that occur within the plant and the effect of growth regulators on it.</li><li>3. Identify the types of plant growth regulators and growth retardants and inhibitors.</li><li>4. Identify the special physiological effects of each growth regulator.</li><li>5. Providing students with knowledge of growth regulators and how to choose the appropriate type at the right time and with the appropriate concentration to produce a specific physiological effect.</li></ol>
<p><b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية</p>	<ol style="list-style-type: none"><li>1. Understanding and classifying the different types of plant growth regulators.</li><li>2. Use growth promoters to benefit from them in increasing agricultural production.</li><li>3. Understand the important role of plant growth regulators and their effect on plant growth.</li><li>4. Identify the mechanisms by which plant growth regulators work to produce their physiological effects.</li><li>5. Identify the nature of plants and the extent to which growth regulators affect them and their external environment.</li></ol>
<p><b>Indicative Contents</b> المحتويات الإرشادية</p>	<p>Instructional content includes the following.</p> <p><b>Part A - Theoretical part</b></p> <ol style="list-style-type: none"><li>1. Growth, plant growth regulators, plant hormones, growth retardants. [3 hours]</li><li>2. Growth inhibitors, applications of growth regulators. [3 hours]</li><li>3. Auxins, their biological structure, transport, methods of catabolism, and physiological effects. [3 hours]</li><li>4. Gibberellins and cytokines, their biosynthesis, transport, methods of catabolism, and physiological effects. [3 hours]</li><li>5. Ethylene and abscisic, their biological structure, transport, and physiological effects. [3 hours]</li></ol>

	<p><u>Part B - practical part</u></p> <ol style="list-style-type: none"> <li>1. Preparing standard solutions of growth regulators. [9 hours].</li> <li>2. Methods of using plant growth regulators and how to use them. [9 hours].</li> <li>3. Practical applications of plant growth regulators. [9 hours].</li> <li>4. Conducting field experiments on the uses of plant growth regulators, showing scientific films. [9 hours].</li> <li>5. Plant growth regulators have been used in tissue culture. [9 hours].</li> </ol>
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<b>Learning and Teaching Strategies</b> استراتيجيات التعلم والتعليم	
<b>Strategies</b>	<p>The necessity of visiting to gain experience from others. Obtaining new scientific information in the field of scientific research (videos). Practical training in the field. Access to modern scientific literature. Participation in relevant scientific conferences. Scientific laboratories with other universities.</p>

<b>Student Workload (SWL)</b> الحمل الدراسي للطالب محسوب ل60 ساعة			
<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	45	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعيا	3
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطالب خلال الفصل	15	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطالب أسبوعيا	1
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	<b>60</b>		

## Module Evaluation

### تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO #5, #8 and #10
Summative assessment	Midterm Exam	2hr	10% (10)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

## Delivery Plan (Weekly Syllabus)

### المنهاج الاسبوعي النظري

Week	Material Covered
Week 1	Introduction, importance, types of growth regulators.
Week 2	Auxins, discovery, distribution and transport of auxins in plants.
Week 3	Creating a source of auxin, exploiting a source of auxins.
Week 4	Mechanism of action of auxin.
Week 5	Gibberellin, discovery, importance, biological examination of gibberellin, site of gibberellin formation, and transport of gibberellins.
Week 6	Physiological effects of gibberellin, its mechanics.
Week 7	Cytokinins, discovery, importance, manufactured cytokinins, distribution, transmission, biological examination of cytokinins.
Week 8	Physiological effects, mechanical currency.
Week 9	Ethylene, its discovery, areas of its presence, ethylene movement - ethylene formation
Week 10	Physiological effects of ethylene - mechanism of action.
Week 11	Absciscic acid ABA: its discovery, role, biological examination, movement, and biological processes related to absciscic acid.

Week 12	Physiological effects of abscisic acid - mechanism of action.
Week 13	Inhibitors, their types, extraction, purification and biological screening of inhibitors, physiological effects of inhibitors - their mechanism of action.
Week 14	Other growth regulators, vitamins.
Week 15	The role of growth regulators in combating weeds, plant breeding, and others.

### Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

week	Material Covered
Week 1	The role of growth regulators in plant reproduction.
Week 2	Preparing different concentrations of growth regulators in the laboratory.
Week 3	How to use growth regulators.
Week 4	Testing cuttings of some plants, treating them with auxins, and planting them in the canopy.
Week 5	Experiments showing the effect of different growth regulators on rooting.
Week 6	An experiment on the effect of growth regulators on seed germination.
Week 7	Spraying some plants to study the effect of auxins in increasing flowering.
Week 8	The role of auxins in the growth and fruit setting of some fruits and vegetables.
Week 9	Using growth regulators to produce parthenogenetic fruits.
Week 10	An experiment showing the role of auxins in the size and yield of fruits.
Week 11	The role of growth regulators in the separation of fruits and leaves.
Week 12	The role of growth regulators in the decline of flowers and fruits.
Week 13	The role of growth regulators in weed control and plant breeding.
Week 14	The role of growth regulators in preventing the planting of potato tubers.
Week 15	Practice of using growth regulators in tissue culture.

### Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Plant Growth Regulators الأستاذ الدكتور/ محب طه صقر أستاذ فسيولوجيا النبات، كلية الزراعة، جامعه المنصورة	Yes
Recommended Texts	Plant Growth Regulators 2008	No
Websites	<a href="https://2u.pw/1ICLy02p">https://2u.pw/1ICLy02p</a>	

## Grading Scheme

### مخطط الدرجات

Group	Grade	التقدير	Marks %	Definition
<b>Success Group (50 - 100)</b>	<b>A - Excellent</b>	امتياز	90 - 100	Outstanding Performance
	<b>B - Very Good</b>	جيد جدا	80 - 89	Above average with some errors
	<b>C - Good</b>	جيد	70 - 79	Sound work with notable errors
	<b>D - Satisfactory</b>	متوسط	60 - 69	Fair but with major shortcomings
	<b>E - Sufficient</b>	مقبول	50 - 59	Work meets minimum criteria
<b>Fail Group</b>	<b>FX - Fail</b>	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded

(0 - 49)	F - Fail	راسب	(0-44)	Considerable amount of work required
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**Note:** Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

## MODULE DESCRIPTION FORM

### نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Plant Nutrition		Module Delivery
Module Type	Core		<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input checked="" type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	PLP 302		
ECTS Credits	2		
SWL (hr/sem)	4		
Module Level	Therd	Semester of Delivery	
Administering Department	Plant Production PLP	College	Technical Agricultural College
Module Leader	Fahad Khalaf Yassein	e-mail	fahadbiologymycology@ntu.edu.iq
Module Leader's Acad. Title	Asst.Professor	Module Leader's Qualification	Ph.D.
Module Tutor	Omar Younis	e-mail	E-mail
Peer Reviewer Name	Name	e-mail	E-mail
Scientific Committee Approval Date	01/06/2022	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	Principles of Soil Sciences	Semester	Two
Co-requisites module	Fertility and Fertilization	Semester	Two



## Module Aims, Learning Outcomes and Indicative Contents

### أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<b>Module Objectives</b> أهداف المادة الدراسية	<p>45. Introducing the student to the importance of nutrients for plant growth, their types,</p> <p>46. the necessary quantity of each element and at each stage of its growth, and how they are transported and represented within the plant.</p> <p>47.</p>
<b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية	<ol style="list-style-type: none"><li>1- The student becomes able to diagnose the symptoms of element deficiency and how to treat them.</li><li>2- The student's ability to diagnose element deficiencies</li><li>3- The student's ability to address nutritional deficiencies</li></ol>
<b>Indicative Contents</b> المحتويات الإرشادية	<p>Indicative content includes the following.</p> <p><b><u>Part A - theoretical part</u></b></p> <ul style="list-style-type: none"><li>. The inorganic chemical composition of the plant, the factors on which the inorganic chemical composition of the plant depends [2 hrs]</li><li>. Nutrient solutions, types of artificial food farms, purposes for which nutrient solution farms are used [2 hrs]</li><li>. Mineral nutrition and plant growth [4 hrs]</li></ul> <p>Absorption and transport of nutrients [6 hrs]</p>

	<p><u>Part B - practical part</u></p> <ul style="list-style-type: none"> <li>. <b>How to prepare nutrient solutions</b> [6 hrs].</li> <li>. <b>How to obtain the required concentrations of nutrients in food solutions</b> [3 hrs].</li> <li>. <b>Types of fertilizers and when and how to add them</b> [3 hrs].</li> <li>. <b>Inorganic mineral nutrients</b> [9 hrs].</li> <li>. <b>Mineral nutrition and resistance of plants sensitive to diseases and other harmful pests</b> [3 hrs].</li> </ul>
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<b>Learning and Teaching Strategies</b> استراتيجيات التعلم والتعليم	
<b>Strategies</b>	<p>The necessity of conducting scientific experiments to gain skills and experience from others. Obtaining new scientific information in the field of scientific research through field work. And practical training in the field. Access to modern scientific literature. Participation in relevant scientific conferences. Holding scientific debates and brainstorming among students.</p>

<b>Student Workload (SWL)</b> الحمل الدراسي للطالب محسوب ل60 ساعة			
<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	50	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعيا	3
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غيرالمنتظم للطالب خلال الفصل	10	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غيرالمنتظم للطالب أسبوعيا	1
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	<b>60</b>		

## Module Evaluation

### تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO #5, #8 and #10
Summative assessment	Midterm Exam	2hr	10% (10)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

## Delivery Plan (Weekly Syllabus)

### المنهاج الاسبوعي النظري

Week	Material Covered
Week 1	A historical overview of plant nutrition, definition of the nutritional element, division of nutrients
Week 2	The inorganic chemical composition of the plant, the factors on which the inorganic chemical composition of the plant depends
Week 3	Plant relationship with different growth media
Week 4	Nutrient solutions, types of artificial food farms, purposes for which nutrient solution farms are used
Week 5	Mineral nutrition and plant growth
Week 6	Mineral nutrition and plant growth
Week 7	Absorption and transport of nutrients
Week 8	Absorption and transport of nutrients
Week 9	Mineral nutrition and resistance of plants sensitive to diseases and other harmful pests
Week 10	Symptoms of nutritional deficiency and toxicity
Week 11	Symptoms of nutritional deficiency and toxicity

Week 12	Symptoms of nutritional deficiency and toxicity
Week 13	Inorganic mineral elements
Week 14	The effect of environmental genetic factors on plant nutrition
Week 15	The effect of environmental genetic factors on plant nutrition
Week 16	The effect of environmental genetic factors on plant nutrition

### Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

week	Material Covered
Week 1	How to prepare nutrient solutions
Week 2	How to obtain the required concentrations of nutrients in food solutions.
Week 3	Types of fertilizers and when and how to add them.
Week 4	Nutrition and yield response
Week 5	Mineral nutrition and yield quality
Week 6	Cycle of micro and macro elements in plant resistance to disease.
Week 7	Inorganic mineral nutrients.
Week 8	Inorganic mineral nutrients.
Week 9	Inorganic mineral nutrients.
Week 10	Quantitative estimation of mineral elements in plants
Week 11	Factors that make it difficult to diagnose nutritional deficiencies.
Week 12	Soil salinity and plant nutrition
Week 13	Environmental factors and their impact on plant nutrition
Week 14	Factors that affect the readiness of nutrients.
Week 15	Quantitative estimation of mineral elements in plants.
Week 16	Exam

### Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	الكامل في الأسمدة والتسميد (تحليل التربة والنبات والماء) مظفر احمد داود الموصلي	Yes
Recommended Texts		
Websites		

## Grading Scheme

### مخطط الدرجات

Group	Grade	التقدير	Marks %	Definition
<b>Success Group (50 - 100)</b>	<b>A - Excellent</b>	امتياز	90 - 100	Outstanding Performance
	<b>B - Very Good</b>	جيد جدا	80 - 89	Above average with some errors
	<b>C - Good</b>	جيد	70 - 79	Sound work with notable errors
	<b>D - Satisfactory</b>	متوسط	60 - 69	Fair but with major shortcomings
	<b>E - Sufficient</b>	مقبول	50 - 59	Work meets minimum criteria
<b>Fail Group</b>	<b>FX - Fail</b>	راسب (فقد المعالجة)	(45-49)	More work required but credit awarded

(0 - 49)	F - Fail	راسب	(0-44)	Considerable amount of work required
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**Note:** Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

## MODULE DESCRIPTION FORM

### نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Post-Harvest physiology		Module Delivery
Module Type	Core		<input checked="" type="checkbox"/> Theory <input checked="" type="checkbox"/> Lecture <input checked="" type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	PLP 308		
ECTS Credits	2		
SWL (hr/sem)	3		
Module Level	Third	Semester of Delivery	
Administering Department	Plant Production PLP	College	Technical Agricultural College
Module Leader	Fahad Khalaf Yassein	e-mail	fahadbiologymycology@ntu.edu.iq
Module Leader's Acad. Title	Asst.prof	Module Leader's Qualification	
Module Tutor	Wasan waleed ahmad Al Obaidy	e-mail	<a href="mailto:wsnalobaidy@ntu.edu.iq">wsnalobaidy@ntu.edu.iq</a>
Peer Reviewer Name	Name	e-mail	E-mail
Scientific Committee Approval Date	01/06/2021	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	Deciduous Fruit Trees	Semester	Two
Co-requisites module	Evergreen Fruit Trees	Semester	Two

## Module Aims, Learning Outcomes and Indicative Contents

### أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<p><b>Module Objectives</b> أهداف المادة الدراسية</p>	<ol style="list-style-type: none"><li>1. <b>A deep understanding of the preservation and storage process:</b> This course gives students the opportunity to understand the factors that affect the quality of crops and how to preserve and store them correctly, including appropriate environmental conditions and appropriate storage techniques.</li><li>2. <b>Enhancing knowledge about public health and food safety:</b> This course can enhance students' understanding of the concept of food safety and the importance of keeping crops clean and safe to avoid food contamination and avoid food-borne diseases.</li><li>3. <b>Develop planning and organization skills:</b> Students can learn how to organize storage and storing operations in an organized and efficient manner, which requires advance planning and the use of appropriate techniques to achieve the desired results.</li><li>4. <b>Promoting awareness of the importance of sustainability of food resources:</b> The course can highlight the importance of paying attention to sustainability in preservation and storage processes, which encourages students to use techniques and practices that preserve resources and reduce waste.</li><li>5. <b>Enhancing research and analytical skills:</b> The course can encourage students to conduct research and field experiments to understand the effect of various factors on crop quality and effective storage.</li><li>6. <b>Develop the ability to think critically and solve problems:</b> By studying the challenges of memorization and storage and searching for effective solutions, students can develop their critical thinking skills</li></ol>
<p><b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية</p>	<ol style="list-style-type: none"><li>7. <b>Deep understanding of physiological processes:</b> A comprehensive understanding of the vital processes that occur in plants after harvest, including respiration, metabolism, microbial infection, and chemical composition changes.</li><li>8. <b>Analysis of modern technologies:</b> Understanding and evaluating modern technologies and innovative methods in the field of care and storage of horticultural crops, such as biotechnology, advanced packaging, and environmental control technologies.</li><li>9. <b>Ability to design storage plans:</b> Develop the skills to design and implement effective storage plans for a variety of horticultural crops based on their physiological and environmental requirements.</li><li>10. <b>Scientific Research and Analysis:</b> The ability of students to research and scientifically analyze specific problems in the field of care and storage of horticultural crops, using appropriate tools and techniques.</li><li>11. <b>Developing communication and networking skills:</b> The ability to communicate effectively with colleagues and specialists in the field, including exchanging knowledge and advice on best practices in the care and storage of horticultural crops.</li><li>12. <b>Critical Thinking and Problem Solving:</b> Develop critical thinking and problem-solving abilities in the context of horticultural crop care and storage, which helps develop innovative and effective solutions.</li></ol>

<p><b>Indicative Contents</b> المحتويات الإرشادية</p>	<p><b>1. Introduction to the care and storage of horticultural crops:</b>  <b>Definition of the concepts of care and storage of horticultural crops.</b>  <b>The importance of this field in the agriculture and food sector.</b>  <b>Review the history of development and progress in care and storage technologies.</b></p> <p><b>2. Physiology of horticultural crops:</b>  <b>Study of the biological processes that occur in plants after harvest.</b>  <b>Effects of preservation and storage on quality and durability.</b></p> <p><b>3. Correct harvesting techniques:</b>  <b>Harvesting methods and techniques suitable for various types of horticultural crops.</b>  <b>Use the correct tools and equipment in harvesting operations.</b></p> <p><b>4. Storage and preservation techniques:</b>  <b>Study the various storage methods and techniques necessary to maintain the quality of horticultural crops.</b>  <b>Analysis of the optimal climatic and environmental conditions for each type of crop.</b></p> <p><b>5. Pest and disease control:</b>  <b>Learn about common pests and diseases that affect horticultural crops during storage.</b>  <b>Strategies for controlling pests and diseases in safe and effective ways.</b></p> <p><b>6. Packaging:</b>  <b>The importance of correct packaging in maintaining the quality and durability of horticultural crops.</b>  <b>Study appropriate packaging types and materials.</b></p> <p><b>7. Modern technologies and innovations in care and storage:</b>  <b>Reviewing recent developments in the field of care and storage technologies, such as refrigeration, air control, and biotechnology.</b></p> <p><b>8. Quality and food safety standards:</b>  <b>Analyze the quality and food safety standards required to maintain the quality of horticultural crops</b></p>
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## Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

<b>Strategies</b>	<b>The necessity of visiting to gain experience from others. Obtaining new scientific information in the field of scientific research (videos). Practical training in the field. Access to modern scientific literature. Participation in relevant scientific conferences. Scientific laboratories with other universities.</b>
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## Student Workload (SWL)

ساعة 45 الحمل الدراسي للطالب محسوب ل

<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	30	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعيا	2
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطالب خلال الفصل	15	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطالب أسبوعيا	1
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	<b>45</b>		

## Module Evaluation

### تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO #5, #8 and #10
Summative assessment	Midterm Exam	2hr	10% (10)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

## Delivery Plan (Weekly Syllabus) ,

### المنهاج الاسبوعي النظري

Week	Material Covered
Week 1	The importance of storage, stages of growth and maturity of fruits.
Week 2	Composition and structure of fruits and vegetables and their nutritional value.
Week 3	A measure for determining fruit maturity.
Week 4	Physiological and chemical changes that occur to fruits during the storage stage.
Week 5	The process of respiration and its relationship to ripening and storage / the role of ethylene in the fruit ripening process
Week 6	Methods for measuring respiratory rate.
Week 7	Industrial ripening process.
Week 8	Picking, sorting, grading and packing fruits.
Week 9	Picking, sorting, grading and packing vegetable crops.
Week 10	Packing houses.
Week 11	Cooling the fruits before shipping and storing.

Week 12	Storage methods for fruits and vegetables.
Week 13	Deterioration of crops after harvest and during storage.
Week 14	Physiological and bacterial damages that affect the crop during storage.
Week 15	Picking, preparing and storing flowers.
Week 16	Preparatory week before the final Exam

### Delivery Plan (Weekly Lab. Syllabus)

#### المنهاج الاسبوعي التطبيقي

Week	Material Covered
Week 1	Measures of complete growth and maturity.
Week 2	Measures of changes in hardness and pectins.
Week 3	Studying the change in the organic acid content of fruits and estimating the acidity percentage.
Week 4	Estimation of vitamin C in some fruits and vegetables.
Week 5	Studying and estimating changes in the sugar content of fruits
Week 6	Study of changes in breathing and methods for estimating breathing rate
Week 7	Study of the physiological effects of ethylene and methods for estimating ethylene production in fruits
Week 8	Artificial ripening of some types of fruits
Week 9	Weight loss after harvest for different types of fruit, leaf and root crops
Week 10	A scientific trip to one of the cold stores
Week 11	Study of the refrigeration cycle, the mechanics of how cooling devices work, and the design of cold stores
Week 12	Storage experiments and studying the changes that occur in fruit fruits
Week 13	Storage experiments and studying the changes that occur in vegetable crops
Week 14	Storage experiments and studying the changes that occur in cut flowers
Week 15	Study of diseases that affect crops during storage and marketing

### Learning and Teaching Resources

#### مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts		no
Recommended Texts	<a href="https://www.agro-lib.site/2020/07/blog-post_39.html">https://www.agro-lib.site/2020/07/blog-post_39.html</a>	No
Websites	<a href="https://www.agro-lib.site/2020/07/blog-post_39.html">https://www.agro-lib.site/2020/07/blog-post_39.html</a> <a href="https://faculty.uobasrah.edu.iq/faculty/572/teaching">https://faculty.uobasrah.edu.iq/faculty/572/teaching</a> <a href="https://www.kutub.best/2021/05/124.html">https://www.kutub.best/2021/05/124.html</a>	

## Grading Scheme

### مخطط الدرجات

Group	Grade	التقدير	Marks %	Definition
<b>Success Group (50 - 100)</b>	<b>A - Excellent</b>	امتياز	90 - 100	Outstanding Performance
	<b>B - Very Good</b>	جيد جدا	80 - 89	Above average with some errors
	<b>C - Good</b>	جيد	70 - 79	Sound work with notable errors
	<b>D - Satisfactory</b>	متوسط	60 - 69	Fair but with major shortcomings
	<b>E - Sufficient</b>	مقبول	50 - 59	Work meets minimum criteria
<b>Fail Group</b>	<b>FX - Fail</b>	راسب (فقد المعالجة)	(45-49)	More work required but credit awarded

(0 - 49)	F - Fail	راسب	(0-44)	Considerable amount of work required
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**Note:** Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

## MODULE DESCRIPTION FORM

### نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Principle of genetics		Module Delivery
Module Type	Core		<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input checked="" type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	PLP 301		
ECTS Credits	3		
SWL (hr/sem)	5		
Module Level	Third	Semester of Delivery	
Administering Department	Plant Production PLP	College	Technical Agricultural College
Module Leader	Fahad Khalaf Yassein	e-mail	fahadbiologymycology@ntu.edu.iq
Module Leader's Acad. Title	Asst.prof.	Module Leader's Qualification	MSC
Module Tutor	Noura huseen saleh aljarjary	e-mail	Noura_aljarjary@ntu.edu.iq
Peer Reviewer Name	Not available	e-mail	E-mail
Scientific Committee Approval Date	01/06/2021	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	Plant Breeding		Semester Secand
Co-requisites module	Field crops		Semester Secand

## Module Aims, Learning Outcomes and Indicative Contents

### أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<p><b>Module Objectives</b> أهداف المادة الدراسية</p>	<p>48. Introducing the student to the Understand basic concepts in genetics and development, including molecular, cellular, and behavioral concepts.</p> <p>49. Teaching and training the student to know Analyzing the mechanisms of gene transfer and distribution during various genetic processes such as sexual and asexual reproduction.</p> <p>50. Teaching and training the student to Develop experimental and analytical skills by carrying out genetic experiments and analyzing genetic data.</p>
<p><b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية</p>	<ol style="list-style-type: none"><li>1. The ability to explain the mechanisms of gene transfer and various genetic changes.</li><li>2. Be able to use genetic terminology correctly and effectively.</li><li>3. The ability to analyze and interpret various genetic phenomena and identify the relationships between them.</li><li>4. The ability to apply genetic concepts to solve simple genetic problems.</li><li>5. Being able to identify the most important recent developments in the field of genetics and understand their effects.</li><li>6. Be able to communicate effectively about genetics topics in appropriate scientific language.</li></ol>
<p><b>Indicative Contents</b> المحتويات الإرشادية</p>	<p>Indicative content includes the following.</p> <p><u>Part A - theoretical part</u></p> <ul style="list-style-type: none"><li>- Genetic define, history and development, relationship between genetic and other science, important of genetic plan. Chromosome theory. Mendelar genetic. Test cross, modified mendelian. [6 hrs]</li><li>- Ratio and gene intraction. Probability and use in genetic problems. Linkage and crossing over and chromosome mapping . [6 hrs]</li><li>- Variation in chromosome number. Sexual determination,chromosomes. Sexual genetic balance. Multiple alleles, Blood groups. [6 hrs]</li><li>- Chromosome abirration variation of size chromosomes mutation of chromosome. Quantitive genetic, effect of leathal genes hertibility. Cytoplasmic genetic. [6 hrs]</li><li>- Genetic engineering. Engineering practic in the plants technology reproductive alternative. Moleculare. [6 hrs]</li></ul>

	<p><u>Part B - practical part</u></p> <ul style="list-style-type: none"> <li>- Cell and cell components, techniques tool. Cell division, mitosis division. Meiosis division. [9 hrs].</li> <li>- Scores genetic use, Practice and exercises on the first Mendel's law. Practice and exercises on the second Mendel's law. [9 hrs].</li> <li>- Test cross, back cross. Dominant, recessive codominance, genes and alleles. Chemical structure and replication of nucleic acid. [9 hrs].</li> <li>- Chemical structure and replication of nucleic acid. Practice of quantitative genetics. Practice of mapping gene and chromosome. [9 hrs].</li> <li>- Feulgen reaction, isolation gene. Genetic analysis. [9 hrs].</li> </ul>
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<b>Learning and Teaching Strategies</b> استراتيجيات التعلم والتعليم	
<b>Strategies</b>	<p>The necessity of visiting to gain experience from others. Obtaining new scientific information in the field of scientific research (videos). Practical training in the field. Access to modern scientific literature. Participation in relevant scientific conferences. Scientific laboratories with other universities.</p>

<b>Student Workload (SWL)</b> الحمل الدراسي للطالب محسوب لـ 75 ساعة			
<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	65	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعياً	4
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطالب خلال الفصل	10	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطالب أسبوعياً	1
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	<b>75</b>		

## Module Evaluation

### تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO #5, #8 and #10
Summative assessment	Midterm Exam	2hr	10% (10)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

## Delivery Plan (Weekly Syllabus)

### المنهاج الاسبوعي النظري

Week	Material Covered
Week 1	Genetic define, history and development, relationship between genetic and other science, important of genetic plan
Week 2	Chromosome theory. Mendel's genetic
Week 3	Test cross, modified Mendelian
Week 4	Ratio and gene interaction.
Week 5	Probability and use in genetic problems.
Week 6	Linkage and crossing over and chromosome mapping.
Week 7	Variation in chromosome number.
Week 8	Variation in chromosome number
Week 9	Multiple alleles, Blood groups.
Week 10	Chromosome aberration variation of size chromosomes mutation of chromosome.
Week 11	Quantitative genetic, effect of lethal genes fertility.



Week 12	Cytoplasmic genetic.
Week 13	Genetic engineering.
Week 14	Engineering practice in the plants technology reproductive alternative
Week 15	Molecular basis for plant improvement
Week 16	Exam

### Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

week	Material Covered
Week 1	Cell and cell components, techniques tool.
Week 2	Cell division, mitosis division.
Week 3	Meiosis division.
Week 4	Scores genetic use
Week 5	Practice and exercises on the first Mendel's law.
Week 6	Practice and exercises on the second Mendel's law.
Week 7	Test cross, back cross.
Week 8	Dominant, recessive codominance, genes and alleles.
Week 9	Chemical structure and replication of nucleic acid.
Week 10	Chemical structure and replication of nucleic acid.
Week 11	Practice of quantitative genetic.
Week 12	Practice of mapping gene and chromosome.
Week 13	Feulgen reaction.
Week 14	isolation gene.
Week 15	Genetic analysis
Week 16	Exam

### Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Genetics: Analysis and Principles - Robert J. Brooker(2021) + "Genetics: A Conceptual Approach" Benjamin A. Pierce(2008)	Yes
Recommended Texts	Genetics: Analysis and Principles - Robert J. Brooker(2015)	No
Websites		

## Grading Scheme

### مخطط الدرجات

Group	Grade	التقدير	Marks %	Definition
<b>Success Group (50 - 100)</b>	<b>A - Excellent</b>	امتياز	90 - 100	Outstanding Performance
	<b>B - Very Good</b>	جيد جدا	80 - 89	Above average with some errors
	<b>C - Good</b>	جيد	70 - 79	Sound work with notable errors
	<b>D - Satisfactory</b>	متوسط	60 - 69	Fair but with major shortcomings
	<b>E - Sufficient</b>	مقبول	50 - 59	Work meets minimum criteria
<b>Fail Group</b>	<b>FX - Fail</b>	راسب (فقد المعالجة)	(45-49)	More work required but credit awarded

(0 - 49)	F - Fail	راسب	(0-44)	Considerable amount of work required
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**Note:** Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

## MODULE DESCRIPTION FORM

### نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Protected Agriculture Techniques		Module Delivery
Module Type	Core		<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input checked="" type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	PLP 303		
ECTS Credits	3		
SWL (hr/sem)	5		
Module Level	second	Semester of Delivery	
Administering Department	Plant Production PLP	College	Technical Agricultural College
Module Leader	Fahad Khalaf Yassein	e-mail	fahadbiologymycology@ntu.edu.iq
Module Leader's Acad. Title	Asst.prof.	Module Leader's Qualification	
Module Tutor	Amer Moqbel Abdul Hameed	e-mail	E-mail amer.m@ntu.edu.iq
Peer Reviewer Name	Amer Moqbel Abdul Hameed	e-mail	E-mail amer.m@ntu.edu.iq
Scientific Committee Approval Date	01/06/2021	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	Protected Agriculture	Semester	Second
Co-requisites module	Modern planting techniques	Semester	Second

## Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<p><b>Module Objectives</b> أهداف المادة الدراسية</p>	<p>51. Introducing the student to the types and forms of protected agriculture facilities and their benefits.</p> <p>52. How to control suitable conditions for cultivation outside of crop growth times.</p> <p>53. The student will be able to produce plants from various plant families.</p>
<p><b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية</p>	<p>1. The benefits of protected agriculture, economic evaluation of production in protected agriculture, problems and obstacles facing farmers in protected agriculture.</p> <p>2 .Points that must be taken into consideration when constructing glass and plastic houses, production economics in protected agriculture compared to open agriculture.</p> <p>3 .The most important advantages of growing plants in these facilities, how to create a greenhouse, types of greenhouse structures.</p> <p>4. Identify the types of systems used to cool the greenhouse.</p> <p>5 . Identify the types of systems used to heat the greenhouse.</p> <p>6 . Identify agricultural crops that can be grown inside greenhouses</p>

<p><b>Indicative Contents</b> المحتويات الإرشادية</p>	<p>Indicative content includes the following.</p> <p><b><u>Part A - theoretical part</u></b></p> <ul style="list-style-type: none"><li>. A historical overview of protected agriculture, the definition of protected agriculture, its benefits, geographical distribution and the area covered. [3 hrs]</li><li>. Geometric shapes of protected agriculture facilities, including ponds, tunnels, and houses. [3 hrs]</li><li>. Methods of climate control inside facilities and their properties (air humidity, humidity). [3 hrs]</li><li>. Types of materials used in covering and their properties. [3 hrs]</li><li>. The effect of terrestrial factors on plant growth, types of agricultural media. [3 hrs]</li></ul>
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	<p><u>Part B - practical part</u></p> <p>. What are the types of plastic tunnels and methods of constructing them?. [9 hrs]</p> <p>. Technical specifications that must be followed for greenhouses and the method of constructing them.. [9 hrs]</p> <p>. Methods of heating greenhouses.. [9 hrs]</p> <p>. Methods of cooling greenhouses.. [9 hrs]</p> <p>. Preparing and preparing houses for agriculture (from preparing the land and sterilizing the soil). [9 hrs]</p>
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<b>Learning and Teaching Strategies</b> استراتيجيات التعلم والتعليم	
<b>Strategies</b>	<p>The necessity of visiting to gain experience from others. Obtaining new scientific information in the field of scientific research (videos). Practical training in the field. Access to modern scientific literature. Participation in relevant scientific conferences. Scientific laboratories with other universities.</p>

<b>Student Workload (SWL)</b> الحمل الدراسي للطالب محسوب ل75 ساعة			
<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	70	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعيا	4
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطالب خلال الفصل	5	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطالب أسبوعيا	1
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	<b>75</b>		

## Module Evaluation

### تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO #5, #8 and #10
Summative assessment	Midterm Exam	2hr	10% (10)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

## Delivery Plan (Weekly Syllabus)

### المنهاج الاسبوعي النظري

Week	Material Covered
Week 1	Historical overview, definition of protected agriculture, its benefits, geographical distribution and area covered, trends in optimal exploitation, factors influencing development.
Week 2	The foundations of construction, location, direction, area, shape and size, production requirements and production economics.
Week 3	Geometric shapes of protected agriculture facilities, ponds, tunnels, and houses
Week 4	Types of materials used in covering and their properties.
Week 5	The effect of climatic factors on plant growth inside protected agricultural facilities (heat, light, gases, humidity).
Week 6	Methods of climate control inside facilities and their characteristics.
Week 7	The effect of terrestrial factors on plant growth, types of agricultural media.
Week 8	Production of vegetable seedlings in tunnels and greenhouses.
Week 9	Production of Solanaceae family plants (tomatoes, peppers, eggplant).
Week 10	Production of cucurbit family plants (pumpkin and cucumber).
Week 11	Production of some types of (okra and beans).
Week 12	Mushroom and shlik production.
Week 13	Production of cut flowers and shade plants.
Week 14	Banana and grape production.
Week 15	Soilless agriculture.
Week 16	Exam

## Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

week	Material Covered
Week 1	Ways to protect against unsuitable weather conditions (heat, light and wind)
Week 2	Types of plastic tunnels and methods of constructing them.
Week 3	Technical specifications for greenhouses and how to construct them.
Week 4	Methods of heating greenhouses.
Week 5	Methods of cooling greenhouses.
Week 6	Preparing and preparing houses for agriculture (preparing the land and sterilizing the soil).
Week 7	Land planning, determining irrigation lines, connecting irrigation lines, and basic fertilization.
Week 8	Training on methods of producing seedlings inside tunnels and in agricultural houses on the ground, planting seeds in a nursery, and planting in containers.
Week 9	Caring for seedlings in the nursery.
Week 10	Training on patchwork crop cultivation and tomato thread winding
Week 11	Training on irrigation and fertilization of plants.
Week 12	Raising, pruning plants and ventilation.
Week 13	Training on disease and insect resistance.
Week 14	Jungle resistance training.
Week 15	Scientific trip.
Week 16	Exam

## Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	الزراعة المحمية، الدكتور عصام عبدالله بشير 1990 جامعة الموصل	Yes
Recommended Texts	Protected agriculture الدكتور محمود عبد العزيز إبراهيم خليل 2017	Yes
Websites	<a href="https://www.amazon.eg/-/en/ref=nav_logo">https://www.amazon.eg/-/en/ref=nav_logo</a>	



## Grading Scheme

### مخطط الدرجات

Group	Grade	التقدير	Marks %	Definition
<b>Success Group (50 - 100)</b>	<b>A - Excellent</b>	امتياز	90 - 100	Outstanding Performance
	<b>B - Very Good</b>	جيد جدا	80 - 89	Above average with some errors
	<b>C - Good</b>	جيد	70 - 79	Sound work with notable errors
	<b>D - Satisfactory</b>	متوسط	60 - 69	Fair but with major shortcomings
	<b>E - Sufficient</b>	مقبول	50 - 59	Work meets minimum criteria
<b>Fail Group</b>	<b>FX - Fail</b>	راسب (فقد المعالجة)	(45-49)	More work required but credit awarded

(0 - 49)	F - Fail	راسب	(0-44)	Considerable amount of work required
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**Note:** Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

## MODULE DESCRIPTION FORM

### نموذج وصف المادة الدراسية

Module Information				
معلومات المادة الدراسية				
Module Title	Sport		Module Delivery	
Module Type			<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input checked="" type="checkbox"/> Practical <input type="checkbox"/> Seminar	
Module Code	NTU 104			
ECTS Credits	2			
SWL (hr/sem)	2			
Module Level	One	Semester of Delivery	one	
Administering Department	Plant production techniques	College	Technical Agricultural College	
Module Leader	Fahad Khalaf Yassein	e-mail	fahadbiologymycology@ntu.edu.iq	
Module Leader's Acad. Title	Asst.Professor	Module Leader's Qualification	Ph.D.	
Module Tutor	Amna Maher	e-mail		
Peer Reviewer Name		e-mail		
Scientific Committee Approval Date		Version Number	1.0	

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	.....		Semester

Co-requisites module	....	Semester	....
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## Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<p><b>Module Objectives</b> أهداف المادة الدراسية</p>	<p>10. Introducing the student to the most important basic information about the types of sports 11. Teaching and training the student to know the classification of sports games. 12. Teaching and training the student to deal with sportsmanship.</p>
<p><b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية</p>	<p>1. Learn about the laws of sports 2. Developing students' sports skills for various sports. 3. The student must have full knowledge of the laws of sports. 4. Learn about the laws of arbitration in sports. 5. The ability to participate effectively in most sporting activities</p>
<p><b>Indicative Contents</b> المحتويات الإرشادية</p>	<p>Indicative content includes the following. <u>Part A - theoretical part</u> Sports needs, stadiums, types, and material needs. [3 hours]  The basic sport, football, and its needs. [3 hours]  Volleyball, its physical and spatial needs. [3 hours]  Types of sports, their formations, sports participation (internal and external). [3 hours] Positive results achieved from participation. [3 hours]</p>

	<p><u>Part B - practical part</u></p> <p><b>Classification of sports games. [9 hours].</b>  <b>Active participation in sports activities. [9 hours].</b>  <b>Focus on major sports. [9 hours].</b>  <b>Adherence to sports laws. [9 hours].</b>  <b>Performing as a team in the stadiums. [9 hours].</b></p>
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<b>Learning and Teaching Strategies</b> استراتيجيات التعلم والتعليم	
<b>Strategies</b>	<p><b>The necessity of visiting to gain experience from others. Obtaining new scientific information in the field of sports (videos). Practical training in the field. Access to modern scientific literature. Participation in local and international tournaments.</b></p>

<b>Student Workload (SWL)</b> الحمل الدراسي للطالب محسوب لـ 60 ساعة			
<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	15	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعياً	1
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غيرالمنتظم للطالب خلال الفصل	15	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غيرالمنتظم للطالب أسبوعياً	1
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	<b>30</b>		

## Module Evaluation

### تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
<b>Formative assessment</b>	<b>Quizzes</b>	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	<b>Assignments</b>	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	<b>Projects / Lab.</b>	1	10% (10)	Continuous	All
	<b>Report</b>	1	10% (10)	13	LO #5, #8 and #10
<b>Summative assessment</b>	<b>Midterm Exam</b>	2hr	10% (10)	7	LO #1 - #7
	<b>Final Exam</b>	3hr	50% (50)	16	All
<b>Total assessment</b>			100% (100 Marks)		

## Delivery Plan (Weekly Syllabus)

### المنهاج الاسبوعي النظري

Week	Material Covered
<b>Week 1</b>	Sports, its definition, importance, and types
<b>Week 2</b>	Mechanism of human body movement
<b>Week 3</b>	Common sports injuries
<b>Week 4</b>	basketball
<b>Week 5</b>	Basketball law
<b>Week 6</b>	Table tennis (table tennis), basic skills
<b>Week 7</b>	Volleyball
<b>Week 8</b>	swimming sport
<b>Week 9</b>	Tennis
<b>Week 10</b>	handball
<b>Week 11</b>	Handball law

<b>Week 12</b>	Athletics
<b>Week 13</b>	soccer
<b>Week 14</b>	Management of competitions and sports competitions
<b>Week 15</b>	Sports laws and legislation
<b>Week 16</b>	Athletics

### Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

<b>week</b>	<b>Material Covered</b>
<b>Week 1</b>	Sports, its definition, importance, and types
<b>Week 2</b>	Mechanism of human body movement
<b>Week 3</b>	Common sports injuries
<b>Week 4</b>	basketball
<b>Week 5</b>	Basketball law
<b>Week 6</b>	Table tennis (table tennis), basic skills
<b>Week 7</b>	Volleyball
<b>Week 8</b>	swimming sport
<b>Week 9</b>	Tennis
<b>Week 10</b>	handball
<b>Week 11</b>	Handball law
<b>Week 12</b>	Athletics
<b>Week 13</b>	soccer
<b>Week 14</b>	Management of competitions and sports competitions
<b>Week 15</b>	Sports laws and legislation
<b>Week 16</b>	Exam

### Learning and Teaching Resources

مصادر التعلم والتدريس

	<b>Text</b>	<b>Available in the Library?</b>
<b>Required Texts</b>	ملزمة مادة الرياضة	Yes
<b>Recommended Texts</b>		
<b>Websites</b>		

## Grading Scheme

### مخطط الدرجات

Group	Grade	التقدير	Marks %	Definition
<b>Success Group (50 - 100)</b>	<b>A - Excellent</b>	امتياز	90 - 100	Outstanding Performance
	<b>B - Very Good</b>	جيد جدا	80 - 89	Above average with some errors
	<b>C - Good</b>	جيد	70 - 79	Sound work with notable errors
	<b>D - Satisfactory</b>	متوسط	60 - 69	Fair but with major shortcomings
	<b>E - Sufficient</b>	مقبول	50 - 59	Work meets minimum criteria
<b>Fail Group</b>	<b>FX - Fail</b>	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded



(0 - 49)	F - Fail	راسب	(0-44)	Considerable amount of work required
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**Note:** Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

## MODULE DESCRIPTION FORM

### نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Agriculture Statistics		Module Delivery
Module Type	Option		<input checked="" type="checkbox"/> Theory <input checked="" type="checkbox"/> Lecture <input type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	TAMO 202		
ECTS Credits	2		
SWL (hr/sem)	3		
Module Level	Second	Semester of Delivery	
Administering Department	Plant Production PLP	College	Technical Agricultural College
Module Leader	Fahad Khalaf Yassein	e-mail	fahadbiologymycology@ntu.edu.iq
Module Leader's Acad. Title	Asst.prof.	Module Leader's Qualification	
Module Tutor	Bashar Mohsin Mohammed able	e-mail	Bashar_mohsin.m@ntu.edu.iq
Peer Reviewer Name	Name	e-mail	E-mail
Scientific Committee Approval Date	01/06/2021	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	Economic theory		Semester
			Second

<b>Co-requisites module</b>	<b>Design and analysis of experiments</b>	<b>Semester</b>	<b>Second</b>
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## Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<p><b>Module Objectives</b> أهداف المادة الدراسية</p>	<ol style="list-style-type: none"><li>1. Understand and understand the subject of economic statistics and solve existing economic problems.</li><li>2. Dealing with economic problems and developing solutions to them.</li><li>3. Understanding statistical methods and techniques in measuring statistical indicators in economic units.</li></ol>
<p><b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية</p>	<ol style="list-style-type: none"><li>1. Keeping pace with the development of statistical sciences and their connection with economic sciences.</li><li>2. Communicate with everything new and useful in statistical work.</li></ol>
<p><b>Indicative Contents</b> المحتويات الإرشادية</p>	<p>Indicative content includes the following.</p> <p><b><u>Part A - theoretical part</u></b></p> <ol style="list-style-type: none"><li>1. The ability to comprehend economic sciences and apply them practically.[3]</li><li>2. Dealing with crises and economic problems.[3]</li><li>3. Building statistical and economic (quantitative) foundations for students in the Statistics Department[3]</li></ol>

	<p><u>Part B - practical part</u></p> <ol style="list-style-type: none"> <li>1. Explaining the scientific material to students in detail.[3]</li> <li>2. Participation of students in solving mathematical problems[3]</li> <li>3. Discussion and dialogue about vocabulary related to the topic[3]</li> </ol>
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<b>Learning and Teaching Strategies</b> استراتيجيات التعلم والتعليم	
<b>Strategies</b>	<p><b>The necessity of visiting to gain experience from others.Obtaining new scientific information in the field of scientific research (videos). Practical training in the field. Access to modern scientific literature. Participation in relevant scientific conferences. Scientific laboratories with other universities.</b></p>

<b>Student Workload (SWL)</b> الحمل الدراسي للطالب محسوب ل60 ساعة			
<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	40	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعيا	3
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غيرالمنتظم للطالب خلال الفصل	5	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غيرالمنتظم للطالب أسبوعيا	0
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	<b>45</b>		

## Module Evaluation

### تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO #5, #8 and #10
Summative assessment	Midterm Exam	2hr	10% (10)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
<b>Total assessment</b>			100% (100 Marks)		

## Delivery Plan (Weekly Syllabus)

### المنهاج الاسبوعي النظري

Week	Material Covered
Week 1	The concept, importance, objectives and benefits of the agricultural census
Week 2	Methods of the agricultural census - types of samples - problems and obstacles of the agricultural census - sources of errors in the agricultural census
Week 3	Steps to implement the agricultural census
Week 4	Earth statistics
Week 5	Economic evaluation of land – land productivity indexes
Week 6	Agricultural production statistics - benefits of agricultural statistics
Week 7	Monetary estimation of agricultural production
Week 8	Agricultural production classifications
Week 9	Examples and exercises
Week 10	Examples and exercises on agricultural production indices
Week 11	Definition and objectives of time series study

Week 12	Factors affecting the time series
Week 13	Quest exam
Week 14	Distribution of hours and concluding discussions of the course
Week 15	Factors affecting the time series
Week 16	Preparatory week before the final Exam

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	المدخل الى الاحصاء ، د. خاشع الراوي ، كلية الزراعة والغابات ، جامعة الموصل ، 1980	Yes
Recommended Texts	التحليل الاحصائي للبيانات، د. امانى موسى محمد ، معهد الدراسات والبحوث الاحصائية ، جامعة القاهرة ، 2007	No
Websites		

Grading Scheme مخطط الدرجات				
Group	Grade	التقدير	Marks %	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group	FX - Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded

(0 - 49)	F - Fail	راسب	(0-44)	Considerable amount of work required
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**Note:** Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

## MODULE DESCRIPTION FORM

### نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Analytical Chemistry		Module Delivery
Module Type	Option		<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input checked="" type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	PLP 256		
ECTS Credits	2		
SWL (hr/sem)	4		
Module Level	Second	Semester of Delivery	
Administering Department	Plant Production PLP	College	Technical Agricultural College
Module Leader	Fahad Khalaf Yassein	e-mail	fahadbiologymycology@ntu.edu.iq
Module Leader's Acad. Title	Asst.prof.	Module Leader's Qualification	Ph.D.
Module Tutor	Hala awf abadalrahman	e-mail	Hala chilmeran 20@gmail .com
Peer Reviewer Name	Name	e-mail	E-mail
Scientific Committee Approval Date	01/06/2021	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	general chemibtry	Semester	Two
Co-requisites module	Organig Chemistry	Semester	Two

## Module Aims, Learning Outcomes and Indicative Contents

### أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<b>Module Objectives</b> أهداف المادة الدراسية	<p>The student is introduced to the types of solutions, their concentrations, and the products of their dissolution processes, which serve them in agricultural operations. He is able to prepare acids and bases and calculate the stress, oxidation, and reduction forces for each of them.</p>
<b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية	<ol style="list-style-type: none"> <li>1. Expresses the role of analytical chemistry in science.</li> <li>2. compare qualitative and quantitative analyses.</li> <li>3. expresses the qualitative analysis methods.</li> <li>4. Describe the behavior of Brønsted-Lowry acids and bases</li> <li>5. Apply an understanding of pH and pOH to characterize aqueous solutions and determine ion concentrations</li> <li>6. Perform equilibrium calculations for Brønsted-Lowry acid-base systems</li> <li>7. Understand hydrolysis in salt solutions</li> <li>8. Apply equilibrium concepts to acids and bases</li> <li>9. Explain acid-base buffers</li> </ol>
<b>Indicative Contents</b> المحتويات الإرشادية	<p>Indicative content includes the following.</p> <p>Part A – Analytical chemistry</p> <p>General introduction - its types, a historical overview , The Nature of Analytical Chemistry , The Role of Analytical Chemistry ,Quantitative Analytical Methods , Typical Quantitative Analysis, compare qualitative and quantitative analyses.(5 hrs).</p> <p>Solutions and their classification according to the volume, quantity, and composition of solute particles, the behavior of Brønsted-Lowry acids and bases ,Apply an understanding of pH and pOH to characterize aqueous solutions and determine ion concentrations , equilibrium calculations for Brønsted-Lowry acid-base systems (15 hrs)</p> <p>Explain the electrolyte, acid, base, and conjugate acid/base , the properties and formation of solutions and colloids ( 8 hrs).</p> <p>Calculations Used in Analytical Chemistry , Some Important Units of Measurement , Unified Atomic Mass Units and the Mole, Solutions and Their Concentrations ,Chemical Stoichiometry, and their chemical calculations ( 12 hrs)</p> <p>Hydrolysis in salt solutions , equilibrium concepts to acids and bases , acid-base buffers ,interpret aqueous solution chemistry ( 10 hrs)</p> <p>Part B - Equilibrium in Analytical chemical systems</p> <p>Fundamentals</p> <p>Reversible Reactions and Chemical Equilibria, Manipulating Equilibrium Constants, Solving Equilibrium Problems , Activity Effects (10 hrs)</p> <p>Aqueous Solutions and Chemical ,The Chemical Composition of Aqueous Solutions, Stepwise and Overall Formation Constants , Constant Expressions for Aqueous Solutions ,Relative Strengths of Conjugate Acid/Base Pairs Equilibrium Constants for Chemical Reactions , Equilibrium calculations, (10 hrs)</p> <p>The Henderson-Hasselbalch Equation , Acid Rain and the Buffer Capacity of Lakes (10</p>



hrs) .

Hydrolysis of salts, and their chemical calculations ( 10 hrs)

## Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

<b>Strategies</b>	<ul style="list-style-type: none"><li>- <b>Type something like: The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their Analytical chemistry thinking skills. This will be achieved through classes, interactive tutorials and by considering type of simple experiments involving some sampling activities that are interesting to the students.</b></li></ul>
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## Student Workload (SWL)

الحمل الدراسي للطالب محسوب ل60 ساعة

<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	45	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعيا	3
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غيرالمنتظم للطالب خلال الفصل	15	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غيرالمنتظم للطالب أسبوعيا	1
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	<b>60</b>		

## Module Evaluation

### تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
<b>Formative assessment</b>	<b>Quizzes</b>	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	<b>Assignments</b>	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	<b>Projects / Lab.</b>	1	10% (10)	Continuous	All
	<b>Report</b>	1	10% (10)	13	LO #5, #8 and #10
<b>Summative assessment</b>	<b>Midterm Exam</b>	2hr	10% (10)	7	LO #1 - #7
	<b>Final Exam</b>	3hr	50% (50)	16	All
<b>Total assessment</b>			100% (100 Marks)		

## Delivery Plan (Weekly Syllabus)

### المنهاج الاسبوعي النظري

Week	Material Covered
<b>Week 1</b>	Atomic structure
<b>Week 2</b>	Electronic distribution of atoms in the periodic table
<b>Week 3</b>	Electronic theory of valence
<b>Week 4</b>	Chemical bonds
<b>Week 5</b>	Acids base and salts
<b>Week 6</b>	Reduction and oxidation reactions
<b>Week 7</b>	Balancing in acidic and basic media
<b>Week 8</b>	Standard electrode voltage
<b>Week 9</b>	Nuclear chemistry
<b>Week 10</b>	The predominant nonmetallic elements
<b>Week 11</b>	Atomic structure

<b>Week 12</b>	Ideal gases
<b>Week 13</b>	Halogens, their properties and preparation, general properties of group six elements
<b>Week 14</b>	General characteristics of the elements in the fifth group
<b>Week 15</b>	General properties of the elements in group four

### Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

week	Material Covered
<b>Week 1</b>	A visit to the chemistry laboratory and learning about the devices and equipment
<b>Week 2</b>	Safety in chemical laboratories, dealing with chemicals (simple distillation, crystallization and filtration)
<b>Week 3</b>	Use of some laboratory equipment
<b>Week 4</b>	Data processing and results
<b>Week 5</b>	Estimate the boiling point
<b>Week 6</b>	Estimation of melting point
<b>Week 7</b>	Purification of chemical materials (simple distillation, crystallization and filtration)
<b>Week 8</b>	Estimation of dissolution yield
<b>Week 9</b>	Determination of molecular weight by the Victorimier method
<b>Week 10</b>	Estimating the molecular weights of non-ionized substances
<b>Week 11</b>	Estimation of equivalent weights (electrochemical method)
<b>Week 12</b>	Estimation of equivalent weights (electrochemical method)
<b>Week 13</b>	Estimating the reaction rate
<b>Week 14</b>	Estimation of chemical equilibrium
<b>Week 15</b>	Estimation of chemical equilibrium
<b>Week 16</b>	<b>Exam</b>

### Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
<b>Required Texts</b>	Skoog D. ,Fundamentals of Analytical Chemistry,Nitnth ed., 2016	Yes
<b>Recommended Texts</b>	Gary D.Chritian,Analytical Chemistry,fifth editionjohn Willy & sons,inc, 1986. 2) Modern of Analytical Chemistry, Daived 2000	No
<b>Websites</b>	<a href="https://praxilabs.com/arabic/blog/6-most-important-chemistry-laws/">https://praxilabs.com/arabic/blog/6-most-important-chemistry-laws/</a>	

## Grading Scheme

### مخطط الدرجات

Group	Grade	التقدير	Marks %	Definition
<b>Success Group (50 - 100)</b>	<b>A - Excellent</b>	امتياز	90 - 100	Outstanding Performance
	<b>B - Very Good</b>	جيد جدا	80 - 89	Above average with some errors
	<b>C - Good</b>	جيد	70 - 79	Sound work with notable errors
	<b>D - Satisfactory</b>	متوسط	60 - 69	Fair but with major shortcomings
	<b>E - Sufficient</b>	مقبول	50 - 59	Work meets minimum criteria
<b>Fail Group</b>	<b>FX - Fail</b>	راسب (فقد المعالجة)	(45-49)	More work required but credit awarded

(0 - 49)	F - Fail	راسب	(0-44)	Considerable amount of work required
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**Note:** Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

## MODULE DESCRIPTION FORM

### نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Cereal and Legume Summer Crops		Module Delivery
Module Type	Core		<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input checked="" type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	PLP 209		
ECTS Credits	2		
SWL (hr/sem)	4		
Module Level		Semester of Delivery	
Administering Department	Plant Production PLP	College	Technical Agricultural College
Module Leader	Fahad Khalaf Yassein	e-mail	fahadbiologymycology@ntu.edu.iq
Module Leader's Acad. Title	Asst.Professor	Module Leader's Qualification	Ph.D.
Module Tutor	Dr. Wadhah Thabit Abeed	e-mail	Wadah8324@ntu.edu.iq
Peer Reviewer Name	Name	e-mail	E-mail
Scientific Committee Approval Date	01/06/2021	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	Cereal and Legume Winter Crops	Semester	Two
Co-requisites module	Plant Physiology	Semester	Two

## Module Aims, Learning Outcomes and Indicative Contents

### أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<p><b>Module Objectives</b> أهداف المادة الدراسية</p>	<ol style="list-style-type: none"><li>1. Introducing the student to the most important summer crops, their production techniques, how to serve them,</li><li>2. identifying the most suitable conditions for growing each crop and their economic importance,</li><li>3. and being able to program agricultural cycles that help improve plant growth.</li></ol>
<p><b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية</p>	<ol style="list-style-type: none"><li>1. The student must have knowledge of summer crops grown in Iraq</li><li>2. Learn about the methods of growing summer field crops, serving the crop, and your environmental requirements</li><li>3. Learn about the characteristics and benefits of each crop</li></ol>
<p><b>Indicative Contents</b> المحتويات الإرشادية</p>	<p>Indicative content includes the following.</p> <p><b><u>Part A - theoretical part</u></b></p> <p>. The importance of summer field crops, [3 hrs]</p> <p>. Division of summer field crops [3 hrs]</p> <p>. Methods of growing field crops, Swoing dates, and seeding rates for each crop [3 hrs]</p> <p>. Industrial summer field crops, their uses, and properties of oil and fiber [3 hrs]</p>

	<p><u>Part B - practical part</u></p> <ul style="list-style-type: none"> <li>. Diagnosis of summer field crops, soil service operations and agricultural machinery, [9 hrs].</li> <li>. Service operations for a crop, and botanical description of crops [9 hrs].</li> <li>. Crop growth stages and manufacturing processes [9 hrs].</li> </ul>
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<b>Learning and Teaching Strategies</b> استراتيجيات التعلم والتعليم	
<b>Strategies</b>	<p><b>The necessity of visiting to gain experience from others. Obtaining new scientific information in the field of scientific research (videos). Practical training in the field. Access to modern scientific literature. Participation in relevant scientific conferences. Scientific laboratories with other universities.</b></p>

<b>Student Workload (SWL)</b> الحمل الدراسي للطالب محسوب ل60 ساعة			
<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	45	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعيا	3
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطالب خلال الفصل	15	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطالب أسبوعيا	1
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	<b>60</b>		



## Module Evaluation

### تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO #5, #8 and #10
Summative assessment	Midterm Exam	2hr	10% (10)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

## Delivery Plan (Weekly Syllabus)

### المنهاج الاسبوعي النظري

Week	Material Covered
Week 1	Definition of crop science - crop division, economic importance.
Week 2	Environmental factors and their impact on crop productivity - climate and soil factors.
Week 3	Fertilization and fertilizers.
Week 4	Rice production - economic importance, suitable environmental conditions, problems of rice production.
Week 5	Yellow corn production - economic importance, suitable environmental conditions, cultivation method.
Week 6	Sorghum production - economic importance, suitable environmental conditions, effect of HCN acid.
Week 7	Cotton production - economic importance, suitable environmental conditions, transformational processes.
Week 8	Production of jute and jute crops, economic importance, suitable environmental conditions
Week 9	Sunflower crop production, economic importance, suitable environmental conditions, oil quality, production problems.
Week 10	Sesame production - economic importance, suitable environmental conditions, production areas, production problems, and modern technologies in its production.
Week 11	Field Peanut crop production - economic importance, suitable environmental conditions, maturity and harvest.
Week 12	Soybean production - economic importance, suitable environmental conditions, areas of cultivation and improvement of production.
Week 13	Mung crop production - economic importance, suitable environmental conditions, areas of cultivation and improvement of production.
Week 14	Tobacco crop production - economic importance and suitable environmental conditions, areas of cultivation and improvement of production, areas of production, characteristics of good tobacco.
Week 15	Methods of storing and marketing crops.
Week 16	Preparatory week before the final Exam

## Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

week	Material Covered
Week 1	Identification of summer field crop seeds, diagnosis methods, preparing field land for planting field crops
Week 2	Diagnosing seeds of summer field crops, methods of diagnosis, preparing field land for planting with field crops
Week 3	Fertilization, mathematical exercises to calculate the amount of fertilizer added per unit area, following the field
Week 4	Rice production - botanical description, rice groups and varieties, service operations
Week 5	Yellow corn production, seed cultivation
Week 6	Planting field crops and completing field operations
Week 7	White corn production - soil and crop service operations, preparing reports
Week 8	Cotton production - soil and crop service operations, machines used in harvesting and sorting cotton
Week 9	Production of jute and jute crops - crop service operations, picking and fiber separation steps
Week 10	Sunflower crop production - soil and crop service processes, maturity and harvest
Week 11	Sesame production - soil and crop service processes, maturity and harvest, manufacturing processes
Week 12	Field Peanut crop production - soil and crop service operations, receiving and discussing reports
Week 13	Soybeans - soil and crop service operations
Week 14	Tobacco production - picking and drying leaves, discussing student reports
Week 15	Scientific visit
Week 16	Exam

## Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	General Botany, 2014 انتاج المحاصيل الحقلية/ الدكتور مجيد محسن الانصاري 1982	Yes
Recommended Texts	انتاج محاصيل الحبوب / الدكتور عبد الحميد محمد حسنين 2019	No
Websites	<a href="file:///C:/Users/noon/Downloads/antaj_mhasyl_alhbwb.pdf">file:///C:/Users/noon/Downloads/antaj_mhasyl_alhbwb.pdf</a>	

## Grading Scheme

### مخطط الدرجات

Group	Grade	التقدير	Marks %	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
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(0 - 49)	F - Fail	راسب	(0-44)	Considerable amount of work required
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**Note:** Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

# MODULE DESCRIPTION FORM

## نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Cereal and Legume Winter Crops		Module Delivery
Module Type	Core		<input checked="" type="checkbox"/> Theory
Module Code	PLP 201		<input type="checkbox"/> Lecture
ECTS Credits	2		<input checked="" type="checkbox"/> Lab
SWL (hr/sem)	4		<input type="checkbox"/> Tutorial
			<input type="checkbox"/> Practical
			<input type="checkbox"/> Seminar
Module Level	two	Semester of Delivery	one
Administering Department	Plant Production PLP	College	Technical Agricultural College
Module Leader	Fahad Khalaf Yassein	e-mail	fahadbiologymycology@ntu.edu.iq
Module Leader's Acad. Title	Asst.Professor	Module Leader's Qualification	Ph.D.
Module Tutor	Dr. Wadhah Thabit Abeed	e-mail	Wadah8324@ntu.edu.iq
Peer Reviewer Name	Name	e-mail	E-mail
Scientific Committee Approval Date	01/06/2021	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	Cereal and Legume summer Crops	Semester	Two
Co-requisites module		Semester	

## Module Aims, Learning Outcomes and Indicative Contents

### أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<p><b>Module Objectives</b> أهداف المادة الدراسية</p>	<ol style="list-style-type: none"><li>4. Introducing the student to the most important Winter crops, their production techniques, how to serve them,</li><li>5. identifying the most suitable conditions for growing each crop and their economic importance,</li><li>6. and being able to program agricultural cycles that help improve plant growth.</li></ol>
<p><b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية</p>	<ol style="list-style-type: none"><li>1. The student must have knowledge of Winter crops grown in Iraq</li><li>2. Learn about the methods of growing Winter field crops, serving the crop, and your environmental requirements</li><li>3. Learn about the characteristics and benefits of each crop</li></ol>
<p><b>Indicative Contents</b> المحتويات الإرشادية</p>	<p>Indicative content includes the following.</p> <p><b><u>Part A - theoretical part</u></b></p> <p>. The importance of Winter field crops, [3 hrs]</p> <p>. Division of Winter field crops [3 hrs]</p> <p>. Methods of growing field crops, Swoing dates, and seeding rates for each crop [3 hrs]</p> <p>. Industrial Winter field crops, their uses, and properties of oil and fiber [3 hrs]</p>

	<p><u>Part B - practical part</u></p> <ul style="list-style-type: none"> <li>. Diagnosis of Winter field crops, soil service operations and agricultural machinery, [9 hrs].</li> <li>. Service operations for a crop, and botanical description of crops [9 hrs].</li> <li>. Crop growth stages and manufacturing processes [9 hrs].</li> </ul>
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<b>Learning and Teaching Strategies</b> استراتيجيات التعلم والتعليم	
<b>Strategies</b>	<p><b>The necessity of visiting to gain experience from others. Obtaining new scientific information in the field of scientific research (videos). Practical training in the field. Access to modern scientific literature. Participation in relevant scientific conferences. Scientific laboratories with other universities.</b></p>

<b>Student Workload (SWL)</b> الحمل الدراسي للطالب محسوب ل60 ساعة			
<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	45	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعيا	3
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطالب خلال الفصل	15	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطالب أسبوعيا	1
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	<b>60</b>		

## Module Evaluation

### تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO #5, #8 and #10
Summative assessment	Midterm Exam	2hr	10% (10)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

## Delivery Plan (Weekly Syllabus)

### المنهاج الاسبوعي النظري

Week	Material Covered
Week 1	For field crops / The importance of field crop production in the world and Iraq / Division of crops according to taxonomic classification / According to economic importance and use. According to the planting season.
Week 2	Soil service operations and their importance: tillage, smoothing, leveling, harrowing, and division.
Week 3	Cultivation methods based on: soil moisture content, seed placement in the soil, service operations.
Week 4	Fertilization, irrigation, patching, thinning, weeding, pest control, harvesting, marketing, and storage.
Week 5	Wheat production, origin, economic importance, suitable environmental conditions, sowing date, planting method, quantity of seeds, stages of wheat crop growth, stages of wheat grain maturity.
Week 6	Barley crop production - origin, economic importance, suitable environmental conditions, planting date, planting method, quantity of seeds, stages of crop growth, stages of grain maturity.
Week 7	Production of the triticale crop - origin, economic importance, suitable environmental conditions, sowing date, method of cultivation, quantity of seeds.
Week 8	Bean crop production - economic importance, suitable environmental conditions, sowing date, cultivation method, quantity of seeds, sensitivity to beans by humans.
Week 9	Production of chickpea and lentil crops - economic importance, suitable environmental conditions, production problems, sowing date, planting method, quantity of seeds.
Week 10	Production of flax and safflower crops - origin, economic importance, suitable environmental conditions, sowing date, planting method, quantity of seeds.
Week 11	Sugar beet production - economic importance, suitable environmental conditions, sowing date, method of cultivation, quantity of seeds, stages of sugar extraction.
Week 12	Sugarcane crop production - origin, economic importance, suitable environmental conditions, sowing date, cultivation method.
Week 13	Qualitative characteristics of beets and cane and stages of sugar production.
Week 14	Agricultural tools - definition of agricultural Agricultural Cycle.
Week 15	Types of Agricultural Cycle. How to classify agricultural Agricultural Cycle with examples.
Week 16	exam

## Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

week	Material Covered
Week 1	Diagnosis of winter field crop seeds from the field and laboratory.
Week 2	Soil service operations
Week 3	tillage, grading, dividing the field.
Week 4	Crop service operations
Week 5	Wheat production, soil and crop service operations, comparison between triticum wheat and durum wheat, manufacturing processes.
Week 6	Barley crop production, soil and crop service operations.
Week 7	Trirical crop production, soil and crop service operations, maturity and harvest, field follow-up.
Week 8	Faba Bean production, soil and crop service operations.
Week 9	Production of chickpea and lentil crops, soil and crop service operations, signs of maturity and harvest, collecting plant specimens, identifying them, storing them, and drying them.
Week 10	Flax and safflower, soil and crop service operations
Week 11	Sugar beet production, soil and crop service operations
Week 12	Sugarcane crop production, botanical description, types of varieties, signs of maturity and harvest.
Week 13	Scientific visit.
Week 14	Discussing student reports.
Week 15	Exercises for agricultural courses.
Week 16	Exam

## Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	General Botany, 2014 انتاج المحاصيل الحقلية/ الدكتور مجيد محسن الانصاري 1982	Yes
Recommended Texts	انتاج محاصيل الحبوب / الدكتور عبد الحميد محمد حسنين 2019	No
Websites	<a href="file:///C:/Users/noon/Downloads/antaj_mhasyl_alhbwbb.pdf">file:///C:/Users/noon/Downloads/antaj_mhasyl_alhbwbb.pdf</a>	



## Grading Scheme

### مخطط الدرجات

Group	Grade	التقدير	Marks %	Definition
<b>Success Group (50 - 100)</b>	<b>A - Excellent</b>	امتياز	90 - 100	Outstanding Performance
	<b>B - Very Good</b>	جيد جدا	80 - 89	Above average with some errors
	<b>C - Good</b>	جيد	70 - 79	Sound work with notable errors
	<b>D - Satisfactory</b>	متوسط	60 - 69	Fair but with major shortcomings
	<b>E - Sufficient</b>	مقبول	50 - 59	Work meets minimum criteria
<b>Fail Group</b>	<b>FX - Fail</b>	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded

<b>(0 - 49)</b>	<b>F - Fail</b>	راسب	(0-44)	Considerable amount of work required

**Note:** Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

# MODULE DESCRIPTION FORM

## نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Date Palm Propagation		Module Delivery
Module Type	Core		<input checked="" type="checkbox"/> Theory <input checked="" type="checkbox"/> Lecture <input checked="" type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	PLP 103		
ECTS Credits	2		
SWL (hr/sem)	4		
Module Level	tow	Semester of Delivery	
Administering Department	Plant Production PLP	College	Technical Agricultural College
Module Leader	Fahad Khalaf Yassein	e-mail	fahadbiologymycology@ntu.edu.iq
Module Leader's Acad. Title	Asst.prof.	Module Leader's Qualification	master
Module Tutor	Mustafa natheer Mustafa alobaidy	e-mail	<a href="mailto:mustafa.n.m1989@ntu.edu.iq">mustafa.n.m1989@ntu.edu.iq</a>
Peer Reviewer Name	Name	e-mail	E-mail
Scientific Committee Approval Date	01/06/2021	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	Deciduous Fruit Trees	Semester	Two
Co-requisites module	Evergreen Fruit Trees	Semester	Two

## Module Aims, Learning Outcomes and Indicative Contents

### أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<p><b>Module Objectives</b> أهداف المادة الدراسية</p>	<ol style="list-style-type: none"><li>1. Understanding the process of sexual and asexual propagation of date palms: This includes studying the processes of pollination, offshoot propagation, and practical applications of each in date palm cultivation.</li><li>2. Studying cultivation techniques and care for date palms: Students learn how to plant and care for date palms by studying various techniques used in soil preparation, irrigation, fertilization, pest control, and disease management.</li><li>3. Identifying date palm species: Students become familiar with a variety of date palm species, their characteristics, distribution areas, and different uses.</li><li>4. Understanding the importance of date palms in agriculture and economy: The course examines the role of date palms in meeting food, economic, and environmental needs, as well as their significance in culture and heritage.</li><li>5. Developing research and analysis skills: The course encourages students to conduct research on topics related to date palm cultivation, share and analyze their findings systematically.</li><li>6. Raising awareness of environmental and agricultural issues: Students learn about the environmental and agricultural challenges facing date palm cultivation and how to address them effectively.</li></ol>
<p><b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية</p>	<ol style="list-style-type: none"><li>13. Understanding the processes of sexual and asexual propagation of date palms and their practical applications in date palm cultivation.</li><li>14. Applying techniques of date palm cultivation and care correctly, including soil preparation, irrigation, fertilization, pest control, and disease management.</li><li>15. Identifying a variety of date palm species and understanding the characteristics of each species and their different uses.</li><li>16. Appreciating the role of date palms in meeting food, economic, and environmental needs, and enhancing awareness of their importance in culture and heritage.</li><li>17. Developing research and analysis skills by conducting research on topics related to date palm cultivation and analyzing the results.</li><li>18. Interacting positively with environmental and agricultural challenges that may face date palm cultivation and working towards sustainable solutions to these challenges.</li><li>19. Developing critical thinking skills and problem-solving abilities in the context of date palm cultivation and environmental sustainability.</li></ol>

## Indicative Contents

المحتويات الإرشادية

### 1. Introduction to Date Palm Cultivation:

- Definition and significance of date palms.
- History of date palm cultivation and its global distribution.
- Different species of date palms and their characteristics.

### 2. Date Palm Propagation Techniques:

- Sexual propagation of date palms: pollination processes and genetic analysis.
- Asexual propagation of date palms: tissue culture and offshoot propagation.

### 3. Cultivation Techniques for Date Palms:

- Soil preparation and land preparation.
- Irrigation and fertilization techniques.
- Pest and disease management in date palm cultivation.

### 4. Date Palm Care:

- Care of young date palm plants and their growth stages.
- Maintenance of mature date palm trees and crop management.

### 5. Management of Date Palm Plantations:

- Planning and designing date palm plantations.
- Land and resource management in date palm plantations.

### 6. Challenges and Prospects in Date Palm Cultivation:

- Environmental and climatic challenges.
- Innovations and advancements in date palm cultivation.
- Investment opportunities and development in the date palm sector.

### 7. Economic and Cultural Aspects of Date Palms:

- The role of date palms in local and global economies.
- Date palms in heritage and local culture.

### 8. Research and Practical Applications:

- Conducting research on various topics in date palm cultivation.
- Practical application of concepts and techniques learned in field or lab sessions.

## Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

<b>Strategies</b>	<b>The necessity of visiting to gain experience from others. Obtaining new scientific information in the field of scientific research (videos). Practical training in the field. Access to modern scientific literature. Participation in relevant scientific conferences. Scientific laboratories with other universities.</b>
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## Student Workload (SWL)

ساعة 45 الحمل الدراسي للطالب محسوب ل

<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	45	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعياً	3
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطالب خلال الفصل	15	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطالب أسبوعياً	1
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	<b>60</b>		

## Module Evaluation

### تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO #5, #8 and #10
Summative assessment	Midterm Exam	2hr	10% (10)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

## Delivery Plan (Weekly Syllabus) ,

### المنهاج الاسبوعي النظري

Week	Material Covered
Week 1	Palms, habitat and distribution, geographical distribution, plant classification, species and genera
Week 2	The economic and nutritional importance of dates, chemical composition of the fruits
Week 3	Environmental factors suitable for palm growth and production (climate and soil factors)
Week 4	Methods of palm reproduction, sexual and vegetative reproduction
Week 5	Flowering and pollination process
Week 6	Palm seed formation, seed vitality, germination stages, fruit growth stages
Week 7	The phenomenon of metazenia, floatation, the relationship of leaves (fronds) to fruits, preservation of grains with pollen.
Week 8	Palm orchard service (irrigation, fertilization, pruning)
Week 9	Palm grove service (thinning, trimming, sleeving)
Week 10	Palm pest diseases, diagnosis and treatment methods
Week 11	The use of mechanization in palm propagation and date production

Week 12	The use of mechanization in palm propagation and date production
Week 13	The problems facing the palm tree and ways to address them
Week 14	Manufacture of palm products (molasses, vinegar, wood industries, palm leaf manufacturing).
Week 15	Preparatory week before the final Exam
Week 16	Preparatory week before the final Exam

### Delivery Plan (Weekly Lab. Syllabus)

#### المنهاج الاسبوعي التطبيقي

Week	Material Covered
Week 1	Identify the nature of palm growth, botanical description, and varieties spread in the region
Week 2	Measuring the vitality of palm seeds, practicing the process of planting palm seeds and following up on germination
Week 3	The practice of uprooting palm seedlings according to scientific conditions
Week 4	Preparing suitable holes and planting seedlings
Week 5	Serving the planted palms and cuttings, wrapping the cuttings, watering, and cleaning the cuttings
Week 6	Palm pruning, practical exercise
Week 7	Study of the physiological effects of ethylene and methods for estimating ethylene production in fruits
Week 8	Propagation of palm trees through laboratory tissue culture
Week 9	Manual and mechanical coin inoculation, practical exercise
Week 10	Pollen collection and preservation, pollen biometry
Week 11	Practical practice of disease and pest control operations
Week 12	Thinning of flowers and fruits, drooping and setting of stems, practical practice
Week 13	Identify the most important types and specifications of dates in the laboratory
Week 14	Practical practice of manufacturing some palm products
Week 15	A field visit to palm groves in the region

### Learning and Teaching Resources

#### مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts		no
Recommended Texts		No
Websites	<a href="https://ar.wikipedia.org/wiki/نخلة_التمر">https://ar.wikipedia.org/wiki/نخلة_التمر</a> <a href="https://www.marefa.org/نخلة">https://www.marefa.org/نخلة</a>	

### Grading Scheme

#### مخطط الدرجات

Group	Grade	التقدير	Marks %	Definition
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<b>Success Group (50 - 100)</b>	<b>A - Excellent</b>	امتياز	90 - 100	Outstanding Performance
	<b>B - Very Good</b>	جيد جدا	80 - 89	Above average with some errors
	<b>C - Good</b>	جيد	70 - 79	Sound work with notable errors
	<b>D - Satisfactory</b>	متوسط	60 - 69	Fair but with major shortcomings
	<b>E - Sufficient</b>	مقبول	50 - 59	Work meets minimum criteria
<b>Fail Group</b>	<b>FX - Fail</b>	راسب (فيد المعالجة)	(45-49)	More work required but credit awarded



(0 - 49)	F - Fail	راسب	(0-44)	Considerable amount of work required
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**Note:** Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

## MODULE DESCRIPTION FORM

### نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Deciduous Fruit Trees		Module Delivery
Module Type	Core		<input checked="" type="checkbox"/> Theory <input checked="" type="checkbox"/> Lecture <input checked="" type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	PLP 103		
ECTS Credits	2		
SWL (hr/sem)	4		
Module Level	tow	Semester of Delivery	
Administering Department	Plant Production PLP	College	Technical Agricultural College
Module Leader	Fahad Khalaf Yassein	e-mail	fahadbiologymycology@ntu.edu.iq
Module Leader's Acad. Title	Asst.prof.	Module Leader's Qualification	
Module Tutor	Mustafa natheer Mustafa alobaidy	e-mail	<a href="mailto:mustafa.n.m1989@ntu.edu.iq">mustafa.n.m1989@ntu.edu.iq</a>
Peer Reviewer Name	Name	e-mail	E-mail
Scientific Committee Approval Date	01/06/2021	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	Evergreen Fruit Trees		Semester Two
Co-requisites module	Plant Physiology		Semester Two

## Module Aims, Learning Outcomes and Indicative Contents

### أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<p><b>Module Objectives</b> أهداف المادة الدراسية</p>	<ol style="list-style-type: none"> <li>1. Provide a comprehensive understanding of the principles and techniques of temperate fruit cultivation.</li> <li>2. Introduce students to a variety of temperate fruit types and their characteristics.</li> <li>3. Teach techniques to enhance productivity and improve the quality of temperate fruits.</li> <li>4. Encourage students to understand the challenges facing temperate fruit cultivation and innovate solutions.</li> <li>5. Promote the use of sustainable agricultural practices in temperate fruit production.</li> <li>6. Develop management and planning skills necessary for efficient management of temperate fruit farms.</li> <li>7. Enhance awareness of markets and commercial opportunities available for temperate fruits.</li> <li>8. Encourage scientific research in the field of temperate fruit cultivation and the development of new techniques.</li> <li>9. Raise awareness of the environmental and economic aspects of temperate fruit cultivation.</li> <li>10. Stimulate students to commit to social and environmental responsibility in the production and marketing of temperate fruits.</li> </ol>
<p><b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية</p>	<ol style="list-style-type: none"> <li>1. <b>Comprehensive Knowledge of Temperate Fruit Cultivation:</b> <ul style="list-style-type: none"> <li>• Demonstrate an understanding of the principles, practices, and techniques involved in temperate fruit cultivation.</li> </ul> </li> <li>2. <b>Identification and Classification of Temperate Fruits:</b> <ul style="list-style-type: none"> <li>• Identify and classify various types of temperate fruits based on their characteristics, growth habits, and environmental requirements.</li> </ul> </li> <li>3. <b>Proficiency in Orchard Management:</b> <ul style="list-style-type: none"> <li>• Apply appropriate orchard management techniques for temperate fruit production, including site selection, planting, pruning, and pest management.</li> </ul> </li> <li>4. <b>Enhanced Skills in Fruit Handling and Storage:</b> <ul style="list-style-type: none"> <li>• Demonstrate competence in harvesting, handling, and post-harvest management of temperate fruits to maintain quality and prolong shelf life.</li> </ul> </li> <li>5. <b>Understanding of Pest and Disease Management:</b> <ul style="list-style-type: none"> <li>• Identify common pests and diseases affecting temperate fruit crops and implement integrated pest management (IPM) strategies for control.</li> </ul> </li> <li>6. <b>Application of Sustainable Agriculture Practices:</b> <ul style="list-style-type: none"> <li>• Apply sustainable agricultural practices to temperate fruit cultivation, including soil conservation, water management, and organic farming methods.</li> </ul> </li> <li>7. <b>Market Awareness and Commercialization:</b> <ul style="list-style-type: none"> <li>• Understand market trends, consumer preferences, and marketing strategies relevant to temperate fruits, including value-added products and niche markets.</li> </ul> </li> <li>8. <b>Research and Innovation Skills:</b> <ul style="list-style-type: none"> <li>• Conduct research on topics related to temperate fruit production, innovate solutions to production challenges, and contribute to the advancement of the field.</li> </ul> </li> <li>9. <b>Environmental and Economic Sustainability:</b> <ul style="list-style-type: none"> <li>• Evaluate the environmental and economic sustainability of temperate fruit production systems and propose measures for improvement.</li> </ul> </li> <li>10. <b>Ethical and Social Responsibility:</b> <ul style="list-style-type: none"> <li>• Recognize the ethical and social implications of temperate fruit</li> </ul> </li> </ol>

	<p>production, including labor practices, community engagement, and fair trade principles.</p>
<p><b>Indicative Contents</b> المحتويات الإرشادية</p>	<ol style="list-style-type: none"> <li>1. <b>Introduction to Temperate Fruits:</b> <ul style="list-style-type: none"> <li>• Definition and significance of temperate fruits in agriculture and nutrition.</li> <li>• Historical overview and evolution of temperate fruit cultivation.</li> </ul> </li> <li>2. <b>Types of Temperate Fruits:</b> <ul style="list-style-type: none"> <li>• Classification of temperate fruits based on varieties, specifications, and climatic requirements.</li> <li>• Study of characteristics and cultivation methods of key temperate fruits such as apples, pears, and cherries.</li> </ul> </li> <li>3. <b>Techniques of Temperate Fruit Cultivation:</b> <ul style="list-style-type: none"> <li>• Plant requirements, soil, and climate considerations for temperate fruit cultivation.</li> <li>• Techniques for propagation, cultivation, irrigation, and fertilization necessary for high productivity and excellent quality.</li> </ul> </li> <li>4. <b>Orchard Management:</b> <ul style="list-style-type: none"> <li>• Planning and management of agricultural areas for temperate fruit cultivation.</li> <li>• Pest and disease control and implementation of plant and crop preservation strategies.</li> </ul> </li> <li>5. <b>Harvesting and Storage of Temperate Fruits:</b> <ul style="list-style-type: none"> <li>• Appropriate harvesting techniques and post-harvest handling to preserve fruit quality and durability.</li> <li>• Storage methods and packaging for maintaining fruit freshness and extending shelf life.</li> </ul> </li> <li>6. <b>Pest and Disease Management:</b> <ul style="list-style-type: none"> <li>• Identification of common pests and diseases affecting temperate fruits.</li> <li>• Introduction to sustainable and effective pest and disease control methods.</li> </ul> </li> <li>7. <b>Marketing of Temperate Fruits:</b> <ul style="list-style-type: none"> <li>• Understanding marketing fundamentals for temperate fruits and applying marketing strategies in supply chains.</li> <li>• Market analysis, identification of business opportunities, and competitors in the temperate fruit market.</li> </ul> </li> <li>8. <b>Environmental and Economic Sustainability:</b> <ul style="list-style-type: none"> <li>• Research on sustainable farming methods and providing solutions to environmental and economic challenges.</li> <li>• Understanding the importance of sustainability in temperate fruit cultivation and applying environmentally friendly practices.</li> </ul> </li> <li>9. <b>Research and Development in Temperate Fruit Cultivation:</b> <ul style="list-style-type: none"> <li>• Encouraging students to conduct scientific research on improving temperate fruit cultivation methods and developing new technologies.</li> <li>• Utilizing research to enhance productivity, quality, and sustainability in temperate fruit cultivation.</li> </ul> </li> <li>10. <b>Practical Applications and Field Visits:</b></li> </ol>

- Organizing field visits to temperate fruit farms to gain practical insights into cultivation practices, challenges, and innovations.

## Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

<b>Strategies</b>	<b>The necessity of visiting to gain experience from others. Obtaining new scientific information in the field of scientific research (videos). Practical training in the field. Access to modern scientific literature. Participation in relevant scientific conferences. Scientific laboratories with other universities.</b>
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## Student Workload (SWL)

ساعة 45 الحمل الدراسي للطالب محسوب ل

<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	30	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعياً	2
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطالب خلال الفصل	30	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطالب أسبوعياً	2
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	<b>60</b>		

## Module Evaluation

### تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO #5, #8 and #10
Summative assessment	Midterm Exam	2hr	10% (10)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

## Delivery Plan (Weekly Syllabus) ,

### المنهاج الاسبوعي النظري

Week	Material Covered
Week 1	Economic and nutritional importance, benefits of growing deciduous fruits and suitable climatic conditions for their cultivation, division of fruit trees.
Week 2	Develop dormancy and rest of the buds.
Week 3	Pollination, fertilization, fruit setting, flower and fruit drop, fruit growth stages, fruit harvesting.
Week 4	Choosing the roots of deciduous fruit trees, the relationship between taste and origin, methods of propagating the roots.
Week 5	The use of growth regulators in the field of deciduous fruits.
Week 6	Planning and creating fruit orchards.
Week 7	Pomegranates (apples) in terms of original habitat, nutritional value, economic importance, and suitable environment for multiplying varieties.
Week 8	Pears and quince - habitat, nutritional and economic value, methods of propagation, conditions, varieties.
Week 9	Stone fruits (peaches, apricots, pears) in terms of origin - nutritional and economic value, abundance, varieties.
Week 10	Suitable environmental conditions, flowering, nature of pregnancy, breeding and pruning of fruits.
Week 11	Cherry and almonds - habitat, importance, suitable conditions, methods of propagation, varieties, nature of flowering.

Week 12	Grapes - the original habitat, economic importance and nutritional value, plant division, suitable environment, reproduction, nature of pregnancy, breeding methods and fruit pruning.
Week 13	Suitable environment, reproduction, nature of pregnancy, breeding methods and fruit pruning.
Week 14	Figs and pomegranates - original habitat, nutritional value, economic importance, suitable environment, reproduction, service operations, nature of pregnancy, varieties.
Week 15	Nuts (walnuts, pistachios, chestnuts and pecans) in terms of original habitat, economic and nutritional importance, suitable environment, propagation, varieties, methods of pollination.
Week 16	Preparatory week before the final Exam

### Delivery Plan (Weekly Lab. Syllabus)

#### المنهاج الاسبوعي التطبيقي

Week	Material Covered
Week 1	Identifying the types of deciduous fruits in terms of their appearance
Week 2	Identifying the type of bud and the nature of bearing in deciduous fruit trees
Week 3	How to produce seedstock by planting seeds of different types of deciduous fruits
Week 4	Conducting pruning operations for deciduous fruit trees and methods of raising deciduous fruit trees
Week 5	Practicing the process of uprooting, planting and serving seedlings
Week 6	Fertilizing fruit trees
Week 7	Irrigation process and points to be taken into account when irrigating deciduous fruit trees, irrigation methods used
Week 8	Conducting hoeing and weeding operations in fruit orchards
Week 9	How to plan orchards
Week 10	Practical orchard service in terms of plowing and smoothing the land
Week 11	Vaccination of fruit seedlings
Week 12	Yield service, including thinning, foliar feeding, and use of growth regulators
Week 13	Methods of breeding and pruning of grapes (root, stalk, grape vine) and others
Week 14	Tree service after harvesting
Week 15	Ways to reap the benefits

### Learning and Teaching Resources

#### مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	انتاج الفاكهة متساقطة الأوراق ١	no
Recommended Texts	<a href="https://uot.edu.ly/moduledescription.php?module=HO2603&amp;program=268&amp;lang=ar">https://uot.edu.ly/moduledescription.php?module=HO2603&amp;program=268&amp;lang=ar</a>	No
Websites	<a href="http://www.arc.sci.eg/InstsLabs/Pub_Search.aspx?NavId=9&amp;OrgID=66&amp;lang=ar">http://www.arc.sci.eg/InstsLabs/Pub_Search.aspx?NavId=9&amp;OrgID=66&amp;lang=ar</a>	

## Grading Scheme

### مخطط الدرجات

Group	Grade	التقدير	Marks %	Definition
<b>Success Group (50 - 100)</b>	<b>A - Excellent</b>	امتياز	90 - 100	Outstanding Performance
	<b>B - Very Good</b>	جيد جدا	80 - 89	Above average with some errors
	<b>C - Good</b>	جيد	70 - 79	Sound work with notable errors
	<b>D - Satisfactory</b>	متوسط	60 - 69	Fair but with major shortcomings
	<b>E - Sufficient</b>	مقبول	50 - 59	Work meets minimum criteria
<b>Fail Group</b>	<b>FX - Fail</b>	راسب (فقد المعالجة)	(45-49)	More work required but credit awarded



(0 - 49)	F - Fail	راسب	(0-44)	Considerable amount of work required
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**Note:** Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

## MODULE DESCRIPTION FORM

### نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Evergreen Fruit Trees		Module Delivery
Module Type	Core		<input checked="" type="checkbox"/> Theory <input checked="" type="checkbox"/> Lecture <input checked="" type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	PLP 202		
ECTS Credits	2		
SWL (hr/sem)	4		
Module Level	tow	Semester of Delivery	
Administering Department	Plant Production PLP	College	Technical Agricultural College
Module Leader	Fahad Khalaf Yassein	e-mail	fahadbiologymycology@ntu.edu.iq
Module Leader's Acad. Title	Asst.prof.	Module Leader's Qualification	
Module Tutor	Wasan waleed ahmad Al Obaidy	e-mail	<a href="mailto:wsnalobaidy@ntu.edu.iq">wsnalobaidy@ntu.edu.iq</a>
Peer Reviewer Name	Name	e-mail	E-mail
Scientific Committee Approval Date	01/06/2021	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	Deciduous Fruit Trees		Semester Two
Co-requisites module	Plant Physiology		Semester Two

## Module Aims, Learning Outcomes and Indicative Contents

### أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<p><b>Module Objectives</b> أهداف المادة الدراسية</p>	<p><b>11. Understanding the Fundamentals of Sustainable Fruit Production:</b></p> <ul style="list-style-type: none"> <li>• Clarifying the concepts of sustainable agriculture and their application in fruit cultivation.</li> <li>• Understanding the impact of traditional farming and modern agricultural practices on the environment and natural resources.</li> </ul> <p><b>12. Analysis of Fruit Farming Systems:</b></p> <ul style="list-style-type: none"> <li>• Introducing methods and techniques of fruit cultivation that promote sustainability.</li> <li>• Evaluating the impact of farming techniques on soil quality, water, and air.</li> </ul> <p><b>13. Developing Agricultural Management Skills:</b></p> <ul style="list-style-type: none"> <li>• Enhancing planning, organization, and implementation skills for managing fruit farms sustainably.</li> <li>• Guiding students to apply resource management principles and improve agricultural operations.</li> </ul> <p><b>14. Promoting Biological and Environmental Diversity:</b></p> <ul style="list-style-type: none"> <li>• Familiarizing students with the importance of preserving biological and environmental diversity in fruit farms.</li> <li>• Encouraging the use of agricultural methods that enhance biodiversity and reduce environmental harm.</li> </ul> <p><b>15. Enhancing Quality and Food Safety:</b></p> <ul style="list-style-type: none"> <li>• Educating students on maintaining the quality and safety of fruits during production, storage, and distribution.</li> <li>• Understanding the legal and regulatory context of food quality and safety and its application in the fruit industry.</li> </ul> <p><b>16. Promoting Fair Trade and Marketing:</b></p> <ul style="list-style-type: none"> <li>• Guiding students on sustainable marketing methods for fruits and promoting fair and responsible trade.</li> <li>• Raising awareness of social and economic justice issues in the fruit supply chain.</li> </ul> <p><b>17. Developing Research and Innovation Skills:</b></p> <ul style="list-style-type: none"> <li>• Encouraging students to conduct research on developing sustainable agricultural techniques for fruit production.</li> <li>• Enhancing creative thinking and innovating new solutions to sustainable fruit farming challenges.</li> <li>• <b>Identify the types of sustainable fruits prevalent in the country, such as citrus fruits, palm trees, and olives</b></li> </ul>
<p><b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية</p>	<p><b>20. Understanding of Sustainable Agriculture Principles:</b></p> <ol style="list-style-type: none"> <li>a. Ability to explain the concepts and principles of sustainable agriculture as they apply to fruit production.</li> <li>b. Knowledge of environmentally friendly practices and their significance in sustainable fruit farming.</li> </ol> <p><b>21. Proficiency in Fruit Farming Techniques:</b></p> <ol style="list-style-type: none"> <li>a. Competence in implementing sustainable farming techniques for fruit cultivation.</li> <li>b. Skill in selecting appropriate varieties, managing soil fertility, and optimizing water use in fruit production.</li> </ol> <p><b>22. Awareness of Environmental Impact:</b></p> <ol style="list-style-type: none"> <li>a. Understanding the environmental implications of different fruit production methods.</li> <li>b. Ability to evaluate the environmental sustainability of fruit farming practices and propose alternative solutions.</li> </ol>

	<p><b>23. Knowledge of Pest and Disease Management Strategies:</b></p> <ul style="list-style-type: none"> <li>a. Familiarity with integrated pest management (IPM) and disease control methods applicable to sustainable fruit production.</li> <li>b. Ability to identify common pests and diseases affecting fruit crops and implement effective control measures.</li> </ul>
	<p><b>24. Skills in Soil and Water Conservation:</b></p> <ul style="list-style-type: none"> <li>a. Proficiency in soil conservation techniques to prevent erosion and maintain soil health in fruit orchards.</li> <li>b. Understanding of water conservation practices, including efficient irrigation methods and rainwater harvesting.</li> </ul>
	<p><b>25. Competence in Harvesting and Post-Harvest Handling:</b></p> <ul style="list-style-type: none"> <li>a. Ability to perform proper harvesting techniques to maximize fruit quality and shelf life.</li> <li>b. Knowledge of post-harvest handling procedures to minimize losses and maintain fruit freshness.</li> </ul>
	<p><b>26. Understanding of Market Trends and Consumer Preferences:</b></p> <ul style="list-style-type: none"> <li>a. Awareness of market demands and consumer preferences for sustainably produced fruits.</li> <li>b. Ability to identify marketing opportunities and develop strategies for promoting sustainably grown fruits.</li> </ul>
	<p><b>27. Critical Thinking and Problem-Solving Skills:</b></p> <ul style="list-style-type: none"> <li>a. Capacity to analyze complex issues related to sustainable fruit production and propose innovative solutions.</li> <li>b. Ability to critically evaluate the economic, social, and environmental aspects of fruit farming practices.</li> </ul>
	<p><b>28. Research and Communication Skills:</b></p> <ul style="list-style-type: none"> <li>a. Proficiency in conducting research on topics related to sustainable fruit production and presenting findings effectively.</li> <li>b. Skill in communicating scientific information to diverse audiences, including peers, stakeholders, and the public.</li> </ul>
	<p><b>29. Ethical and Social Responsibility:</b></p> <ul style="list-style-type: none"> <li>a. Understanding of ethical considerations in fruit production, including fair labor practices and community engagement.</li> <li>b. Commitment to promoting social responsibility and contributing positively to local communities through sustainable fruit farming practices.</li> </ul>

## Indicative Contents

المحتويات الإرشادية

1. **Introduction to Fruit Cultivation:**
  - History and evolution of fruit cultivation.
  - Importance of fruits in nutrition, economy, and culture.
2. **Classification of Fruits:**
  - Introduction to different types of fruits and their classification.
  - Study of the characteristics of each fruit type, cultivation methods, and marketing.
3. **Fundamentals of Fruit Cultivation:**
  - Plant requirements, soil, and climate for fruit cultivation.
  - Techniques for propagation, cultivation, and appropriate fertilization for fruit crops.
4. **Management of Fruit Farms:**
  - Planning and management of agricultural areas for fruit cultivation.
  - Pest and disease management, irrigation management, and efficient fertilization methods.
5. **Harvesting and Storage Techniques for Fruits:**
  - Introduction to proper harvesting techniques for fruits at the right time.
  - Storage techniques, packaging, and preservation to maintain fruit quality and extend shelf life.
6. **Challenges and Problems in Fruit Cultivation:**
  - Study of common problems facing fruit cultivation such as pests, diseases, and environmental conditions.
  - Review of strategies to combat these challenges and improve productivity and quality.
7. **Research and Development Applications in Fruit Cultivation:**
  - Introduction to the latest research and developments in the field of fruit cultivation.
  - Encouragement of students to conduct research and develop new techniques to improve fruit productivity and quality.
8. **Economic and Commercial Aspects of Fruit Cultivation:**
  - Understanding economic factors affecting the fruit industry from production to marketing.
  - Market analysis, marketing applications, and global trade in fruits.
9. **Environmental and Sustainability Aspects in Fruit Cultivation:**
  - Focus on sustainable agricultural practices and their impact on the environment and society.
  - Promotion of awareness of the importance of preserving biodiversity and protecting natural resources in fruit cultivation.

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<b>Learning and Teaching Strategies</b> استراتيجيات التعلم والتعليم	
<b>Strategies</b>	<p><b>The necessity of visiting to gain experience from others. Obtaining new scientific information in the field of scientific research (videos). Practical training in the field. Access to modern scientific literature. Participation in relevant scientific conferences. Scientific laboratories with other universities.</b></p>

<b>Student Workload (SWL)</b> ساعة 45 الحمل الدراسي للطالب محسوب ل			
<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	30	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعيا	2
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطالب خلال الفصل	15	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطالب أسبوعيا	1
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	<b>45</b>		

## Module Evaluation

### تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO #5, #8 and #10
Summative assessment	Midterm Exam	2hr	10% (10)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

## Delivery Plan (Weekly Syllabus) ,

### المنهاج الاسبوعي النظري

Week	Material Covered
Week 1	Economic and nutritional importance, benefits of growing deciduous fruits and suitable climatic conditions for their cultivation, division of fruit trees.
Week 2	Citrus fruits, original habitat, economic and nutritional importance, botanical division.
Week 3	The effect of environmental factors (climate and soil) on citrus trees.
Week 4	Propagation of citrus fruits sexually and asexually, including propagation by seeds, extracting seeds and planting them, and vegetative propagation methods.
Week 5	Assets, their specifications and conditions.
Week 6	Citrus tree service operations and fruit falling.
Week 7	Palm trees, original habitat, economic and nutritional importance, influence of environmental factors on palm trees (soil and climate).
Week 8	Palm propagation includes sexual propagation by seeds, vegetative propagation by cuttings, and cultivation in a permanent place.
Week 9	Orchard service operations (irrigation, fertilization, pruning).
Week 10	Pollination and the phenomenon of metazenia, stages of fruit growth and palm varieties.
Week 11	Fruit service (fruit thinning, dangling, gaggling, sex operations).

Week 12	Olives, original habitat, economic and nutritional importance, botanical description and nature of bearing, pollination and fruit setting, influence of environmental factors.
Week 13	Sexual and asexual reproduction of olives, cultivation in a sustainable place, service processes and the phenomenon of resistance in olives.
Week 14	Bananas, original habitat, nutritional value, methods of banana propagation, suitable environmental conditions, varieties.
Week 15	Buckthorn (sidr), prickly pear, guava, pawpaw, cream, habitat, economic importance, methods of propagation, varieties, suitable environmental conditions
Week 16	Preparatory week before the final Exam

### Delivery Plan (Weekly Lab. Syllabus)

#### المنهاج الاسبوعي التطبيقي

Week	Material Covered
Week 1	Identifying the types of sustainable fruits in terms of their appearance, in addition to learning about the nature of tree growth and the nature of pregnancy.
Week 2	Sexual reproduction of citrus fruits, extracting seeds, cleaning them, treating them with disinfectants, preparing the soil and planting (citrus seeds).
Week 3	Vegetative propagation includes grafting processes, how to take grafts, and planting some cuttings
Week 4	Citrus tree service operations include fertilization, irrigation, hoeing and weeding.
Week 5	How to uproot and plant citrus seedlings
Week 6	Practical study of the most important distinctive characteristics of fronds, trunk, roots, etc.
Week 7	Sexual reproduction of palm trees, planting seeds in breeding ponds, identifying good seedlings and planting them.
Week 8	Identifying male and female flowers, carrying out pollination operations, how to collect pollen grains, and determining the appropriate date for pollination.
Week 9	Palm tree service operations in terms of fertilization, irrigation, hoeing and weeding
Week 10	A complement to the practice of service operations that include planting, removing shoots, and planting cuttings
Week 11	Practicing the process of olive propagation using young and mature cuttings and treating them with hormones
Week 12	Methods of harvesting and extracting olive oil
Week 13	Vaccination of basmala and buckthorn
Week 14	The practice of propagation of banana trees through khalafat
Week 15	See other types of sustainable fruits such as mango, prickly pear, pineapple and others.

### Learning and Teaching Resources

#### مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	انتاج الفاكهة المستديمة ١	no
Recommended Texts	<a href="https://books.google.com/books/about/البيئة_المناسبة_لنمو.html?id=baU8DwAAQBAJ">https://books.google.com/books/about/البيئة_المناسبة_لنمو.html?id=baU8DwAAQBAJ</a>	No

<b>Websites</b>	<a href="https://koha.birzeit.edu/cgi-bin/koha/opac-detail.pl?biblionumber=136663&amp;shelfbrowse_itemnumber=174300">https://koha.birzeit.edu/cgi-bin/koha/opac-detail.pl?biblionumber=136663&amp;shelfbrowse_itemnumber=174300</a>
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<b>Grading Scheme</b> مخطط الدرجات				
Group	Grade	التقدير	Marks %	Definition
<b>Success Group (50 - 100)</b>	<b>A - Excellent</b>	امتياز	90 - 100	Outstanding Performance
	<b>B - Very Good</b>	جيد جدا	80 - 89	Above average with some errors
	<b>C - Good</b>	جيد	70 - 79	Sound work with notable errors
	<b>D - Satisfactory</b>	متوسط	60 - 69	Fair but with major shortcomings
	<b>E - Sufficient</b>	مقبول	50 - 59	Work meets minimum criteria
<b>Fail Group</b>	<b>FX - Fail</b>	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded



(0 - 49)	F - Fail	راسب	(0-44)	Considerable amount of work required
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**Note:** Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

## MODULE DESCRIPTION FORM

### نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Fertilizers & Fertility		Module Delivery
Module Type	core		<input type="checkbox"/> Theory <input type="checkbox"/> Lecture <input checked="" type="checkbox"/> Lab <input checked="" type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	PLP 205		
ECTS Credits	3		
SWL (hr/sem)	5		
Module Level	Second	Semester of Delivery	
Administering Department	Plant Production PLP	College	Technical Agricultural College
Module Leader	Fahad Khalaf Yassein		e-mail
Module Leader's Acad. Title	Asst.prof.	Module Leader's Qualification	Master
Module Tutor	Omar Younis		e-mail
Peer Reviewer Name	Omar Younis	e-mail	E-mail
Scientific Committee Approval Date	01/06/2021	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	The concept of fertility, how to evaluate it, and the importance of fertilizers in the development of agricultural production		Semester
			one

## Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<b>Module Objectives</b> أهداف المادة الدراسية	The student is introduced to the concept of fertility, how to evaluate it, the importance of fertilizers in the development of agricultural production, what are the types of fertilizers used, what are their characteristics, the specific periods for their use, how to use them, and methods of adding them, and he becomes able to calculate the fertilizer needs for each crop.
<b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية	<b>U- Cognitive objectives</b> <b>12- The ability to determine the elements of fertility and fertilization in dry areas.</b> <b>13- The ability to determine the elements of climate and its impact on soil fertilization in dry areas</b>
<b>Indicative Contents</b> المحتويات الإرشادية	Study of plants and their relationship to the ecosystem and climate elements in dry areas <b>P- The skills objectives of the course.</b> <b>10- The ability to discuss in a scientific spirit and express what is involved in studying the subject.</b> <b>11- The ability to communicate and inquire with the subject teacher</b> <b>12- Writing reports related to the subject's vocabulary after identifying the scientific sources available in the library on topics related to the environment and dry areas.</b>

## Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

<b>Strategies</b>	<p><b>Working to increase knowledge to gain practical experience from others through educational videos and training courses to obtain new scientific information in the field of knowledge. Practical field training and how to take field measurements. Access to modern scientific literature. Scientific laboratories with other universities.</b></p>
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## Student Workload (SWL)

الحمل الدراسي للطالب محسوب لـ 45 ساعة

<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	70	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعياً	2
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطالب خلال الفصل	5	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطالب أسبوعياً	1
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	<b>75</b>		

## Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
<b>Formative assessment</b>	<b>Quizzes</b>	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	<b>Assignments</b>	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	<b>Projects / Lab.</b>	1	10% (10)	Continuous	All
	<b>Report</b>	1	10% (10)	13	LO #5, #8 and #10
<b>Summative assessment</b>	<b>Midterm Exam</b>	2hr	10% (10)	7	LO #1 - #7
	<b>Final Exam</b>	3hr	50% (50)	16	All
<b>Total assessment</b>			100% (100 Marks)		

## Delivery Plan (Weekly Syllabus)

### المنهاج الاسبوعي النظري

Week	Material Covered
Week 1	the world and food - soil fertility - fertilizers and their role in increasing production and meeting the growing need for food.
Week 2	Nutrient elements and their importance to plants, major elements, minor elements, readiness of nutrients, types of readiness, factors affecting them.
Week 3	Symptoms of nutritional deficiency, major and minor.
Week 4	Principles of fertilization, type of fertilizer, its quantity, when to add it, and methods of addition
Week 5	Inorganic fertilizers and obstacles to use, each according to its type and use
Week 6	Nitrogen, phosphate, and potash fertilizers (simple, complex, and complete), their types and characteristics.
Week 7	Mixed fertilizers, their importance, disadvantages of the process of mixing various types of fertilizers.
Week 8	Manufacture of various fertilizers in Iraq and the world.
Week 9	Methods of adding fertilizers and related calculations
Week 10	Different organic fertilizers, liquid fertilizers, their types, advantages and disadvantages.
Week 11	The remaining effect of fertilizers in the soil: nitrogen, phosphate, potassium, and organic.
Week 12	Hydroponics, the quantitative relationships between the plant and its constituent nutrients.
Week 13	Food requirements, fertilization research.
Week 14	Introducing soil fertility, studying soil fertility problems.
Week 15	Iraqi soil fertility, the reality of fertilization of Iraqi soil, and future prospects
Week 16	<b>Exam</b>

## Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

week	Material Covered
<b>Week 1</b>	Identifying the types of fertilizers, their physical and chemical properties, and descriptive tests.
<b>Week 2</b>	Evaluating soil fertility using the field method by choosing a suitable piece of land and carrying out a fertilization research experiment. Students are distributed into groups, the land is divided into panels, the treatments are distributed, and samples are taken for analysis purposes.
<b>Week 3</b>	Calculations related to the use of types of fertilizers for transactions and training on methods of adding them.
<b>Week 4</b>	Evaluating soil fertility using anvils, calculating the required fertilizers, and conducting the required transactions.
<b>Week 5</b>	How to study the symptoms of physiological diseases of plants in soil and their relationship to the symptoms of deficiency of various elements - biological and semi-biological methods.
<b>Week 6</b>	Determination of exchangeable ammonium, extraction and determination of nitrates in soil.
<b>Week 7</b>	Extraction and estimation of ready phosphorus in soil.
<b>Week 8</b>	Determination and extraction of potassium in soil.
<b>Week 9</b>	Plant analysis, methods of digesting plant models, performing the digestion process for plant models using the dry and wet method
<b>Week 10</b>	Completing plant models and estimating nitrogen
<b>Week 11</b>	Determination of potassium in plant tissues
<b>Week 12</b>	Determination of phosphorus in plant tissues
<b>Week 13</b>	Soil analysis methods
<b>Week 14</b>	Completing the composting experiment that took place at the beginning of the semester and submitting a report about it to each group of students
<b>Week 15</b>	Complete the discussion of the results of the field experiment and the anvil experiment, and discuss the student reports.
<b>Week 16</b>	<b>Exam</b>

## Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
<b>Required Texts</b>	<b>Autocad 2014</b>	Yes
<b>Recommended Texts</b>	<a href="https://www.google.iq/books/edition/%D8%A7%D9%84%D8%B1%D8%B3%D9%85_%D8%A7%D9%84%D9%87%D9%86%D8%AF%D8%B3%D9%8A_%D8%A8%D8%A7%D8%B3%D8%AA%D8%AE%D8%AF%D8%A7/InIDwAAQBAJ?hl=ar&amp;gbpv=1&amp;dq=%D8%A8%D8%B1%D9%86%D8%A7%D9%85%D8%AC%20%D8%A7%D9%88%D8%AA%D9%88%D9%83%D8%A7%D8%AF&amp;pg=PA17&amp;printsec=frontcover">https://www.google.iq/books/edition/%D8%A7%D9%84%D8%B1%D8%B3%D9%85_%D8%A7%D9%84%D9%87%D9%86%D8%AF%D8%B3%D9%8A_%D8%A8%D8%A7%D8%B3%D8%AA%D8%AE%D8%AF%D8%A7/InIDwAAQBAJ?hl=ar&amp;gbpv=1&amp;dq=%D8%A8%D8%B1%D9%86%D8%A7%D9%85%D8%AC%20%D8%A7%D9%88%D8%AA%D9%88%D9%83%D8%A7%D8%AF&amp;pg=PA17&amp;printsec=frontcover</a>	yes

## Grading Scheme

مخطط الدرجات

Group	Grade	التقدير	Marks %	Definition
<b>Success Group (50 - 100)</b>	<b>A - Excellent</b>	امتياز	90 - 100	Outstanding Performance
	<b>B - Very Good</b>	جيد جدا	80 - 89	Above average with some errors
	<b>C - Good</b>	جيد	70 - 79	Sound work with notable errors
	<b>D - Satisfactory</b>	متوسط	60 - 69	Fair but with major shortcomings
	<b>E - Sufficient</b>	مقبول	50 - 59	Work meets minimum criteria
<b>Fail Group</b>	<b>FX - Fail</b>	راسب (فقد المعالجة)	(45-49)	More work required but credit awarded
<b>(0 - 49)</b>	<b>F - Fail</b>	راسب	(0-44)	Considerable amount of work required

**Note:** Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

## MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

<b>Module Information</b>			
معلومات المادة الدراسية			
<b>Module Title</b>	<b>Food Industry</b>		<b>Module Delivery</b>
<b>Module Type</b>	<b>Core</b>		<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input checked="" type="checkbox"/> Practical <input type="checkbox"/> Seminar
<b>Module Code</b>	<b>TAMO 252</b>		
<b>ECTS Credits</b>	<b>2</b>		
<b>SWL (hr/sem)</b>	<b>4</b>		
<b>Module Level</b>	<b>second</b>	<b>Semester of Delivery</b>	
<b>Administering Department</b>	<b>Plant Production PLP</b>	<b>College</b>	<b>Technical Agricultural College</b>
<b>Module Leader</b>	<b>Fahad Khalaf Yassein</b>		<b>e-mail</b> <b>fahadbiology@ntu.edu.iq</b>

<b>Module Leader's Acad. Title</b>	<b>Asst.Professor</b>	<b>Module Leader's Qualification</b>	<b>Ph.D.</b>
<b>Module Tutor</b>	<b>Janan kassim khorshed</b>	<b>e-mail</b>	<b>E-mail Janankhorshed@ntu.edu.iq</b>
<b>Peer Reviewer Name</b>	<b>Name</b>	<b>e-mail</b>	<b>E-mail</b>
<b>Scientific Committee Approval Date</b>	<b>01/06/2021</b>	<b>Version Number</b>	<b>1.0</b>

### Relation with other Modules

العلاقة مع المواد الدراسية الأخرى

<b>Prerequisite module</b>		<b>Semester</b>	
<b>Co-requisites module</b>		<b>Semester</b>	

## Module Aims, Learning Outcomes and Indicative Contents

### أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<p><b>Module Objectives</b> أهداف المادة الدراسية</p>	<p>54. Helping to understand the most important food industries and how to develop them.</p> <p>55. Enabling students to know how to select raw materials, grade them, peel them, and all the treatments that are performed on them before manufacturing.</p> <p>56. Providing students with skills in how to manufacture and preserve some food products.</p> <p>57. Explaining the most important chemical, physical and sensory changes to which the product is exposed during manufacturing or storage and how to avoid them during Manufacturing.</p> <p>58. Helping the student understand the academic material and how to benefit from it in the future after graduation</p>
<p><b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية</p>	<ol style="list-style-type: none"><li>1. The student should know how to manufacture and preserve food.</li><li>2. The student should enumerate the types of food preservation methods.</li><li>3. The student should know the causes of food spoilage and methods of treating them.</li><li>4. The student knows the most important thermal treatments that take place during food manufacturing.</li><li>5. The student must know the importance of the academic subject (food industries) and benefit from what he has learned in practice.</li></ol>
<p><b>Indicative Contents</b> المحتويات الإرشادية</p>	<ol style="list-style-type: none"><li>1. The student should draw a diagram showing the most important food industries in Iraq.</li><li>2. The student writes a report on the method of manufacturing and storing a specific product.</li><li>3. The student should use the data show device to view a specific academic subject</li><li>4. Practical application of theoretical material.</li></ol>



## Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

<b>Strategies</b>	1. Lecture
	2. Discussion
	3. Displaying short topics about the study material electronically from YouTube.
	4. Use ppt presentation slides.

## Student Workload (SWL)

الحمل الدراسي للطالب محسوب ل 60 ساعة

<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	60	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعيا	4
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غيرالمنتظم للطالب خلال الفصل	0	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غيرالمنتظم للطالب أسبوعيا	0
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	60		

## Module Evaluation

### تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
<b>Formative assessment</b>	<b>Quizzes</b>	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	<b>Assignments</b>	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	<b>Projects / Lab.</b>	1	10% (10)	Continuous	All
	<b>Report</b>	1	10% (10)	13	LO #5, #8 and #10
<b>Summative assessment</b>	<b>Midterm Exam</b>	2hr	10% (10)	7	LO #1 - #7
	<b>Final Exam</b>	3hr	50% (50)	16	All
<b>Total assessment</b>			100% (100 Marks)		

## Delivery Plan (Weekly Syllabus)

### المنهاج الاسبوعي النظري

Week	Material Covered
<b>Week 1</b>	<b>The importance of food industries and how it arises and develops</b>
<b>Week 2</b>	<b>Identify the components of food</b>
<b>Week 3</b>	<b>Identify the components of food</b>
<b>Week 4</b>	<b>Identify the main foods</b>
<b>Week 5</b>	<b>Learn about ways to save food</b>
<b>Week 6</b>	<b>Methods of preserving food by cooling and freezing</b>
<b>Week 7</b>	<b>Food preservation methods heat (canning)</b>
<b>Week 8</b>	<b>Methods of preservation by drying</b>
<b>Week 9</b>	<b>Radiation preservation</b>
<b>Week 10</b>	<b>Fermentations and their types</b>
<b>Week 11</b>	<b>Vinegar industry</b>

<b>Week 12</b>	<b>Tomato paste manufacturing</b>
<b>Week 13</b>	<b>Jam industry</b>
<b>Week 14</b>	Review
<b>Week 15</b>	Review
<b>Week 16</b>	Review

<b>Learning and Teaching Resources</b> مصادر التعلم والتدريس		
	<b>Text</b>	<b>Available in the Library?</b>
<b>Required Texts</b>	Principles of food industries/Al-Aswad, Abdul-Aziz, and Solaqa	Yes
<b>Recommended Texts</b>	Essential of food processing, VACLAVIK	No
<b>Websites</b>	Internet sites, Google, YouTube, and social media in the field	

<b>Grading Scheme</b> مخطط الدرجات				
<b>Group</b>	<b>Grade</b>	<b>التقدير</b>	<b>Marks %</b>	<b>Definition</b>
<b>Success Group (50 - 100)</b>	<b>A - Excellent</b>	امتياز	90 - 100	Outstanding Performance
	<b>B - Very Good</b>	جيد جدا	80 - 89	Above average with some errors
	<b>C - Good</b>	جيد	70 - 79	Sound work with notable errors
	<b>D - Satisfactory</b>	متوسط	60 - 69	Fair but with major shortcomings
	<b>E - Sufficient</b>	مقبول	50 - 59	Work meets minimum criteria
<b>Fail Group</b>	<b>FX - Fail</b>	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded

(0 - 49)	F - Fail	راسب	(0-44)	Considerable amount of work required
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**Note:** Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

## MODULE DESCRIPTION FORM

### نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Organic Chemistry		Module Delivery
Module Type	Core		<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input checked="" type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	TAMO 201		
ECTS Credits	3		
SWL (hr/sem)	5		
Module Level	second	Semester of Delivery	
Administering Department	Plant Production PLP	College	Technical Agricultural College
Module Leader	Fahad Khalaf Yassein	e-mail	fahadbiologymycology@ntu.edu.iq
Module Leader's Acad. Title	Asst.prof	Module Leader's Qualification	Ph.D.
Module Tutor	Hala awf abdalrahman	e-mail	Hala chilmeran 20@gmail .com
Peer Reviewer Name	Name	e-mail	E-mail
Scientific Committee Approval Date	01/06/2021	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	General Chemistry		Semester Second
Co-requisites module	biochemistry		Semester Third

## Module Aims, Learning Outcomes and Indicative Contents

### أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<p><b>Module Objectives</b> أهداف المادة الدراسية</p>	<p>Introducing the student to the types of chemical bonds, how to store them, and their physical and chemical properties. Discussing hybridization and the theory of repulsion between electronic pairs and their effect on the shape of molecules. Introducing the student to the most important organic compounds and their functional groups.</p>
<p><b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية</p>	<ul style="list-style-type: none"><li>- The student will be familiar with molecular bonds and bonds and their types, as well as have knowledge of organic compounds, the prospects for their use, methods of preparing them, how to distinguish between them, and their most important physical and chemical properties.</li></ul>
<p><b>Indicative Contents</b> المحتويات الإرشادية</p>	<p><b>Indicative content includes the following.</b></p> <p>organic Chemistry: to learn Bonding and properties of molecules. Atomic theory and atomic structure.[10]</p> <p>Accurate analysis: To learn Chemical bonds . Structural theory. Classification of organic compounds..[10]</p> <p>Electron pair repulsion theory. Molecular bonding. Hydrogen bonds. Acids and bases. Solvents in organic chemistry. solubility..[10]</p> <p>Hydrocarbons.[10].</p>

## Learning and Teaching Strategies

### استراتيجيات التعلم والتعليم

<b>Strategies</b>	<ul style="list-style-type: none"><li>- <b>The necessity of visiting to gain experience from others. Obtaining new scientific information in the field of scientific research (videos). Practical training in the field. Access to modern scientific literature. Participation in relevant scientific conferences. Scientific laboratories with other universities.</b></li></ul>
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## Student Workload (SWL)

### الحمل الدراسي للطالب محسوب ل75 ساعة

<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	70	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعياً	4
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطالب خلال الفصل	5	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطالب أسبوعياً	1
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	<b>75</b>		

## Module Evaluation

### تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO #5, #8 and #10
Summative assessment	Midterm Exam	2hr	10% (10)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

## Delivery Plan (Weekly Syllabus)

### المنهاج الاسبوعي النظري

Week	Material Covered
Week 1	<b>Bonding and properties of molecules.</b>
Week 2	Atomic theory and atomic structure.
Week 3	Chemical bonds .
Week 4	Structural theory.
Week 5	Classification of organic compounds.
Week 6	Electron pair repulsion theory.
Week 7	Molecular bonding.
Week 8	Hydrogen bonds.
Week 9	Acids and bases.
Week 10	Solvents in organic chemistry.
Week 11	solubility.

<b>Week 12</b>	<b>Hydrocarbons.</b>
<b>Week 13</b>	<b>Aliphatic hydrocarbons.</b>
<b>Week 14</b>	<b>Aromatic hydrocarbons.</b>
<b>Week 15</b>	<b>Alkanes</b>

### Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

<b>week</b>	<b>Material Covered</b>
<b>Week 1</b>	<b>Devices and tools used in organic chemistry laboratories</b>
<b>Week 2</b>	<b>Methods for measuring the physical constants of organic materials</b>
<b>Week 3</b>	<b>Methods for measuring the physical constants of organic materials</b>
<b>Week 4</b>	<b>The first experiment determined the melting point of organic compounds</b>
<b>Week 5</b>	<b>The second experiment: the experiment of determining the boiling point of organic compounds</b>
<b>Week 6</b>	<b>The third experiment: recrystallization of benzene acid</b>
<b>Week 7</b>	<b>Methods of purifying liquid organic materials</b>
<b>Week 8</b>	<b>Simple distillation of ethanol</b>
<b>Week 9</b>	<b>Experiments to differentiate between aliphatic and aromatic compounds</b>
<b>Week 10</b>	<b>Nitriding experiment</b>
<b>Week 11</b>	<b>Brokerage experience</b>
<b>Week 12</b>	<b>Experiments to differentiate between saturated and unsaturated aliphatic compounds</b>
<b>Week 13</b>	<b>Applications to preparations in organic chemistry</b>
<b>Week 14</b>	<b>Preparing aspirin</b>
<b>Week 15</b>	<b>Preparation of paracetamol</b>
<b>Week 16</b>	<b>Exam</b>

### Learning and Teaching Resources

مصادر التعلم والتدريس

	<b>Text</b>	<b>Available in the Library?</b>
<b>Required Texts</b>		
<b>Recommended Texts</b>		
<b>Websites</b>		



## Grading Scheme

### مخطط الدرجات

Group	Grade	التقدير	Marks %	Definition
<b>Success Group (50 - 100)</b>	<b>A - Excellent</b>	امتياز	90 - 100	Outstanding Performance
	<b>B - Very Good</b>	جيد جدا	80 - 89	Above average with some errors
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	<b>D - Satisfactory</b>	متوسط	60 - 69	Fair but with major shortcomings
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<b>Fail Group</b>	<b>FX - Fail</b>	راسب (فقد المعالجة)	(45-49)	More work required but credit awarded

(0 - 49)	F - Fail	راسب	(0-44)	Considerable amount of work required
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**Note:** Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

## MODULE DESCRIPTION FORM

### نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Plant Physiology		Module Delivery
Module Type	Core		<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input checked="" type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	PLP 104		
ECTS Credits	3		
SWL (hr/sem)	4		
Module Level	second	Semester of Delivery	
Administering Department	Plant Production PLP	College	Technical Agricultural College
Module Leader	Fahad Khalaf Yassein	e-mail	fahadbiologymycology@ntu.edu.iq
Module Leader's Acad. Title	Asst.prof.	Module Leader's Qualification	
Module Tutor	Waad S. Faizy	e-mail	Waadwaad1970@ntu.edu.iq
Peer Reviewer Name	Name	e-mail	E-mail
Scientific Committee Approval Date	01/06/2021	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	Plant anatomy		Semester second
Co-requisites module	General Botany		Semester second

## Module Aims, Learning Outcomes and Indicative Contents

### أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<p><b>Module Objectives</b> أهداف المادة الدراسية</p>	<ol style="list-style-type: none"><li>1. Expanding the student's understanding of the most important basic information about plant physiology.</li><li>2. Teaching and training the student to know the most important physiological processes that occur within the plant.</li><li>3. Teaching and training students on the most important biological reactions carried out by plants.</li><li>4. Introducing the student to how plants perform these activities and the mechanisms and mechanisms of their occurrence.</li><li>5. Giving students knowledge of the physiology laboratory supplies, how to deal with them, use them, and conduct simple physiological experiments.</li></ol>
<p><b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية</p>	<ol style="list-style-type: none"><li>1. Understand how plants perform their various functions.</li><li>2. Identifying the plant's growth needs and thus using them to increase agricultural production.</li><li>3. Determine the plant's needs in order to provide them.</li><li>4. Understanding the physiological state of plants and providing the student with the scientific knowledge to diagnose different physiological states of plants.</li><li>5. Identify the nature and types of plants and the extent to which they are affected by their external environment.</li></ol>
<p><b>Indicative Contents</b> المحتويات الإرشادية</p>	<p>Instructional content includes the following.</p> <p>Part A - Theoretical part</p> <ol style="list-style-type: none"><li>1. Plant, physiology, cell, types, and organelles. [3 hours]</li><li>2. Cell structure, components, and functions. [3 hours]</li><li>3. Solutions, their types, methods of measuring them, and methods of preparing them. [3 hours]</li><li>4. Diffusion, osmosis, water potential, the importance of osmosis for plants. [3 hours]</li><li>5. Water relationship with plants, water absorption, xylem, phloem tissue. [3 hours]</li><li>6. Water loss from plants, transpiration, stomata, mechanism of opening and closing stomata [3 hours]</li><li>7. Physiological processes, photosynthesis, respiration [3 hours]</li></ol>

	<p><u>Part B - practical part</u></p> <ol style="list-style-type: none"> <li>Using an optical microscope to identify the cell and its structure. [9 hours].</li> <li>Preparing solutions and methods for measuring their concentrations. [9 hours].</li> <li>Experiments on diffusion, osmosis, absorption and transport of water. [9 hours].</li> <li>Cell organs, anatomy of the root system, stems and leaves, showing scientific films. [9 hours].</li> <li>Tissue culture, plant hormones. [9 hours].</li> </ol>
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<b>Learning and Teaching Strategies</b> استراتيجيات التعلم والتعليم	
<b>Strategies</b>	<p><b>The necessity of visiting to gain experience from others. Obtaining new scientific information in the field of scientific research (videos). Practical training in the field. Access to modern scientific literature. Participation in relevant scientific conferences. Scientific laboratories with other universities.</b></p>

<b>Student Workload (SWL)</b> الحمل الدراسي للطالب محسوب ل60 ساعة			
<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	45	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعياً	3
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطالب خلال الفصل	15	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطالب أسبوعياً	1
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	<b>60</b>		

## Module Evaluation

### تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO #5, #8 and #10
Summative assessment	Midterm Exam	2hr	10% (10)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

## Delivery Plan (Weekly Syllabus)

### المنهاج الاسبوعي النظري

Week	Material Covered
Week 1	The plant cell, its components, functions, and characteristics.
Week 2	Types of solutions, their concentrations, solute and solvent, acids, Alkalines, and salts.
Week 3	Diffusion and osmotic
Week 4	Water potential, imbibition and permeability
Week 5	The importance of water - physical properties - ways of absorbing water
Week 6	Nutrient absorption
Week 7	The rise of plant succulents
Week 8	Transpiration - Estimating the coefficient and rate of transpiration - The mechanism of opening and closing stomata
Week 9	Transport by phloem - components of phloem tissue - the most important transported materials - theories of transport
Week 10	The process of photosynthesis, the source of the oxygen molecule - light reactions
Week 11	Dark reactions phase (methods of CO <sub>2</sub> fixation) C <sub>3</sub> plants and C <sub>4</sub> plants and factors affecting the photosynthesis process.

Week 12	The process of respiration - importance - the first stage of respiration and the formation of pyruvic acid
Week 13	The Krebs cycle, the electron transport chain, and calculating the resulting energy
Week 14	Energy transfer in green leaves, stomata)
Week 15	Growth regulators - types - importance and applications
Week 16	Show scientific films

### Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

week	Material Covered
Week 1	Learn about Laboratory equipment and solutions preparation
Week 2	Microscopy and cell examination - using an optical microscope - types of microscopes
Week 3	Detection of some substances in the cell such as carbohydrates, proteins and oils - how to separate some parts of the cell such as the nucleus and mitochondria
Week 4	Experiments on applying the rules of diffusion, membrane permeability and imbibition
Week 5	Explaining osmosis, osmotic pressure, and plasma
Week 6	Experiments showing water transport in wood and root pressure
Week 7	Study of stomata and the process of transpiration
Week 8	Explain the process of phloem transport
Week 9	Study of the photosynthesis apparatus
Week 10	The relationship of vegetative growth to light and leaf area measurement
Week 11	Detecting the presence of starch resulting from the photosynthesis process in leaves
Week 12	Extraction and estimation of plant pigments
Week 13	Some experiments indicating the process of respiration in plants
Week 14	The most important applications of growth regulators in agriculture
Week 15	Practicing the process of plant tissue culture in vitro
Week 16	Exam

### Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Plant Physiology علم فسلجة النبات/ الدكتور عبد العظيم كاظم محمد، 1985	Yes
Recommended Texts	<u>Fundamentals of Plant Physiology</u> , 2024	No
Websites	<a href="https://global.oup.com/ushe/product/fundamentals-of-plant-physiology-9780197614167?cc=us&amp;lang=en">https://global.oup.com/ushe/product/fundamentals-of-plant-physiology-9780197614167?cc=us&amp;lang=en</a>	

## Grading Scheme

### مخطط الدرجات

Group	Grade	التقدير	Marks %	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group	FX - Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded

(0 - 49)	F - Fail	راسب	(0-44)	Considerable amount of work required
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**Note:** Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

## MODULE DESCRIPTION FORM

### نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Plant Taxonomy		Module Delivery
Module Type	Core		<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input checked="" type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	PLP 251		
ECTS Credits	2		
SWL (hr/sem)	3		
Module Level	second	Semester of Delivery	
Administering Department	Plant Production PLP	College	Technical Agricultural College
Module Leader	Fahad Khalaf Yassein	e-mail	fahadbiologymycology@ntu.edu.iq
Module Leader's Acad. Title	Asst.prof.	Module Leader's Qualification	M.S.A
Module Tutor	Zeyad Amer Mostfa	e-mail	mti.lec96.Zeyad@ntu.edu.iq
Peer Reviewer Name	Name	e-mail	E-mail
Scientific Committee Approval Date	01/06/2021	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	Plant Taxonomy	Semester	Two
Co-requisites module	Plant Physiology	Semester	Two



## Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<p><b>Module Objectives</b> أهداف المادة الدراسية</p>	<p>59. Introducing the student to the science of classification 60. Knowing the basic organs that are used in plant classification</p>
<p><b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية</p>	<p>The student learns the three aspects of classification The student learns some basic concepts in classification science The student learns about primitive seed and non-seed plants The student learns about the relationship of taxonomy to other sciences</p>
<p><b>Indicative Contents</b> المحتويات الإرشادية</p>	<p>Indicative content includes the following. <b><u>Part A - theoretical part</u></b> . Guiding students to differentiate and classify poisonous plants [3 hrs] Guide students in the correct classification and naming of plants, especially newly discovered ones [3 hrs]</p>

	<p><u>Part B - practical part</u></p> <p><b>Differentiate between different types of papers. [9 hrs].</b></p> <p><b>Differentiating between different types of plant roots laboratory. [9 hrs].</b></p> <p><b>Planting seeds of ornamental plants, fruits and vegetables. [9 hrs].</b></p> <p><b>Laboratory differentiation between plant stems. [9 hrs].</b></p> <p><b>Differentiating between reproductive organs and identifying them in the laboratory and field[9 hrs]</b></p> <p>.</p>
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<b>Learning and Teaching Strategies</b> استراتيجيات التعلم والتعليم	
<b>Strategies</b>	<p><b>The necessity of visiting to gain experience from others.Obtaining new scientific information in the field of scientific research (videos). Practical training in the field. Access to modern scientific literature. Participation in relevant scientific conferences. Scientific laboratories with other universities.</b></p>

<b>Student Workload (SWL)</b> الحمل الدراسي للطالب محسوب ل60 ساعة			
<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	45	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعيا	3
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غيرالمنتظم للطالب خلال الفصل	15	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غيرالمنتظم للطالب أسبوعيا	1
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	<b>60</b>		

## Module Evaluation

### تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
<b>Formative assessment</b>	<b>Quizzes</b>	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	<b>Assignments</b>	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	<b>Projects / Lab.</b>	1	10% (10)	Continuous	All
	<b>Report</b>	1	10% (10)	13	LO #5, #8 and #10
<b>Summative assessment</b>	<b>Midterm Exam</b>	2hr	10% (10)	7	LO #1 - #7
	<b>Final Exam</b>	3hr	50% (50)	16	All
<b>Total assessment</b>			100% (100 Marks)		

## Delivery Plan (Weekly Syllabus)

### المنهاج الاسبوعي النظري

Week	Material Covered
<b>Week 1</b>	Definition of horticulture, the economic and nutritional importance of horticultural crops, division of crops
<b>Week 2</b>	The effect of environmental factors on the production of horticultural crops
<b>Week 3</b>	Soil service operations
<b>Week 4</b>	Propagation of horticultural plants by seeds
<b>Week 5</b>	Vegetative propagation of crops
<b>Week 6</b>	Physiology of reproduction
<b>Week 7</b>	Morphological structures of plant parts
<b>Week 8</b>	The most important methods of propagation - varieties - the most important service operations - economic and nutritional importance
<b>Week 9</b>	The most important deciduous fruit trees in Iraq - importance - methods of propagation - varieties - most important service operations
<b>Week 10</b>	Fruit tree service
<b>Week 11</b>	The most important summer vegetables in Iraq

<b>Week 12</b>	The most important winter vegetables in Iraq
<b>Week 13</b>	The most important ornamental and shade plants, methods of propagation
<b>Week 14</b>	Alarm crops
<b>Week 15</b>	Spices and medicinal crops
<b>Week 16</b>	<b>Preparatory week before the final Exam</b>

### Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

week	Material Covered
<b>Week 1</b>	View propagation facilities and gardening fields
<b>Week 2</b>	Identify the fruit trees grown in the area
<b>Week 3</b>	Learn about ornamental seeds and different vegetables
<b>Week 4</b>	Preparing different growth media
<b>Week 5</b>	Cultivation of seeds in different agricultural environments
<b>Week 6</b>	Methods of planting seeds in panels, terraces, and terraces
<b>Week 7</b>	How to take cuttings for fruit trees and plant them
<b>Week 8</b>	Propagation of some plants by tubers and bulbs
<b>Week 9</b>	Planning a regular fruit orchard
<b>Week 10</b>	Orchard service operations
<b>Week 11</b>	Growing and caring for vegetable plants in greenhouses and greenhouses
<b>Week 12</b>	Vegetable crop service
<b>Week 13</b>	Identifying ornamental plants in the laboratory
<b>Week 14</b>	Individualization, transplantation and service of ornamental plants
<b>Week 15</b>	How to implement a geometric garden
<b>Week 16</b>	<b>Exam</b>

### Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
<b>Required Texts</b>	<b>Plant Taxonomy</b> اريج عبد الستارا	Yes
<b>Recommended Texts</b>	<b>Plant Taxonomy</b>	No
<b>Websites</b>		

## Grading Scheme

### مخطط الدرجات

Group	Grade	التقدير	Marks %	Definition
<b>Success Group (50 - 100)</b>	<b>A - Excellent</b>	امتياز	90 - 100	Outstanding Performance
	<b>B - Very Good</b>	جيد جدا	80 - 89	Above average with some errors
	<b>C - Good</b>	جيد	70 - 79	Sound work with notable errors
	<b>D - Satisfactory</b>	متوسط	60 - 69	Fair but with major shortcomings
	<b>E - Sufficient</b>	مقبول	50 - 59	Work meets minimum criteria
<b>Fail Group</b>	<b>FX - Fail</b>	راسب (فقد المعالجة)	(45-49)	More work required but credit awarded

(0 - 49)	F - Fail	راسب	(0-44)	Considerable amount of work required
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**Note:** Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

## MODULE DESCRIPTION FORM

### نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Production of Summer Vegetables		Module Delivery
Module Type	Core		<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input checked="" type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	PLP 208		
ECTS Credits	2		
SWL (hr/sem)	4		
Module Level	One	Semester of Delivery	
Administering Department	Plant Production PLP	College	Technical Agricultural College
Module Leader	Fahad Khalaf Yassein	e-mail	fahadbiologymycology@ntu.edu.iq
Module Leader's Acad. Title	Asst.prof.	Module Leader's Qualification	
Module Tutor	Amer Moqbel Abdul Hameed	e-mail	E-mail amer.m@ntu.edu.iq
Peer Reviewer Name	Amer Moqbel Abdul Hameed	e-mail	E-mail amer.m@ntu.edu.iq
Scientific Committee Approval Date	01/06/2021	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	Production of Winter Vegetables	Semester	Two
Co-requisites module	Modern planting techniques	Semester	Two

## Module Aims, Learning Outcomes and Indicative Contents

### أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<b>Module Objectives</b> أهداف المادة الدراسية	61. Introducing the student to the most important summer vegetables and methods of producing and serving them. 62. Learn about methods of classifying summer crops and the plant families for each crop. 63. And methods of propagation and able to describe the appropriate environment for each crop.
<b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية	1. 1. Introducing students to the most important types and varieties of vegetable crops that can be successfully cultivated and traded in Iraq. 2. 2. Study the most important environmental requirements (climate and soil) necessary for the successful cultivation of some vegetable crops. 3. 3. Introducing students to the most important horticultural operations that must be carried out correctly for the successful cultivation of some vegetable crops 4. 4. Study the most important methods of reproduction and production of vegetables. 5. 5. Introducing students to the most important types of each type of vegetable studied
<b>Indicative Contents</b> المحتويات الإرشادية	Indicative content includes the following. <u>Part A - theoretical part</u> 1. Factors that must be taken into consideration when establishing a vegetable field, selecting and preparing permanent land for growing vegetables. . [3 hrs] 2. Propagation of vegetable crops, advantages and disadvantages of sexual reproduction, specifications that must be met by vegetable seeds, examination of vegetable seeds. . [3 hrs] 3. Treatment of vegetable seeds, vegetative propagation, advantages and disadvantages of vegetative propagation, conditions that must be applied when carrying out vegetative propagation. . [3 hrs] 4. Methods of vegetative propagation, methods of planting vegetable seeds, advantages of planting with seedlings. . [3 hrs] 5. Dividing vegetable crops according to their ability to tolerate transplanting, factors affecting the success of the transplanting process. . [3 hrs] 6. Seedling production methods, acclimatization methods, seedling pruning, and specifications that must be met by vegetable seedlings. [3 hrs].

**7. Agricultural operations in vegetable crops, covering the soil surface, benefits of fertilization in vegetable crops . [3 hrs]**

**8.**

Part B - practical part

**. Crops of the Solanaceae family, their types, reproduction, suitable soil, and planting date. [9 hrs]**

**.Crops of the cucurbit family, their types, reproduction, suitable soil, and planting date. [9 hrs]**

**.Crops of the mallow family, their types, reproduction, suitable soil, and planting date. [9 hrs]**

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## Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

<b>Strategies</b>	<b>The necessity of visiting to gain experience from others. Obtaining new scientific information in the field of scientific research (videos). Practical training in the field. Access to modern scientific literature. Participation in relevant scientific conferences. Scientific laboratories with other universities.</b>
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## Student Workload (SWL)

الحمل الدراسي للطالب محسوب ل60 ساعة

<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	50	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعيا	3
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غيرالمنتظم للطالب خلال الفصل	10	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غيرالمنتظم للطالب أسبوعيا	1
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	<b>60</b>		

## Module Evaluation

### تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO #5, #8 and #10
Summative assessment	Midterm Exam	2hr	10% (10)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

## Delivery Plan (Weekly Syllabus)

### المنهاج الاسبوعي النظري

Week	Material Covered
Week 1	Agricultural cycles for vegetable crops (definition, benefits, design principles, models for vegetable cycles).
Week 2	Production of vegetable seedlings (types of agricultural media, specifications of good seeds, seedling density and seedling care processes, types of containers).
Week 3	Production of Solanaceae family plants (tomatoes and eggplant).
Week 4	Solanaceae family (peppers and potatoes).
Week 5	The Cucurbita family (cucumber, zucchini, and hazel).
Week 6	The cucurbit family (cucumber, watermelon, cucumber).
Week 7	The legume family (cowpea, beans).
Week 8	Production of sweet potatoes and maza (tartufa).
Week 9	Production of okra and sugar corn.
Week 10	Production of basil and mint.
Week 11	Production of asparagus and taro.
Week 12	Production of berbene and molokhia.
Week 13	Production of strawberries and artichokes.
Week 14	Agricultural mushroom production.
Week 15	Other vegetables (gotha, cassava).
Week 16	Exam

## Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

week	Material Covered
Week 1	Preparing agricultural media and producing vegetable seedlings directly in the ground or in containers.
Week 2	Training on soil preparation and planting seedlings or seeds in the field.
Week 3	Botanical division, morphological characteristics, and varieties of tomatoes and eggplant.
Week 4	Botanical division, morphological characteristics, and varieties of pepper and potatoes.
Week 5	Botanical division, morphological characters, and varieties of cucumber, zucchini, and honey squash .
Week 6	Botanical division, morphological characteristics, and varieties of watermelon, watermelon, and cucumber.
Week 7	Botanical division, morphological characters, and varieties of cowpeas and beans .
Week 8	Training on the application of thinning, hoeing, irrigation, fertilization and pest control operations.
Week 9	Botanical description and varieties of okra and sugar corn.
Week 10	Botanical description and varieties of sweet potatoes and maza.
Week 11	Botanical description and varieties of basil and mint.
Week 12	Botanical description and varieties of asparagus and taro.
Week 13	Botanical description of berbene, mallowia, shlek and artichoke .
Week 14	Botanical description of agricultural mushrooms and preparation of the growth environment .
Week 15	A field visit to the vegetable fields in the region .
Week 16	Exam

## Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	انتاج خضراوات / الجزء الأول المؤلف د. عدنان مطلوب انتاج خضراوات / الجزء الثاني المؤلف د. عدنان مطلوب مديرية دار الكتب الطباعة والنشر 1998	Yes
Recommended Texts		NO
Websites	<a href="https://uomustansiriyah.edu.iq/books/65605.html">https://uomustansiriyah.edu.iq/books/65605.html</a>	

## Grading Scheme

### مخطط الدرجات

Group	Grade	التقدير	Marks %	Definition
<b>Success Group (50 - 100)</b>	<b>A - Excellent</b>	امتياز	90 - 100	Outstanding Performance
	<b>B - Very Good</b>	جيد جدا	80 - 89	Above average with some errors
	<b>C - Good</b>	جيد	70 - 79	Sound work with notable errors
	<b>D - Satisfactory</b>	متوسط	60 - 69	Fair but with major shortcomings
	<b>E - Sufficient</b>	مقبول	50 - 59	Work meets minimum criteria
<b>Fail Group</b>	<b>FX - Fail</b>	راسب (فقد المعالجة)	(45-49)	More work required but credit awarded

(0 - 49)	F - Fail	راسب	(0-44)	Considerable amount of work required
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**Note:** Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

## MODULE DESCRIPTION FORM

### نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Production of Winter Vegetables		Module Delivery
Module Type	Core		<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input checked="" type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	PLP 203		
ECTS Credits	2		
SWL (hr/sem)	4		
Module Level	Second	Semester of Delivery	
Administering Department	Plant Production PLP	College	Technical Agricultural College
Module Leader	Fahad Khalaf Yassein	e-mail	fahadbiologymycology@ntu.edu.iq
Module Leader's Acad. Title	Asst.prof.	Module Leader's Qualification	
Module Tutor	Amer Moqbel Abdul Hameed	e-mail	E-mail amer.m@ntu.edu.iq
Peer Reviewer Name	Amer Moqbel Abdul Hameed	e-mail	E-mail amer.m@ntu.edu.iq
Scientific Committee Approval Date	01/06/2021	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	Protected Agriculture	Semester	Third
Co-requisites module	Modern planting techniques	Semester	Second

## Module Aims, Learning Outcomes and Indicative Contents

### أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<p><b>Module Objectives</b> أهداف المادة الدراسية</p>	<p>64. Introducing the student to the most important winter vegetables, methods of producing and serving them, and methods of classifying them.</p> <p>65. Identify the plant families of vegetables.</p> <p>66. Knowing the methods of its propagation and being able to describe the appropriate environment for each crop.</p>
<p><b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية</p>	<p>6. Identifying the facilities necessary for growing vegetables, the agricultural operations that must be carried out, and the importance of mulching.</p> <p>7. Knowledge of the classification of vegetable crops, types of reproduction in vegetable crops.</p> <p>8. Seedlings and the factors affecting them, causes of seedling failure, acclimatization of seedlings and their types.</p> <p>9. Types of pollination, flowers in vegetable crops, seed dormancy, its types.</p>
<p><b>Indicative Contents</b> المحتويات الإرشادية</p>	<p>Indicative content includes the following.</p> <p><b><u>Part A - theoretical part</u></b></p> <p>9. Branches of horticulture. [3 hrs]</p> <p>10. The original habitats of vegetable crops. [3 hrs]</p> <p>11. The benefits and importance of knowing the original habitats of vegetable crops. [3 hrs]</p> <p>12. Problems of vegetable crop production in Iraq. [3 hrs]</p> <p>13. How to develop agriculture and produce vegetable crops. [3 hrs]</p> <p>14. The importance of vegetative division of vegetable crops [3hrs]</p>

	<p><u>Part B - practical part</u></p> <ul style="list-style-type: none"> <li>. <b>Factors that must be taken into consideration when establishing a vegetable field: selecting and preparing permanent land for growing vegetables. [9 hrs]</b></li> <li>. <b>Examination of vegetable seeds, factors affecting the germination of vegetable seeds. [9 hrs]</b></li> <li>. <b>Treatment of vegetable seeds, methods of vegetative propagation. [9 hrs]</b></li> <li>. <b>Methods of planting vegetable seeds. [9 hrs]</b></li> <li>. <b>Identify the family and scientific name of each vegetable crop.[9 hrs]</b></li> </ul>
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<b>Learning and Teaching Strategies</b> استراتيجيات التعلم والتعليم	
<b>Strategies</b>	<p><b>The necessity of visiting to gain experience from others. Obtaining new scientific information in the field of scientific research (videos). Practical training in the field. Access to modern scientific literature. Participation in relevant scientific conferences. Scientific laboratories with other universities.</b></p>

<b>Student Workload (SWL)</b> الحمل الدراسي للطالب محسوب ل60 ساعة			
<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	45	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعياً	3
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطالب خلال الفصل	15	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطالب أسبوعياً	1
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	<b>60</b>		

## Module Evaluation

### تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO #5, #8 and #10
Summative assessment	Midterm Exam	2hr	10% (10)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

## Delivery Plan (Weekly Syllabus)

### المنهاج الاسبوعي النظري

Week	Material Covered
Week 1	Brief history of gardening kinds of vegetable gardening ,origins of veg . plants , economic importance .
Week 2	Nutrient value of veg . plants , toxic compounds in veg . products .
Week 3	Classification of veg . plants
Week 4	Climatic requerments of veg plants .
Week 5	Soil requirments of veg. plants .
Week 6	Propagation of veg. plants .
Week 7	Irrigation of veg plants .
Week 8	Fertilization of veg plants .
Week 9	Production of cruciferae plants ( cabbage cauliflower , Radish , turnip , garden , cress ) .
Week 10	Production of Alliaceae plants ( onion , Gartic ,leek )
Week 11	Production of leguminosae plants ( paes ,Broadbean ).
Week 12	Production of umbilliferae ( celery , parsley , carrot ).
Week 13	Production of chenopodiaceae plants ( spinach , chard , table , beet ).
Week 14	Other plants of different families ; indivie , chechoria , Rutabage , Broccoli , mustard .
Week 15	Insecticide control .
Week 16	Exam



## Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

week	Material Covered
Week 1	Botanical Classification of vegetable plant.
Week 2	Sexual reproduction of vegetable plant.
Week 3	Vegetative reproduction of vegetable plant.
Week 4	Types of irrigation system.
Week 5	Soil preparation and seedling production of Califlower , Cabbage, Onion, Lettuse plant
Week 6	Plant description , botanical classification and variety of Cruciferae family
Week 7	Plant description , botanical classification and variety of Alliaceae family.
Week 8	Plant description , botanical classification and variety of Umbilliferae family
Week 9	Plant description , botanical classification and variety of Leguminosae family
Week 10	Plant description , botanical classification and variety of Chenopodiaceae family.
Week 11	Plant description , botanical classification and variety of other plant ( indive , Chechoria , Rutabage , Broccoli , Mustard ).
Week 12	Training on cultural practice in the provite field.
Week 13	Types of fertilizer and its application methods
Week 14	Pesticide control of vegetable plants .
Week 15	Storage of vegetable products.
Week 16	Exam

## Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	انتاج خضر، أ. د. حسين جواد محرم البياتي 2020 جامعة الموصل	Yes
Recommended Texts		NO
Websites		

## Grading Scheme

### مخطط الدرجات

Group	Grade	التقدير	Marks %	Definition
<b>Success Group (50 - 100)</b>	<b>A - Excellent</b>	امتياز	90 - 100	Outstanding Performance
	<b>B - Very Good</b>	جيد جدا	80 - 89	Above average with some errors
	<b>C - Good</b>	جيد	70 - 79	Sound work with notable errors
	<b>D - Satisfactory</b>	متوسط	60 - 69	Fair but with major shortcomings
	<b>E - Sufficient</b>	مقبول	50 - 59	Work meets minimum criteria
<b>Fail Group</b>	<b>FX - Fail</b>	راسب (فقد المعالجة)	(45-49)	More work required but credit awarded

(0 - 49)	F - Fail	راسب	(0-44)	Considerable amount of work required
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**Note:** Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

## MODULE DESCRIPTION FORM

### نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Professional ethics		Module Delivery
Module Type	Option		<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	NTU 201		
ECTS Credits	2		
SWL (hr/sem)	2		
Module Level	Second	Semester of Delivery	
Administering Department	Plant Production PLP	College	Technical Agricultural College
Module Leader	Fahad Khalaf Yassein	e-mail	fahadbiologymycology@ntu.edu.iq
Module Leader's Acad. Title	Asst.prof.	Module Leader's Qualification	
Module Tutor	Amer Moqbel Abdul Hameed	e-mail	E-mail amer.m@ntu.edu.iq
Peer Reviewer Name		e-mail	E-mail amer.m@ntu.edu.iq
Scientific Committee Approval Date	01/06/2021	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	Human Rights and Democracy		Semester second
Co-requisites module			Semester

## Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<p><b>Module Objectives</b> أهداف المادة الدراسية</p>	<p>67. Explaining the concepts of professional ethics linguistically and terminologically 68. Its importance to the individual and society 69. What are the sources of professional ethics?</p>
<p><b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية</p>	<ol style="list-style-type: none"><li>1. The student learns the linguistic and terminological concept of professional ethics.</li><li>2. The student's knowledge of the linguistic and terminological concept of ethics.</li><li>3. Challenges and their impact on professional ethics.</li><li>4. Knowledge of the general components of professional ethics.</li></ol>
<p><b>Indicative Contents</b> المحتويات الإرشادية</p>	<p>Indicative content includes the following.</p> <p><b><u>Part A - theoretical part</u></b></p> <ol style="list-style-type: none"><li>1. Distinguish between professional ethics and job behavior.[2].</li><li>2. Characteristics that distinguish professional ethics in Islam.[2].</li><li>3. Pictures of praiseworthy professional ethics in Islam.[2].</li><li>4. General components of professional ethics.[2].</li><li>5. Forms of integrity in professional work.[2].</li><li>6. External challenges to professional ethics.[2].</li><li>7. Administrative corruption and its type.[2].</li></ol>

	<u>Part B - practical part</u>
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<b>Learning and Teaching Strategies</b> استراتيجيات التعلم والتعليم	
<b>Strategies</b>	<b>The necessity of visiting to gain experience from others.Obtaining new scientific information in the field of scientific research (videos).</b>

<b>Student Workload (SWL)</b> الحمل الدراسي للطالب محسوب ل30 ساعة			
<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	30	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعيا	2
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غيرالمنتظم للطالب خلال الفصل	0	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غيرالمنتظم للطالب أسبوعيا	0
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	<b>30</b>		

## Module Evaluation

### تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO #5, #8 and #10
Summative assessment	Midterm Exam	2hr	10% (10)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

## Delivery Plan (Weekly Syllabus)

### المنهاج الاسبوعي النظري

Week	Material Covered
Week 1	The concept of professional ethics in language and terminology
Week 2	The concept of ethics linguistically and terminologically
Week 3	How do we distinguish between professional ethics and job behavior?
Week 4	What are the sources from which professional ethics emerged?
Week 5	Professional ethics is characterized by several characteristics in Islam
Week 6	What are the praiseworthy professional ethics in Islam?
Week 7	General components of professional ethics
Week 8	What are the forms of integrity required in professional work?
Week 9	Types of competition
Week 10	What are the forms of unfair competition?
Week 11	Administrative corruption
Week 12	Types of administrative corruption
Week 13	What are behavioral deviations?
Week 14	What are organizational deviations?
Week 15	Treatment of administrative corruption
Week 16	Exam

## Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

week	Material Covered
Week 1	
Week 2	
Week 3	
Week 4	
Week 5	
Week 6	
Week 7	
Week 8	
Week 9	
Week 10	
Week 11	
Week 12	
Week 13	
Week 14	
Week 15	
Week 16	

## Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	<b>Professional ethics</b> أ.م.د ايمن قاسم      أ.م.د يمامة كشكول      م.م. ربا عبد الستار 2020 _ 2019	Yes
Recommended Texts		Yes
Websites		

## Grading Scheme

مخطط الدرجات

Group	Grade	التقدير	Marks %	Definition
<b>Success Group (50 - 100)</b>	<b>A - Excellent</b>	امتياز	90 - 100	Outstanding Performance
	<b>B - Very Good</b>	جيد جدا	80 - 89	Above average with some errors
	<b>C - Good</b>	جيد	70 - 79	Sound work with notable errors
	<b>D - Satisfactory</b>	متوسط	60 - 69	Fair but with major shortcomings
	<b>E - Sufficient</b>	مقبول	50 - 59	Work meets minimum criteria
<b>Fail Group</b>	<b>FX - Fail</b>	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded



(0 - 49)	F - Fail	راسب	(0-44)	Considerable amount of work required
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**Note:** Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

## MODULE DESCRIPTION FORM

### نموذج وصف المادة الدراسية

Module Information				
معلومات المادة الدراسية				
Module Title	Tractors and Agricultural Equipment		Module Delivery	
Module Type	Core		<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input type="checkbox"/> Lab <input checked="" type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar	
Module Code	PLP 210			
ECTS Credits	2			
SWL (hr/sem)	4			
Module Level	Second	Semester of Delivery		
Administering Department	Plant Production PLP		College	Technical Agricultural College
Module Leader	Fahad Khalaf Yassein		e-mail	fahadbiologymycology@ntu.edu.iq
Module Leader's Acad. Title	Asst.prof.		Module Leader's Qualification	Master
Module Tutor	Mahmood Shaker Mahmood		e-mail	<a href="mailto:Msh41551@ntu.edu.iq">Msh41551@ntu.edu.iq</a>
Peer Reviewer Name	Name	e-mail	E-mail	
Scientific Committee Approval Date	01/06/2021	Version Number	1.0	

Relation with other Modules				
العلاقة مع المواد الدراسية الأخرى				
Prerequisite module	Basics of agricultural machinery and machinery		Semester	Second

## Module Aims, Learning Outcomes and Indicative Contents

### أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<p><b>Module Objectives</b> أهداف المادة الدراسية</p>	<p>Introducing the student to the types of agricultural tractors, their parts, how they work, and their economic importance in serving the agricultural operation. He will be able to perform periodic maintenance operations for them and determine the type of tractor needed for each agricultural operation and its relationship to the type of soil.</p>
<p><b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية</p>	<ol style="list-style-type: none"> <li>1. Ability to handle various agricultural machinery and tractors.</li> <li>2. Know how to conduct regulatory operations for agricultural machines and determine the optimal need for the machine by choosing the appropriate agricultural pullers.</li> <li>3. Using modern techniques in agriculture.</li> <li>4. The possibility of managing agricultural and livestock activity in dry farming areas in a way that achieves the best possible efficiency through the ideal distribution of irrigation systems.</li> </ol>
<p><b>Indicative Contents</b> المحتويات الإرشادية</p>	<p><b><u>part One: Theoretical</u></b></p> <ol style="list-style-type: none"> <li>1. Get an overview of the importance of agricultural mechanization in the field of agricultural production. Types of agricultural mechanization and identifying the types of agricultural tractors used (1 hour)</li> <li>2. Identifying the main parts that make up the agricultural puller (1 hour)</li> <li>3. Knowing the fixed and moving parts of the agricultural tractor engine (1 hour)</li> <li>4. Identifying the systems that make up the agricultural puller, which are essential for the engine's operation (3 hours)</li> <li>5. Identifying agricultural machines and classifying them according to use (1 hour)</li> <li>6. Identifying the machines used to prepare the soil for agriculture (1 hour)</li> <li>7. Identifying the machines used in growing different crops (2 hours)</li> <li>8. Identify the machines used to serve the crop after planting (1 hour).</li> </ol> <p><b><u>The second part: Practical</u></b></p> <ol style="list-style-type: none"> <li>1. Field observations of the agricultural tug to identify the main parts that make up the agricultural tug (3 hours)</li> <li>3. Knowing the fixed and moving parts of the agricultural tractor engine and how the engine works (9 hours)</li> <li>4. Identifying the systems that make up the agricultural puller, which are essential for the engine's operation (9 hours)</li> <li>5. Identifying agricultural machinery, its classification, methods of connecting it to the tug, and the regulations it needs to operate (3 hours)</li> <li>6. Identifying the machines used to prepare the soil for agriculture, ways to connect them to the puller, and the arrangements they need to work (3 hours)</li> <li>7. Identifying the machines used in growing different crops, ways to connect them to the puller, and the arrangements they need to work (9 hours)</li> <li>8. Identify the machines used to serve the crop after planting (3 hours).</li> </ol>

## Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

<b>Strategies</b>	<b>Working to increase knowledge to gain practical experience from others through educational videos and training courses to obtain new scientific information in the field of knowledge. Practical field training and how to take field measurements. Access to modern scientific literature. Scientific laboratories with other universities.</b>
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## Student Workload (SWL)

الحمل الدراسي للطالب محسوب ل60 ساعة

<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	45	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعيا	3
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غيرالمنتظم للطالب خلال الفصل	15	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غيرالمنتظم للطالب أسبوعيا	1
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	<b>60</b>		

## Module Evaluation

### تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO #5, #8 and #10
Summative assessment	Midterm Exam	2hr	10% (10)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

## Delivery Plan (Weekly Syllabus)

### المنهاج الاسبوعي النظري

Week	Material Covered
Week 1	The importance of agricultural mechanization in the field of agricultural production. Types of agricultural mechanization
Week 2	Agricultural tug, its definition, types.
Week 3	The main parts of the tug (the engine and its fixed and moving parts).
Week 4	Means of transmission and mechanical power.
Week 5	Fuel system for diesel and gasoline engines, parts of the system.
Week 6	Air and exhaust purification system, parts of the system and the function of each part
Week 7	The cooling and lubrication system in the tug, parts of the system
Week 8	A general idea about God's relationship with agricultural land, and how to connect it to the tug.
Week 9	Soil preparation plow, subtractive plow, disc plow, their parts and the function of each part.
Week 10	Excavator plow, rotary plow, subsoil plow, its parts and the function of each part.
Week 11	Smoothing equipment (disc combs, toothed combs), types, importance of each part and Leveling and adjustment machines and equipment, their types and the function of each part.
Week 12	Seeding equipment, grain seed, its parts, the function of each part. Fertilized seed, its parts, and the function of each part.
Week 13	How to organize and calibrate seeds, mathematical problems. And Seed methods.
Week 14	Irrigation equipment (stream openers), its parts and the function of each part.
Week 15	Maintenance and maintenance of tillage, smoothing and seeding equipment.
Week 16	Preparatory week before the final Exam

## Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

week	Material Covered
Week 1	General driving safety rules. Learning to drive an agricultural tug.
Week 2	Identify the main parts of the tug (engine and parts).
Week 3	Identify the parts of the fuel system, diesel and gasoline engines.
Week 4	Air and exhaust system - its parts - maintenance. Parts of the cooling system - its operation - parts - maintenance. Parts of the lubrication system - its operation - maintenance.
Week 5	Identify the transmission devices (separator, gear box), their parts, and the function of each part
Week 6	Means of transmission and mechanical power, and identifying devices for exploiting the power of agricultural tugs.
Week 7	Daily and seasonal maintenance and maintenance of the agricultural tug.
Week 8	Maintenance and maintenance of tillage, smoothing and seeding equipment.
Week 9	Rotary plow, excavator plow, subsoil plow, their parts and the function of each part.
Week 10	Learn how to connect plows to the tug.
Week 11	Identify disc combs, their types, parts, and the function of each part. Toothed combs, their types, parts and the function of each part.
Week 12	Identify leveling and adjustment machines and equipment, their types and the function of each part.
Week 13	Grain seed - its parts and the function of each part. The fertilized seed, its parts and the function of each part.
Week 14	Seed calibration and organization. Knowledge of seeding methods. Fertilizer spreader, its parts and the function of each part.
Week 15	Pest control and hoeing equipment, its types, parts and each part. Irrigation equipment (Fatimah Al-Sawai), its parts and the function of each part.
Week 16	exam

## Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Agricultural machines and machinery Yassin Al-Tahan - Muhammad Al-Naama	Yes
Recommended Texts	Basics of agricultural technology / agricultural tractors 2018	No
Websites	<a href="file:///C:/Users/pc/Downloads/%D8%A7%D9%84%D8%AC%D8%B1%D8%A7%D8%B1%D8%A7%D8%AA%20%D8%A7%D9%84%D8%B2%D8%B1%D8%A7%D8%B9%D9%8A%D8%A9%20%D9%88%D8%AA%D8%B1%D9%83%D9%8A%D8%A8%D9%87%D8%A7%20%D8%A7%D9%84%D8%B9%D8%A7%D9%85.pdf">file:///C:/Users/pc/Downloads/%D8%A7%D9%84%D8%AC%D8%B1%D8%A7%D8%B1%D8%A7%D8%AA%20%D8%A7%D9%84%D8%B2%D8%B1%D8%A7%D8%B9%D9%8A%D8%A9%20%D9%88%D8%AA%D8%B1%D9%83%D9%8A%D8%A8%D9%87%D8%A7%20%D8%A7%D9%84%D8%B9%D8%A7%D9%85.pdf</a>	

## Grading Scheme

### مخطط الدرجات

Group	Grade	التقدير	Marks %	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group	FX - Fail	راسب (فقد المعالجة)	(45-49)	More work required but credit awarded
(0 - 49)	F - Fail	راسب	(0-44)	Considerable amount of work required

**Note:** Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

## MODULE DESCRIPTION FORM

### نموذج وصف المادة الدراسية

<b>Module Information</b> معلومات المادة الدراسية			
<b>Module Title</b>	<b>Biological Control</b>		<b>Module Delivery</b>
<b>Module Type</b>	<b>NonCore</b>		<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input checked="" type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
<b>Module Code</b>	<b>PLP453</b>		
<b>ECTS Credits</b>	<b>3</b>		
<b>SWL (hr/sem)</b>	<b>4</b>		
<b>Module Level</b>	<b>Fourth level</b>	<b>Semester of Delivery</b>	
<b>Administering Department</b>	<b>Plant Production PLP</b>	<b>College</b>	<b>Technical Agricultural College</b>
<b>Module Leader</b>	<b>Fahad Khalaf Yassein</b>	<b>e-mail</b>	<b>fahadbiologymycology@ntu.edu.iq</b>
<b>Module Leader's Acad. Title</b>	<b>Asst.Professor</b>	<b>Module Leader's Qualification</b>	<b>Ph.D.</b>
<b>Module Tutor</b>	<b>Dr.Alaa younis zanoun</b>	<b>e-mail</b>	<b>Alaa.alsafawy89@ntu.edu.iq</b>
<b>Peer Reviewer Name</b>	<b>Name</b>	<b>e-mail</b>	<b>E-mail</b>
<b>Scientific Committee Approval Date</b>	<b>01/06/2021</b>	<b>Version Number</b>	<b>1.0</b>

<b>Relation with other Modules</b> العلاقة مع المواد الدراسية الأخرى			
<b>Prerequisite module</b>	<b>Plant Taxonomy</b>	<b>Semester</b>	<b>Two</b>
<b>Co-requisites module</b>	<b>Plant Physiology</b>	<b>Semester</b>	<b>Two</b>

## Module Aims, Learning Outcomes and Indicative Contents

### أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<b>Module Objectives</b> أهداف المادة الدراسية	Introducing the student to the importance of biological resistance and the methods used in its programs and its impact on increasing plant growth and reducing environmental pollution processes resulting from the use of chemical materials and pesticides
<b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية	<ol style="list-style-type: none"><li>1. The use of special techniques for detecting insects</li><li>2. Identify the specialties available for the diagnosis and examination of insects</li></ol>
<b>Indicative Contents</b> المحتويات الإرشادية	<p>Indicative content includes the following.</p> <p><b><u>Part A - theoretical part</u></b></p> <p>An overview of microbiology screening and diagnosis centers in Iraq [3 hrs]</p> <p>. Factors affecting entomology [3 hrs]</p>



	<p><u>Part B - practical part</u></p> <p>Insect morphology study [9 hrs].</p> <ul style="list-style-type: none"> <li>. Devices and tools used in microbiology examination [9 hrs].</li> <li>. Sample extraction [9 hrs].</li> </ul>
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<b>Learning and Teaching Strategies</b> استراتيجيات التعلم والتعليم	
<b>Strategies</b>	<p><b>The necessity of visiting to gain experience from others. Obtaining new scientific information in the field of scientific research (videos). Practical training in the field. Access to modern scientific literature. Participation in relevant scientific conferences. Scientific laboratories with other universities.</b></p>

<b>Student Workload (SWL)</b> الحمل الدراسي للطالب محسوب ل60 ساعة			
<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	45	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعياً	3
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطالب خلال الفصل	15	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطالب أسبوعياً	1
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	<b>60</b>		

## Module Evaluation

### تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO #5, #8 and #10
Summative assessment	Midterm Exam	2hr	10% (10)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

## Delivery Plan (Weekly Syllabus)

### المنهاج الاسبوعي النظري

Week	Material Covered
Week 1	The importance of biological resistance, methods used in biological resistance programs.
Week 2	Natural resistance to insects, methods used to introduce biological enemies
Week 3	Insect parasites, types, reproduction, biological traits of adult parasites, behavior of adults
Week 4	Insect predators, vital qualities of predators, their strategies
Week 5	Bacterial resistance to pests, viruses causing insect diseases
Week 6	bacterial resistance to pests of bacteria causing insect diseases,
Week 7	Snakeworms and insect-pathogenic fungi
Week 8	Defense mechanism in insects, external defense, internal defense
Week 9	Resistance of insect parasitoids to host defenses
Week 10	Biological resistance to fungal plant pathogens
Week 11	Biological resistance to bacterial and viral plant pathogens
Week 12	Integrated control of snake worms parasitizing on plants
Week 13	Methods of pest vitality resistance, plant resistance, agricultural resistance
Week 14	Genetic resistance
Week 15	Biological resistance to the bushes
Week 16	exame

## Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

week	Material Covered
Week 1	Tools and devices used in the biological resistance laboratory, methods of use
Week 2	Survey of vital enemies, insect parasitoids, their diagnosis and classification
Week 3	Breeding parasitoids in the laboratory, breeding methods, favorable conditions for breeding
Week 4	Propagation and release of parasites, evaluation of the release process
Week 5	Study the efficiency of parasitism for some types of parasites important for the roles of the different insect
Week 6	Survey of vital enemies of insect predators, their diagnosis, classification
Week 7	Survey of vital enemies of insect predators, their diagnosis, classification
Week 8	Propagation and release of predators in the field, evaluation of the launch process
Week 9	Survey of the most important pathogens of insect diseases / bacteria / fungal / viral / snake worms
Week 10	Food culture media suitable for breeding bacterial and fungal pathogens used in plant disease resistance
Week 11	Development, isolation and diagnosis of fungal and bacterial biological resistance agents and snake worms
Week 12	Bioantisis experiments for a number of biological resistance factors
Week 13	Evaluation of the efficiency of biological resistance factors used in previous experiments
Week 14	Survey and diagnosis of the most important vital enemies of the bush
Week 15	exame
Week 16	exame

## Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Biological Control الدكتور حمزة كاظم الزبيدي	Yes
Recommended Texts		No
Websites	<a href="https://uomustansiriyah.edu.iq/books/65309.html">https://uomustansiriyah.edu.iq/books/65309.html</a>	

## Grading Scheme

### مخطط الدرجات

Group	Grade	التقدير	Marks %	Definition
<b>Success Group (50 - 100)</b>	<b>A - Excellent</b>	امتياز	90 - 100	Outstanding Performance
	<b>B - Very Good</b>	جيد جدا	80 - 89	Above average with some errors
	<b>C - Good</b>	جيد	70 - 79	Sound work with notable errors
	<b>D - Satisfactory</b>	متوسط	60 - 69	Fair but with major shortcomings
	<b>E - Sufficient</b>	مقبول	50 - 59	Work meets minimum criteria
<b>Fail Group</b>	<b>FX - Fail</b>	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded

<b>(0 - 49)</b>	<b>F - Fail</b>	راسب	(0-44)	Considerable amount of work required

**Note:** Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

# MODULE DESCRIPTION FORM

## نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Conservation agriculture		Module Delivery
Module Type	Option		<input checked="" type="checkbox"/> Theory
Module Code	PLP154		<input type="checkbox"/> Lecture
ECTS Credits	2		<input checked="" type="checkbox"/> Lab
SWL (hr/sem)	4		<input type="checkbox"/> Tutorial
			<input type="checkbox"/> Practical
			<input type="checkbox"/> Seminar
Module Level	four	Semester of Delivery	four
Administering Department	Plant Production	College	Technical Agricultural College
Module Leader	Fahad Khalaf Yassein	e-mail	fahadbiologymycology@ntu.edu.iq
Module Leader's Acad. Title	Asst.prof	Module Leader's Qualification	
Module Tutor	Alaa khaleed Ibraheem	e-mail	E-mail alaa.khaleed 088@ntu.edu.iq
Peer Reviewer Name		e-mail	
Scientific Committee Approval Date	01/06/2021	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	Crops	Semester	Second
Co-requisites module		Semester	

## Module Aims, Learning Outcomes and Indicative Contents

### أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<p><b>Module Objectives</b> أهداف المادة الدراسية</p>	<ol style="list-style-type: none"><li>7. Introducing the student to the most important Conservation agriculture, their production techniques, how to serve them,</li><li>8. identifying the most suitable conditions for growing each plant and their economic importance,</li><li>9. and being able to program agricultural cycles that help improve plant growth.</li></ol>
<p><b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية</p>	<ol style="list-style-type: none"><li>1. The student must have knowledge of Conservation agriculture in Iraq</li><li>2. Learn about the methods of used, Conservation agriculture and your environmental requirements</li><li>3. Learn about the characteristics and benefits of each tillage</li></ol>
<p><b>Indicative Contents</b> المحتويات الإرشادية</p>	<p><b>Indicative content includes the following.</b></p> <ol style="list-style-type: none"><li>1- Precision Farming Technology ,Advantages of keeping the soil surface covered with debris, ZERO tillage (3 hrs).</li><li>2- Scientific foundations for adopting Conservation agriculture in the irrigated sector, No tillage. The quiet revolution(3 hrs).</li></ol>

	<p><u>Part B - practical part</u></p> <ol style="list-style-type: none"> <li>1- Barley cultivation experiments that support conservation agriculture. [9 hrs].</li> <li>2- cotton cultivation experiments that support conservation agriculture. [9 hrs].</li> <li>3- Application of corn cultivation using irrigated conservation agriculture, [9 hrs].</li> </ol>
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<b>Learning and Teaching Strategies</b> استراتيجيات التعلم والتعليم	
<b>Strategies</b>	<p><b>The necessity of visiting to gain experience from others. Obtaining new scientific information in the field of scientific research (videos). Practical training in the field. Access to modern scientific literature. Participation in relevant scientific conferences. Scientific laboratories with other universities.</b></p>

<b>Student Workload (SWL)</b> الحمل الدراسي للطالب محسوب ل60 ساعة			
<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	45	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعياً	3
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطالب خلال الفصل	15	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطالب أسبوعياً	1
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	<b>60</b>		

## Module Evaluation

### تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO #5, #8 and #10
Summative assessment	Midterm Exam	2hr	10% (10)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

## Delivery Plan (Weekly Syllabus)

### المنهاج الاسبوعي النظري

Week	Material Covered
Week 1	Precision Farming Technology
Week 2	Advantages of keeping the soil surface covered with debris
Week 3	The concept of purposeful agricultural cycle
Week 4	Scientific foundations for adopting Conservation agriculture in the irrigated sector
Week 5	Opportunities to adopt Conservation agriculture
Week 6	Risks of adopting agriculture Zero tillage ure
Week 7	Conservation agriculture of sustainability of agricultural resource productivity (Zero tillage natural resources agricultural
Week 8	The pillars of agriculture without tillage and their returns
Week 9	Cover Crops
Week 10	. Agriculture in the Arab world: an overview
Week 11	Conservation agriculture zat muhadadatuha wafurasuha wamakhatir tabniha fi alealam
Week 12	Permanent Raised Beds
Week 13	Agricultural Smart Systems
Week 14	Controlled Traffic Farming System
Week 15	Exam



## Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

week	Material Covered
Week 1	ZERO tillage
Week 2	No tillage. The quiet revolution
Week 3	Obstacles to adopting no-tillage
Week 4	The future of tillage
Week 5	Procedures that must be taken to implement the conservation agriculture system
Week 6	Barley cultivation experiments that support conservation agriculture.
Week 7	cotton cultivation experiments that support conservation agriculture
Week 8	Irrigated agriculture experiments
Week 9	Application of corn cultivation using irrigated conservation agriculture
Week 10	Difficulties facing working in conservation agriculture
Week 11	Exam

## Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	كتاب الزراعة الحافظة بدون حراث ما لها وما عليها ا.د. اياد عبد الواحد محمد الهيتي / كلية الزراعة جامعة الانبار / 2019	Yes
Recommended Texts	التطبيقات العملية للزراعة الحافظة في الشرق الاسط / باسمة برهوم وستيفن لوس / جامعة غرب استراليا / جامعة جنوب استراليا .	No
Websites		

## Grading Scheme

مخطط الدرجات

Group	Grade	التقدير	Marks %	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings

	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
<b>Fail Group</b>	<b>FX – Fail</b>	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded

<b>(0 - 49)</b>	<b>F – Fail</b>	راسب	(0-44)	Considerable amount of work required

**Note:** Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

# MODULE DESCRIPTION FORM

## نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Crop Quality		Module Delivery
Module Type	Core		<input checked="" type="checkbox"/> Theory <input checked="" type="checkbox"/> Lecture <input checked="" type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	PLP403		
ECTS Credits	3		
SWL (hr/sem)	4		
Module Level	Fourth	Semester of Delivery	
Administering Department	Plant Production PLP	College	Technical Agricultural College
Module Leader	Fahad Khalaf Yassein	e-mail	fahadbiologymycology@ntu.edu.iq
Module Leader's Acad. Title	Asst.prof.	Module Leader's Qualification	Ph.D.
Module Tutor	Azhar Idrees Dhanoon	e-mail	<a href="mailto:azharadrees16@ntu.edu.iq">azharadrees16@ntu.edu.iq</a>
Peer Reviewer Name	Name	e-mail	E-mail
Scientific Committee Approval Date	01/06/2021	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	Cereal and Legume Winter Crops	Semester	Two
Co-requisites module	Plant Physiology	Semester	Two

## Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<b>Module Objective</b> أهداف المادة الدراسية	Introducing the student to how to evaluate good seeds in terms of nutritional content and qualitative characteristics and to be able to diagnose the quality of good seeds.
<b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية	<ul style="list-style-type: none"><li>-The student learns about the morphological characteristics of the different parts of the plant.</li><li>-The student learned about the biological tests of seeds and their vitality.</li><li>-Possible purity of seeds in the shipment.</li></ul>
<b>Indicative Contents</b> المحتويات الإرشادية	Indicative content includes the following. Part A-theoretical :  1-Grain production , Grain crops importance , production and used in Iraq. { 3 hrs } 2- Wheat , used and importance grain quality. {3 hrs } 3- Types of wheat in iraq , quality of grain and relative processing. {3 hrs }

	<p>Indicative content includes the following.</p> <p>Part B-practical part :</p> <p>1- Triticum Aestivum , Components , food value , grains processing .{9 hrs}</p> <p>2-The relative of quality grain in harvesting, physical properties of grain early harvese and past .{9 hrs}</p>
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<b>Learning and Teaching Strategies</b> استراتيجيات التعلم والتعليم	
<b>Strategies</b>	<p><b>Learn about classic garden designs in addition to modern designs and their applications, with the need to watch documentaries about botanical gardens in the world to gain experience. Obtaining new scientific information in the field of scientific research (videos). Practical training in the field. Access to modern scientific literature. Participation in relevant scientific conferences..</b></p>

<b>Student Workload (SWL)</b> ساعة 45 الحمل الدراسي للطالب محسوب ل			
<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	45	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعيا	3
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غيرالمنتظم للطالب خلال الفصل	15	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غيرالمنتظم للطالب أسبوعيا	1
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	<b>60</b>		

## Module Evaluation

### تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
<b>Formative assessment</b>	<b>Quizzes</b>	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	<b>Assignments</b>	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	<b>Projects / Lab.</b>	1	10% (10)	Continuous	All
	<b>Report</b>	1	10% (10)	13	LO #5, #8 and #10
<b>Summative assessment</b>	<b>Midterm Exam</b>	2hr	10% (10)	7	LO #1 - #7
	<b>Final Exam</b>	3hr	50% (50)	16	All
<b>Total assessment</b>			100% (100 Marks)		

## Delivery Plan (Weekly Syllabus) ,

### المنهاج الاسبوعي النظري

Week	Material Covered
<b>Week 1</b>	Grain production , Grain crops importance , production and used in Iraq .
<b>Week 2</b>	Wheat , used and importance grain quality.
<b>Week 3</b>	Types of wheat in iraq , quality of grain and relative processing.
<b>Week 4</b>	Corn , used and importance, corn group grain sitrature .
<b>Week 5</b>	Rice , use and importance, types of rice , grain components , starch .
<b>Week 6</b>	Barley , use and important , types of barley , grain components , Malt processing.
<b>Week 7</b>	Triticale , use and importance , grain components , starch-protein , grain quality .
<b>Week 8</b>	Grain proteins , Amino acids type of protein , chemical and physical properties .
<b>Week 9</b>	Fats and Oil , Oils useful , Oils structure , faty acids , Oil in grain .
<b>Week 10</b>	Sunflower , use and importance , seed components , quality of oil .
<b>Week 11</b>	Peanuts , used and importance , seed components , quality of oil .

Week 12	Cotton , use and importance , seed components , quality of oil .
Week 13	Legumes crops , the problem sat , legumes food , hourse , beam , farism disease.
Week 14	Enzymes , tripsin enzyme inhibitor .
Week 15	Continue .....

### Delivery Plan (Weekly Lab. Syllabus)

#### المنهاج الاسبوعي التطبيقي

Week	Material Covered
Week 1	Triticum Aestivum , Components , food value , grains processing .
Week 2	The relative of quality grain in harvesting, physical properties of grain early harvese and past .
Week 3	The problem of grain in processing , storage of grain , factors affect on grain quality.
Week 4	Grains of Wheat components , Starch , Protein , Oil , methods of extraction grain components.
Week 5	Continue.....
Week 6	Steps of wheat flour production , chemical structure of flour .
Week 7	Squrney to state company of grains processing in Tasi
Week 8	Rice , method of processing , factors effect the quality grain .
Week 9	Barley , grain components , step of malt processing .
Week 10	Oil crops , Oil in seed , Faty acids .
Week 11	Seperate of oil and learn how can extract of oil from seed .
Week 12	Proteins in plant , dividing of protein and seperation .
Week 13	Continue.....
Week 14	Legumes crops , quality of legumes crop .
Week 15	Siminar introduction from student .

### Learning and Teaching Resources

#### مصادر التعلم والتدريس

	Text	Available in the Library?
		no
Recommended Texts		No
Websites		

## Grading Scheme

### مخطط الدرجات

Group	Grade	التقدير	Marks %	Definition
<b>Success Group (50 - 100)</b>	<b>A - Excellent</b>	امتياز	90 - 100	Outstanding Performance
	<b>B - Very Good</b>	جيد جدا	80 - 89	Above average with some errors
	<b>C - Good</b>	جيد	70 - 79	Sound work with notable errors
	<b>D - Satisfactory</b>	متوسط	60 - 69	Fair but with major shortcomings
	<b>E - Sufficient</b>	مقبول	50 - 59	Work meets minimum criteria
<b>Fail Group</b>	<b>FX - Fail</b>	راسب (فقد المعالجة)	(45-49)	More work required but credit awarded



(0 - 49)	F - Fail	راسب	(0-44)	Considerable amount of work required
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**Note:** Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

## MODULE DESCRIPTION FORM

### نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Design and analysis of experiments		Module Delivery
Module Type	Core		<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input checked="" type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	TAMO 401		
ECTS Credits	2		
SWL (hr/sem)	4		
Module Level	fourth	Semester of Delivery	
Administering Department	Plant Production PLP	College	Technical Agricultural College
Module Leader	Fahad Khalaf Yassein	e-mail	fahadbiologymycology@ntu.edu.iq
Module Leader's Acad. Title	Asst.prof.	Module Leader's Qualification	Ph.D.
Module Tutor	Zahraa Abdulrahman Sabri	e-mail	85zahraa@ntu.edu.iq
Peer Reviewer Name	Name	e-mail	E-mail
Scientific Committee Approval Date	01/06/2021	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	Mathematics	Semester	
Co-requisites module	Agricultural census	Semester	

## Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<p><b>Module Objectives</b> أهداف المادة الدراسية</p>	<p>Providing the student with experience in how to design experiments, then collect data, classify it, analyze it, then summarize it and come up with a recommendation to solve the problem for which the experiment was conducted.</p>
<p><b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية</p>	<p>Creating a solid scientific basis in the theoretical and practical aspects applied in the field of statistical programs. Providing the student with the skill of collecting primary data and summarizing it to solve the problem to be studied</p>
<p><b>Indicative Contents</b> المحتويات الإرشادية</p>	<p>Indicative content includes the following. <u>Part A - theoretical part</u></p> <p>Completely randomized design, advantages, disadvantages, use of the design if one observation is recorded for each experimental unit, A- if the number of repetitions is equal</p>

	<p><u>Part B - practical part</u></p> <p>Statistical analysis of data</p>
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<b>Learning and Teaching Strategies</b> استراتيجيات التعلم والتعليم	
<b>Strategies</b>	<p><b>The necessity of visiting to gain experience from others. Obtaining new scientific information in the field of scientific research (videos). Practical training in the field. Access to modern scientific literature. Participation in relevant scientific conferences. Scientific laboratories with other universities.</b></p>

<b>Student Workload (SWL)</b> الحمل الدراسي للطالب محسوب ل60 ساعة			
<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	45	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعياً	3
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطالب خلال الفصل	15	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطالب أسبوعياً	1
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	<b>60</b>		

## Module Evaluation

### تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO #5, #8 and #10
Summative assessment	Midterm Exam	2hr	10% (10)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

## Delivery Plan (Weekly Syllabus)

### المنهاج الاسبوعي النظري

Week 1	General definitions, experiment, design, working experimental unit, experimental error, conditions for controlling experimental error, basic rules for designing experiments, requirements for a good experiment, steps followed in scientific experiments.
Week 2	Completely randomized design, advantages, disadvantages, use of the design if one observation is recorded for each experimental unit, A- if the number of repetitions is equal
Week 3	Completely randomized design, advantages, disadvantages, using the design in the case of recording one observation for each experimental unit, b - in the case of unequal repetitions.
Week 4	Diagnosing the significance of differences between arithmetic means, the coefficient of variation in the experiment.
Week 5	Completely randomized block design, conditions for using the design, advantages and disadvantages of the design, sources of variation.
Week 6	Analysis of variance, determining the number of replicates, estimating the missing value (or more) in segments
Week 7	Latin square design, terms of use, advantages and disadvantages of the design.
Week 8	Sources of variation in Latin square, analysis of variance, missing value estimation or more.
Week 9	Factorial experiments, their conditions, advantages and disadvantages
Week 10	Sources of variation in factorial experiments, analysis of variance, interaction and its types.
Week 11	Split panel design, conditions, advantages, disadvantages
Week 12	Sources of variation in split plate experiments, analysis of variance
Week 13	A continuation
Week 14	Correlation and regression
Week 15	exame

## Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

week	Material Covered
Week 1	<b>Types of experiments, how to plan the experiment, and researcher specifications.</b>
Week 2	<b>Solve exercises to analyze data for a completely randomized design</b>
Week 3	<b>A continuation</b>
Week 4	<b>Solve exercises on determining the significance of differences between means</b>
Week 5	<b>Solve exercises to analyze data from a randomized complete block design</b>
Week 6	<b>A continuation</b>
Week 7	<b>Exercises to find the missing value in completely randomized blocks</b>
Week 8	<b>Latin square, design, analysis of sources of variation.</b>
Week 9	Solve exercises to analyze the sources of variation in the design of the Latin square
Week 10	Solve exercises to analyze the sources of variation in the design of the Latin square
Week 11	<b>designing factorial experiments</b>
Week 12	<b>Solve exercises for designing factorial experiments</b>
Week 13	<b>To analyze the variation of sources of variation in split panel designs</b>
Week 14	<b>Solve exercises to analyze the variance of sources of variation in split panel designs</b>
Week 15	<b>Solve exercises to find correlation and regression coefficients.</b>
Week 16	Exame

## Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Design and analysis of experiments book	Yes
Recommended Texts		No
Websites		

## Grading Scheme

### مخطط الدرجات

Group	Grade	التقدير	Marks %	Definition
<b>Success Group (50 - 100)</b>	<b>A</b> - Excellent	امتياز	90 - 100	Outstanding Performance
	<b>B</b> - Very Good	جيد جدا	80 - 89	Above average with some errors
	<b>C</b> - Good	جيد	70 - 79	Sound work with notable errors
	<b>D</b> - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	<b>E</b> - Sufficient	مقبول	50 - 59	Work meets minimum criteria
<b>Fail Group</b>	<b>FX</b> - Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded

<b>(0 - 49)</b>	<b>F</b> - Fail	راسب	(0-44)	Considerable amount of work required

**Note:** Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

# MODULE DESCRIPTION FORM

## نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Agricultural marketing		Module Delivery
Module Type	Core		<input checked="" type="checkbox"/> Theory <input checked="" type="checkbox"/> Lecture <input type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	TAMO 452		
ECTS Credits	2		
SWL (hr/sem)	2		
Module Level	four	Semester of Delivery	
Administering Department	Plant Production PLP	College	Technical Agricultural College
Module Leader	Fahad Khalaf Yassein	e-mail	fahadbiologymycology@ntu.edu.iq
Module Leader's Acad. Title	Asst.prof	Module Leader's Qualification	
Module Tutor	Bashar Mohsin Mohammed able	e-mail	Bashar_mohsin.m@ntu.edu.iq
Peer Reviewer Name	Name	e-mail	E-mail
Scientific Committee Approval Date	01/06/2021	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	The agricultural economy		Semester Two
Co-requisites module	Agricultural policy		Semester Two

## Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<p><b>Module Objectives</b> أهداف المادة الدراسية</p>	<p>70. Keeping pace with scientific development in preparing study requirements in the department.</p> <p>71. 2. Working to provide knowledge of marketing concepts, marketing tools, in addition to marketing applications</p> <p>72. It is necessary to use it in the labor market.</p> <p>73. 3. Qualifying students scientifically to continue their studies in the fields of marketing management.</p> <p>74. 4. Preparing and qualifying specialized scientific cadres to work in various marketing fields.</p> <p>75. 5. Work to develop the necessary skills for creativity in marketing activities in the business environment.</p> <p>76. 6. Providing expertise and consultations to international community organizations.</p> <p>77. 7. Working to supply the market with qualified graduates who are full of motivation and inspiration in applying skills</p> <p>78. And various marketing activities.</p> <p>79. 8. Developing scientific research within the department.</p> <p>80. 9. To be an example of marketing excellence in Iraq</p>
<p><b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية</p>	<p>10. Teach the student about the applications of economics in agriculture in an economic manner and compared to the technical aspect.</p> <p>11. The student's knowledge of economic laws and economic principles used in agriculture.</p> <p>12. Optimal employment of agricultural production elements.</p> <p>13. How to achieve optimal levels of production.</p> <p>14. How to produce agricultural products in light of market prices</p>



**Indicative Contents**

المحتويات الإرشادية

**Indicative content includes the following.**

**Part A - theoretical part**

8. Providing leading talents in marketing management for institutions
9. Public and private sector.
10. - Disseminating marketing knowledge in all institutions, including:
11. Fulfills the aspirations of society.
12. - The ability of department graduates to develop their marketing skills
13. Knowledge and leadership in marketing management.
14. Skills
15. - Developing and supporting the spirit of creativity, innovation and leadership.
16. - Creating an open environment for cultural and intellectual exchange.
17. - Graduates of the Marketing Management Department have the ability to...
18. Thinking, problem solving and time management.
19. - Communication and constructive interaction with stakeholders. - Our outputs must be knowledgeable and acquired skills in

Part B - practical part

13. Active Learning: Encouraging students' active participation in learning processes, such as discussions, group activities, and solving
14. problems, to enhance their deep understanding of mathematical concepts. 2. Cooperative learning: Encouraging students to work together in small groups to solve problems related to their studies
15. And sharing ideas, which contributes to enhancing interaction and exchange of knowledge between them.
16. Use of technology: Taking advantage of technology to provide interactive educational tools such as computer programs
17. and online resources to enhance student understanding and motivation.
18. Problem-based learning: presenting specific problems and motivating students to think critically and use skills
19. Marketing solution.

### Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

#### Strategies

- 1. Classroom performance evaluation: includes evaluating students' performance during lessons, lectures, and workshops, whether... During written tests or continuous assessment of their engagement and understanding of the material.**
- 2. Participation in discussions and activities: The extent to which students participate in class discussions and activities can be assessed Group and individual projects, to assess the extent of their understanding and interaction with the materials.**
- 3. Tests and assignments: Students can be given regular tests and assessment assignments to evaluate their solving skills Issues related to their field of expertise and their understanding of the concepts presented.**
- 4. Evaluation of participation in research: The extent to which students participate in research activities and scientific projects can be evaluated, and presented An evaluation of their presentation style and an analysis of their results and conclusions**

### Student Workload (SWL)

الحمل الدراسي للطالب محسوب ل60 ساعة

<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	45	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعيا	3
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غيرالمنتظم للطالب خلال الفصل	15	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غيرالمنتظم للطالب أسبوعيا	1
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	<b>60</b>		

## Module Evaluation

### تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
<b>Formative assessment</b>	<b>Quizzes</b>	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	<b>Assignments</b>	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	<b>Projects / Lab.</b>	1	10% (10)	Continuous	All
	<b>Report</b>	1	10% (10)	13	LO #5, #8 and #10
<b>Summative assessment</b>	<b>Midterm Exam</b>	2hr	10% (10)	7	LO #1 - #7
	<b>Final Exam</b>	3hr	50% (50)	16	All
<b>Total assessment</b>			100% (100 Marks)		

## Delivery Plan (Weekly Syllabus)

### المنهاج الاسبوعي النظري

Week	Material Covered
<b>Week 1</b>	The concept of marketing and the importance of marketing
<b>Week 2</b>	The marketing mix, the concept of agricultural marketing, and the historical development of agricultural marketing
<b>Week 3</b>	Agricultural marketing objectives
<b>Week 4</b>	Introductions to the study of agricultural marketing and the career approach
<b>Week 5</b>	Introduction to marketing organizations and behavioral approach
<b>Week 6</b>	Agricultural production, characteristics of agricultural production, and characteristics of the agricultural product
<b>Week 7</b>	First month exam
<b>Week 8</b>	The nature of food commodities and their consumption
<b>Week 9</b>	Food processing and manufacturing and the role of marketing in food manufacturing
<b>Week 10</b>	Food marketing mix strategies
<b>Week 11</b>	Target markets for food industries

<b>Week 12</b>	Wholesalers and retailers in supply and demand
<b>Week 13</b>	Markets for food commodities
<b>Week 14</b>	Structural characteristics of food product markets
<b>Week 15</b>	Marketing milk and dairy products, marketing vegetables and fruits
<b>Week 16</b>	final exam

Learning and Teaching Resources		
مصادر التعلم والتدريس		
	Text	Available in the Library?
<b>Required Texts</b>	الديوه جي، ابي سعيد. 2001 الأقتصاد الزراعي . وزارة التعليم العالي والبحث العلمي . جامعة الموصل . الموصل	Yes
<b>Recommended Texts</b>	الطروانة ، صلاح يوسف . 2010التسويق الالكتروني. دار ورد الأردنية للنشر والتوزيع	Yes
<b>Websites</b>		

Grading Scheme				
مخطط الدرجات				
Group	Grade	التقدير	Marks %	Definition
<b>Success Group (50 - 100)</b>	<b>A - Excellent</b>	امتياز	90 - 100	Outstanding Performance
	<b>B - Very Good</b>	جيد جدا	80 - 89	Above average with some errors
	<b>C - Good</b>	جيد	70 - 79	Sound work with notable errors
	<b>D - Satisfactory</b>	متوسط	60 - 69	Fair but with major shortcomings
	<b>E - Sufficient</b>	مقبول	50 - 59	Work meets minimum criteria
<b>Fail Group</b>	<b>FX - Fail</b>	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded

(0 - 49)	F - Fail	راسب	(0-44)	Considerable amount of work required
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**Note:** Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

## MODULE DESCRIPTION FORM

### نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	landscape Design		Module Delivery
Module Type	Core		<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input checked="" type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	PLP 407		
ECTS Credits	3		
SWL (hr/sem)	5		
Module Level	Fourth	Semester of Delivery	
Administering Department	Plant Production plp	College	Technical Agricultural College
Module Leader	Fahad Khalaf Yassein	e-mail	fahadbiologymycology@ntu.edu.iq
Module Leader's Acad. Title	Asst.prof.	Module Leader's Qualification	Ph.D.
Module Tutor	Khawla Mahmood Yahya AL-Nooh	e-mail	kawllamhmoood@ntu.edu.iq
Peer Reviewer Name	Mustafa Nadhir	e-mail	E-mail
Scientific Committee Approval Date	01/06/2021	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	Ornamental and Decoration Plants	Semester	Two
Co-requisites module	Engineering Drawing	Semester	Two

## Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<p><b>Module Objectives</b> أهداف المادة الدراسية</p>	<p>81. Introducing students to the most important garden design systems 82. Introducing students to the steps of designing and implementing the garden 83. Introducing students to the types of gardens</p>
<p><b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية</p>	<p>1. Distinction among garden design systems 2. The student's ability to design different types of gardens. 3. The student's ability to distribute plants in the garden. 4. The student's ability to implement the garden 5. The student's ability to maintain the garden 6. The student's ability to solve problems in gardens.</p>
<p><b>Indicative Contents</b> المحتويات الإرشادية</p>	<p>1- World famous designs 2- Steps to implement the garden 3- Types of plants used in gardens 4- How to maintain a garden</p>

	<p><u>Part B - practical part</u></p> <p>Establishing the basic lines for garden design, Leveling the ground and placing the design on the ground, Extending the irrigation network and lighting network in the garden ,Laying roads and garden paths ,Distribution of plants in the garden</p>
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<b>Learning and Teaching Strategies</b> استراتيجيات التعلم والتعليم	
<b>Strategies</b>	<p><b>Learn about classic garden designs in addition to modern designs and their applications, with the need to watch documentaries about botanical gardens in the world to gain experience. Obtaining new scientific information in the field of scientific research (videos). Practical training in the field. Access to modern scientific literature. Participation in relevant scientific conferences.</b></p>

<b>Student Workload (SWL)</b> الحمل الدراسي للطالب محسوب ل60 ساعة			
<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	45	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعيا	3
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غيرالمنتظم للطالب خلال الفصل	15	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غيرالمنتظم للطالب أسبوعيا	1
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	<b>60</b>		



## Module Evaluation

### تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
<b>Formative assessment</b>	<b>Quizzes</b>	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	<b>Assignments</b>	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	<b>Projects / Lab.</b>	1	10% (10)	Continuous	All
	<b>Report</b>	1	10% (10)	13	LO #5, #8 and #10
<b>Summative assessment</b>	<b>Midterm Exam</b>	2hr	10% (10)	7	LO #1 - #7
	<b>Final Exam</b>	3hr	50% (50)	16	All
<b>Total assessment</b>			100% (100 Marks)		

## Delivery Plan (Weekly Syllabus)

### المنهاج الاسبوعي النظري

Week	Material Covered
<b>Week 1</b>	<b>Introduction to garden architecture</b>
<b>Week 2</b>	<b>Types of garden designs</b>
<b>Week 3</b>	<b>Engineering system</b>
<b>Week 4</b>	<b>Natural order</b>
<b>Week 5</b>	<b>Free system</b>
<b>Week 6</b>	<b>General rules for garden design</b>
<b>Week 7</b>	<b>Exam</b>
<b>Week 8</b>	<b>Garden design steps</b>
<b>Week 9</b>	<b>Garden construction costs</b>
<b>Week 10</b>	<b>The relationship of the garden to neighboring places</b>
<b>Week 11</b>	<b>Types of gardens</b>

Week 12	Private gardens
Week 13	public parks
Week 14	Rock gardens
Week 15	Water parks
Week 16	Exam

### Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

week	Material Covered
Week 1	Learn about the types of gardens
Week 2	Practical practice in developing different geometric shapes
Week 3	How to place the different symbols for the garden components when drawing the map
Week 4	Create a symmetrical rose garden
Week 5	Practice in drawing garden radial symmetry
Week 6	Draw a map of natural landscaped garden
Week 7	Draw a map of a children's garden
Week 8	Draw a map of a rock garden
Week 9	Draw a map of a water park
Week 10	Draw a map of a mixed design garden
Week 11	Draw a map of the front and back home garden
Week 12	Learn about botanical gardens
Week 13	Balcony gardens and roof gardens
Week 14	Practical practices on how to cut and shape plants
Week 15	Identify the structural components in the garden
Week 16	Exam

### Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	هندسة وتصميم الحدائق د. طلال محمود الجلي / دار الحكمة للطباعة والنشر 1990	Yes
Recommended Texts		
Websites		

## Grading Scheme

### مخطط الدرجات

Group	Grade	التقدير	Marks %	Definition
<b>Success Group (50 - 100)</b>	<b>A - Excellent</b>	امتياز	90 - 100	Outstanding Performance
	<b>B - Very Good</b>	جيد جدا	80 - 89	Above average with some errors
	<b>C - Good</b>	جيد	70 - 79	Sound work with notable errors
	<b>D - Satisfactory</b>	متوسط	60 - 69	Fair but with major shortcomings
	<b>E - Sufficient</b>	مقبول	50 - 59	Work meets minimum criteria
<b>Fail Group</b>	<b>FX - Fail</b>	راسب (فقد المعالجة)	(45-49)	More work required but credit awarded

(0 - 49)	F - Fail	راسب	(0-44)	Considerable amount of work required
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**Note:** Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

## MODULE DESCRIPTION FORM

### نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Medical Plants		Module Delivery
Module Type	Core		<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input checked="" type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	PLP 402		
ECTS Credits	2		
SWL (hr/sem)	3		
Module Level	4	Semester of Delivery	
Administering Department	Plant Production PLP	College	Technical Agricultural College
Module Leader	Fahad Khalaf Yassein	e-mail	fahadbiologymycology@ntu.edu.iq
Module Leader's Acad. Title	Asst.Professor	Module Leader's Qualification	Ph.D.
Module Tutor	Fatima Ibrahim Sultan	e-mail	E-mail
Peer Reviewer Name	Fatima Ibrahim Sultan	e-mail	E-mail
Scientific Committee Approval Date	01/06/2021	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	Medical Plants	Semester	Two
Co-requisites module	Plant Physiology	Semester	Two

## Module Aims, Learning Outcomes and Indicative Contents

### أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<p style="text-align: center;"><b>Module Objectives</b></p> <p>أهداف المادة الدراسية</p>	<p>84. Introducing the student to the importance of medicinal plants Teaching and training the student to know its plant classification .</p> <p>85. Introducing the student to the areas where medicinal plants are spread and their production methods</p> <p>86. Introducing the student to the most important active substances in plants and their locations in plants</p>
<p style="text-align: center;"><b>Module Learning Outcomes</b></p> <p>مخرجات التعلم للمادة الدراسية</p>	<ol style="list-style-type: none"> <li>1. <b>The student will be able to distinguish between medicinal plants</b></li> <li>2. <b>Know how to use medicinal plants</b></li> <li>3. <b>The student knows how to collect, dry and preserve medicinal plants</b></li> <li>4. <b>Know how to extract active ingredients from medicinal plants</b></li> </ol>
<p style="text-align: center;"><b>Indicative Contents</b></p> <p>المحتويات الإرشادية</p>	<p><b>Indicative content includes the following.</b></p> <p><b><u>Part A - theoretical part</u></b></p> <p>Medicinal plants and herbs, economic importance, Benefits and uses</p> <p>Genetic origins of medicinal plants, production and cultivation of medicinal plants</p> <p>Used parts of medicinal plants, their types and methods of use</p> <p>Medicinal and aromatic plants, economic importance, methods of reproduction</p> <p>Methods of marketing medicinal plants</p> <p>Collecting medicinal plants and the effect of collection time on the effectiveness of medicinal plants</p> <p>Methods of drying and storing medicinal plants, the effect of the storage process on the active ingredients</p> <p>Active substances in medicinal plants, active ingredients</p> <p>Using methods of extraction and separation of active substances</p> <p>Pharmacological effects and how they are synthesized within the plant</p> <p>Propagation of medicinal plants using tissue culture technology</p> <p>Oils extracted from medicinal plants, their types, and how to use them</p> <p>Juices extracted from medicinal plants, their types, and how to use them</p> <p>Medicinal herbal ointments, their types, how to use them</p>

	<p><u>Part B - practical part</u></p> <p>Visit the medicinal plants laboratory and learn about dried medicinal and aromatic plants</p> <p>Classification of medicinal plants, scientific names, local names</p> <p>Methods of collecting medicinal plants in the field</p> <p>Methods of cleaning and drying medicinal plants and storing them in the laboratory</p> <p>Methods of preserving medicinal plants and their parts</p> <p>Practical marketing of medicinal plants</p> <p>Laboratory cultivation of some medicinal plants, cumin, basil, and anise</p> <p>Identify the fruits of nutmeg, cinnamon, cloves, and ginger</p> <p>Preparing a medicinal herbal syrup from chamomile, hibiscus, and anise</p> <p>Extracting oils from cloves, black seed, nutmeg, and safflower</p> <p>A visit to one of the factories for extracting oils and ointments from medicinal plants</p> <p>Identifying aromatic plants in the field and laboratory</p> <p>Jasmine plant, botanical description, method of cultivation and reproduction</p> <p>Processing the jasmine plant and extracting fragrance from it</p> <p>Visit specialized herbalists in local markets</p>
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<b>Learning and Teaching Strategies</b> استراتيجيات التعلم والتعليم	
<b>Strategies</b>	<p><b>The student will be able to distinguish between medicinal plants Know how to use medicinal plants , The student knows how to collect, dry and preserve medicinal plants , Know how to extract active ingredients from medicinal plants</b></p>

<b>Student Workload (SWL)</b> الحمل الدراسي للطالب محسوب ل60 ساعة			
<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	45	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعيا	3
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غيرالمنتظم للطالب خلال الفصل	15	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غيرالمنتظم للطالب أسبوعيا	1

<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	<b>60</b>
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## Module Evaluation

### تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
<b>Formative assessment</b>	<b>Quizzes</b>	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	<b>Assignments</b>	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	<b>Projects / Lab.</b>	1	10% (10)	Continuous	All
	<b>Report</b>	1	10% (10)	13	LO #5, #8 and #10
<b>Summative assessment</b>	<b>Midterm Exam</b>	2hr	10% (10)	7	LO #1 - #7
	<b>Final Exam</b>	3hr	50% (50)	16	All
<b>Total assessment</b>			100% (100 Marks)		

## Delivery Plan (Weekly Syllabus)

### المنهاج الاسبوعي النظري

Week	Material Covered
<b>Week 1</b>	Medicinal plants and herbs, economic importance,
<b>Week 2</b>	Benefits and uses
<b>Week 3</b>	Benefits and uses
<b>Week 4</b>	Genetic origins of medicinal plants, production and cultivation of medicinal plants
<b>Week 5</b>	Genetic origins of medicinal plants, production and cultivation of medicinal plants
<b>Week 6</b>	Used parts of medicinal plants, their types and methods of use
<b>Week 7</b>	Medicinal and aromatic plants, economic importance, methods of reproduction
<b>Week 8</b>	Medicinal and aromatic plants, economic importance, methods of reproduction
<b>Week 9</b>	Methods of marketing medicinal plants
<b>Week 10</b>	Methods of marketing medicinal plants
<b>Week 11</b>	Collecting medicinal plants and the effect of collection time on the effectiveness of medicinal plants



<b>Week 12</b>	Juices extracted from medicinal plants, their types, and how to use them
<b>Week 13</b>	Medicinal herbal ointments, their types, how to use them
<b>Week 14</b>	Medicinal herbal ointments, their types, how to use them
<b>Week 15</b>	Medicinal herbal ointments, their types, how to use them
<b>Week 16</b>	<b>Preparatory week before the final Exam</b>

### Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

week	Material Covered
<b>Week 1</b>	Visit the medicinal plants laboratory and learn about dried medicinal and aromatic plants
<b>Week 2</b>	Visit the medicinal plants laboratory and learn about dried medicinal and aromatic plants
<b>Week 3</b>	Classification of medicinal plants, scientific names, local names
<b>Week 4</b>	Methods of collecting medicinal plants in the field
<b>Week 5</b>	Methods of collecting medicinal plants in the field
<b>Week 6</b>	Methods of cleaning and drying medicinal plants and storing them in the laboratory
<b>Week 7</b>	Methods of cleaning and drying medicinal plants and storing them in the laboratory
<b>Week 8</b>	Methods of preserving medicinal plants and their parts
<b>Week 9</b>	Practical marketing of medicinal plants
<b>Week 10</b>	Practical marketing of medicinal plants
<b>Week 11</b>	Laboratory cultivation of some medicinal plants, cumin, basil, and anise
<b>Week 12</b>	Laboratory cultivation of some medicinal plants, cumin, basil, and anise
<b>Week 13</b>	Identify the fruits of nutmeg, cinnamon, cloves, and ginger
<b>Week 14</b>	Identify the fruits of nutmeg, cinnamon, cloves, and ginger
<b>Week 15</b>	Preparing a medicinal herbal syrup from chamomile, hibiscus, and anise
<b>Week 16</b>	<b>Exam</b>

### Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
<b>Required Texts</b>	النباتات الطبية والعطرية كتاب منهجي لطلبة كليات الزراعة في الجامعات العراقية 2019	Yes
<b>Recommended Texts</b>	<b>Advances in medicinal plants 2009</b>	No
<b>Websites</b>		

## Grading Scheme

### مخطط الدرجات

Group	Grade	التقدير	Marks %	Definition
<b>Success Group (50 - 100)</b>	<b>A - Excellent</b>	امتياز	90 - 100	Outstanding Performance
	<b>B - Very Good</b>	جيد جدا	80 - 89	Above average with some errors
	<b>C - Good</b>	جيد	70 - 79	Sound work with notable errors
	<b>D - Satisfactory</b>	متوسط	60 - 69	Fair but with major shortcomings
	<b>E - Sufficient</b>	مقبول	50 - 59	Work meets minimum criteria
<b>Fail Group</b>	<b>FX - Fail</b>	راسب (فقد المعالجة)	(45-49)	More work required but credit awarded

(0 - 49)	F - Fail	راسب	(0-44)	Considerable amount of work required
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**Note:** Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

## MODULE DESCRIPTION FORM

### نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Plant Breedng ( 1 )		Module Delivery
Module Type	Core		<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input checked="" type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	PLP 401		
ECTS Credits	3		
SWL (hr/sem)	5		
Module Level	Forth	Semester of Delivery	
Administering Department	Plant Production PLP	College	Technical Agricultural College
Module Leader	Fahad Khalaf Yassein	e-mail	fahadbiologymycology@ntu.edu.iq-
Module Leader's Acad. Title	Asst.prof.	Module Leader's Qualification	Ph.D.
Module Tutor	Haitham abdulSattar Saeed ALMamary	e-mail	E-mail <a href="mailto:Haytem.a.abdullah@ntu.edu.iq">Haytem.a.abdullah@ntu.edu.iq</a>
Peer Reviewer Name	Name	e-mail	E-mail
Scientific Committee Approval Date	01/06/2021	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	Plant Breedng ( 2 )		Semester
Co-requisites module			Semester

## Module Aims, Learning Outcomes and Indicative Contents

### أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<p><b>Module Objectives</b> أهداف المادة الدراسية</p>	<p>87. The objective of plant breeding and improvement, improving production, improving quality, breeding for disease resistance, breeding for special traits.</p> <p>88. Plant cell, its components, nucleus, chromosomes</p> <p>89. Introducing the student to the most important basic information about different plants, their reproduction, propagation, and breeding</p> <p>90. Teaching and training the student to know its plant classification .</p> <p>91. Teaching and training the student to take plants tissue.</p> <p>92. Introducing and training students on good breeding techniques and the production of new hybrids and breeds .</p>
<p><b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية</p>	<p>1. Introduction, development of plant breeding and improvement</p> <p>2 Types of cell division: normal division, meiosis, and double fertilization.</p> <p>3.Mendel's laws in plant breeding and genetics, the first law (the law of isolation), the second law (the law of free distribution).</p> <p>5. Qualitative traits and their relationship to genetic factors, quantitative traits and their relationship to genetic factors.</p> <p>6. Selection methods: individual selection, quantitative selection, group selection</p>
<p><b>Indicative Contents</b> المحتويات الإرشادية</p>	<p>Indicative content includes the following.</p> <p><b><u>Part A - theoretical part</u></b></p> <p><b>Introduction, development of plant breeding and improvement. [3 hrs]</b></p> <p><b>Genetic variations, their importance, origin, and development.. [3 hrs]</b></p> <p><b>Cell division, The flowering plants, Root system, the region of cell division. [3 hrs]</b></p> <p><b>Hybridization methods: single hybridization, pair hybridization, and multiple hybridization.. [3 hrs]</b></p>

	<p><u>Part B - practical part</u></p> <p><b>Types of field plants, their composition, and parts thereof. [9 hrs].</b></p> <p><b>Reproduction in field crops, sexual reproduction, and vegetative reproduction.. [9 hrs].</b></p> <p><b>Methods of controlling the insemination process, isolation, and removal of male parts. [9 hrs].</b></p> <p><b>Genetic resources, collecting them, storing them, and renewing their vitality. [9 hrs].</b></p> <p><b>Pollination system in wheat, how to perform fertilization operations, how to pollinate, obtain hybridization. [9 hrs].</b></p> <p><b>Barley crop, spike installation, floret installation, bud removal, hybridization. [9 hrs].</b></p>
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<b>Learning and Teaching Strategies</b> استراتيجيات التعلم والتعليم	
<b>Strategies</b>	<p><b>The necessity of visiting to gain experience from others. Obtaining new scientific information in the field of scientific research (videos). Practical training in the field. Access to modern scientific literature. Participation in relevant scientific conferences. Scientific laboratories with other universities.</b></p>

<b>Student Workload (SWL)</b> الحمل الدراسي للطالب محسوب ل75 ساعة			
<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	65	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعيا	4
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطالب خلال الفصل	10	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطالب أسبوعيا	1
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	<b>75</b>		

## Module Evaluation

### تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO #5, #8 and #10
Summative assessment	Midterm Exam	2hr	10% (10)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

## Delivery Plan (Weekly Syllabus)

### المنهاج الاسبوعي النظري

Week	Material Covered
Week 1	Introduction, development of plant breeding and improvement
Week 2	The objective of plant breeding and improvement, improving production, improving quality, breeding for disease resistance, breeding for special traits.
Week 3	Plant cell, its components, nucleus, chromosomes
Week 4	Types of cell division: normal division, meiosis, and double fertilization.
Week 5	Pollination in plants, self-pollination and its importance, cross-pollination and its importance.
Week 6	Mendel's laws in plant breeding and genetics, the first law (the law of isolation), the second law (the law of free distribution).
Week 7	Genetic variations, their importance, origin, and development.
Week 8	Qualitative traits and their relationship to genetic factors, quantitative traits and their relationship to genetic factors.
Week 9	The relationship between the inheritance of traits and environmental conditions, the interaction between genetics and the environment in plant breeding.
Week 10	Methods of plant breeding and improvement, method of introduction from similar environments, acclimatization, and evaluation.
Week 11	Selection methods: individual selection, quantitative selection, group selection.

Week 12	Hybridization methods: single hybridization, pair hybridization, and multiple hybridization.
Week 13	Creating genetic mutations, physical mutagens, and chemical mutagens.
Week 14	Genetics and development of varieties resistant to plant diseases.
Week 15	The development of cytoplasmic sterility, its importance, and its use in plant breeding.
Week 16	Preparatory week before the final Exam

### Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

week	Material Covered
Week 1	Types of field plants, their composition, and parts thereof.
Week 2	Reproduction in field crops, sexual reproduction, and vegetative reproduction.
Week 3	Methods of controlling the insemination process, isolation, and removal of male parts.
Week 4	Genetic resources, collecting them, storing them, and renewing their vitality.
Week 5	Equipment and materials needed by plant breeders: tweezers, scissors, hybridization and pollination tools.
Week 6	Fertilization in plants, self-fertilization, cross-fertilization, and double fertilization.
Week 7	Morphological characteristics of the plant (external), physiological characteristics (anatomical)
Week 8	Methods of measuring the characteristics of field crops, theoretical measurements, laboratory measurements.
Week 9	Economic traits and their importance in improving the plant, productive traits, qualitative traits, and special traits.
Week 10	Pollination system in wheat, how to perform fertilization operations, how to pollinate, obtain hybridization.
Week 11	Barley crop, spike installation, floret installation, bud removal, hybridization.
Week 12	Pollination in yellow corn, removing the male inflorescences, encapsulating the female inflorescences, and pollinating them.
Week 13	Pink inflorescences in alfalfa crop, how to perform fertilization, how to perform pollination.
Week 14	Installing dalia in rice, controlling pollination, removing deadheads, pollination procedure, producing hybrids.
Week 15	A scientific visit to one of the plants breeding programs in the research stations.
Week 16	Exam

### Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
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Required Texts	<b>Plant Breeding</b> الدكتور ارشد ذنون حمودي النعيمي	Yes
Recommended Texts	<b>Plant Breeding ( 1)</b>	No
Websites	<a href="mailto:arshadthanoon@yahoo.com">arshadthanoon@yahoo.com</a>	

<b>Grading Scheme</b> مخطط الدرجات				
Group	Grade	التقدير	Marks %	Definition
<b>Success Group (50 - 100)</b>	<b>A - Excellent</b>	امتياز	90 - 100	Outstanding Performance
	<b>B - Very Good</b>	جيد جدا	80 - 89	Above average with some errors
	<b>C - Good</b>	جيد	70 - 79	Sound work with notable errors
	<b>D - Satisfactory</b>	متوسط	60 - 69	Fair but with major shortcomings
	<b>E - Sufficient</b>	مقبول	50 - 59	Work meets minimum criteria
<b>Fail Group</b>	<b>FX - Fail</b>	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded



(0 - 49)	F - Fail	راسب	(0-44)	Considerable amount of work required
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**Note:** Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

## MODULE DESCRIPTION FORM

### نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Plant Breedng ( 2 )		Module Delivery
Module Type	Core		<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input checked="" type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	PLP 405		
ECTS Credits	3		
SWL (hr/sem)	5		
Module Level	Fourth	Semester of Delivery	
Administering Department	Plant Production PLP	College	Technical Agricultural College
Module Leader	Fahad Khalaf Yassein	e-mail	fahadbiologymycology@ntu.edu.iq
Module Leader's Acad. Title	Asst.prof.	Module Leader's Qualification	Ph.D.
Module Tutor	Haitham abdulSattar Saeed ALMamary	e-mail	E-mail <a href="mailto:Haytem.a.abdullah@ntu.edu.iq">Haytem.a.abdullah@ntu.edu.iq</a>
Peer Reviewer Name	Name	e-mail	E-mail
Scientific Committee Approval Date	01/06/2021	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	Plant Breeding (1)		Semester Forth
Co-requisites module			Semester

## Module Aims, Learning Outcomes and Indicative Contents

### أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<p><b>Module Objectives</b> أهداف المادة الدراسية</p>	<p>93. Introducing the student to the most important basic information about different plants, their reproduction, propagation, and breeding</p> <p>94. Hybridization, theories of interpretation of hybridization, measuring hybrid strength, methods of hybridization</p> <p>95. Production of hybrids in cross-pollinated crops, Single hybrids, even hybrids, synthetic varieties, and prediction of yield.</p> <p>96. Teaching and training the student to know its plant classification .</p> <p>97. Teaching and training the student to take plants tissue.</p> <p>98. Introducing and training students on good breeding techniques and the production of new hybrids and breeds .</p>
<p><b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية</p>	<p>1. Introduction, development of plant breeding and improvement</p> <p>2 Types of cell division: normal division, meiosis, and double fertilization.</p> <p>3.Mendel's laws in plant breeding and genetics, the first law (the law of isolation), the second law (the law of free distribution).</p> <p>5. Qualitative traits and their relationship to genetic factors, quantitative traits and their relationship to genetic factors.</p> <p>6. Selection methods: individual selection, quantitative selection, group selection.</p>
<p><b>Indicative Contents</b> المحتويات الإرشادية</p>	<p>Indicative content includes the following.</p> <p><b><u>Part A - theoretical part</u></b></p> <p><b>Introduction, development of plant breeding and improvement. [3 hrs]</b></p> <p><b>Genetic variations, their importance, origin, and development.. [3 hrs]</b></p> <p><b>Cell division, The flowering plants, Root system, the region of cell division. [3 hrs]</b></p> <p><b>Hybridization methods: single hybridization, pair hybridization, and multiple hybridization.. [3 hrs]</b></p>

	<p><u>Part B - practical part</u></p> <p><b>Recording observations of the vegetative characteristics of hybrids grown in the college field. [9 hrs].</b></p> <p><b>Estimating hybrid vigor for the studied traits from field experiments. [9 hrs].</b></p> <p><b>Experimental field applications for growing hybrids of yellow corn, eggplant, cucumber, and cotton. [9 hrs].</b></p> <p><b>Pollination system in wheat, how to perform fertilization operations, how to pollinate, obtain hybridization. [9 hrs].</b></p>
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<b>Learning and Teaching Strategies</b> استراتيجيات التعلم والتعليم	
<b>Strategies</b>	<p><b>The necessity of visiting to gain experience from others. Obtaining new scientific information in the field of scientific research (videos). Practical training in the field. Access to modern scientific literature. Participation in relevant scientific conferences. Scientific laboratories with other universities.</b></p>

<b>Student Workload (SWL)</b> الحمل الدراسي للطالب محسوب ل75 ساعة			
<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	65	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعياً	4
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطالب خلال الفصل	10	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطالب أسبوعياً	1
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	<b>60</b>		

## Module Evaluation

### تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO #5, #8 and #10
Summative assessment	Midterm Exam	2hr	10% (10)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

## Delivery Plan (Weekly Syllabus)

### المنهاج الاسبوعي النظري

Week	Material Covered
Week 1	Genetic redundancy and its importance in plant breeding and improvement according to the theory of (Hardy and Einberg's law)
Week 2	Characteristics studied in plant breeding and improvement programs.
Week 3	Hybridization, theories of interpretation of hybridization, measuring hybrid strength, methods of hybridization
Week 4	Production of hybrids in cross-pollinated crops, Single hybrids, even hybrids, synthetic varieties, and prediction of yield.
Week 5	Synthetic varieties, their characteristics, factors affecting the yield of the synthetic variety.
Week 6	Breeding vegetatively propagated plants, characteristics of clones, the importance of clones, methods of raising them, and their advantages.
Week 7	Calculating the heritability ratio, components of genetic variation, additional genetic variation, dominant and supra-dominant genetic variation.
Week 8	Calculate General Combining ability (GCA), Special Combining ability (SCA)
Week 9	Breeding for resistance to diseases and insects, a technique for transferring resistance traits from wild species and varieties to cultivated and susceptible varieties.
Week 10	Chromosomal variation, its importance and role in plant breeding, complete chromosome replication, incomplete chromosome replication.
Week 11	The use of genetic engineering technology, gene transfer technology, its importance and role in plant breeding, and chromosomal replication.

Week 12	The technology of using nuclear radiation to produce hybrids and radioactive varieties.
Week 13	Technology using genetic mutations, final products and isolation generations, determinants of breeding using mutation technology.
Week 14	Offspring raising technology in plant breeding, importance, comparison with other breeding methods.
Week 15	Plant population breeding, indoor breeding, outdoor breeding, genetic information bank.
Week 16	Preparatory week before the final Exam

### Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

week	Material Covered
Week 1	Applications of Hardy-Weinberg's law.
Week 2	Recording observations of the vegetative characteristics of hybrids grown in the college field.
Week 3	Estimating hybrid vigor for the studied traits from field experiments.
Week 4	Experimental field applications for growing hybrids of yellow corn, eggplant, cucumber, and cotton.
Week 5	A comparison between Single hybrids, even hybrids, and synthetic varieties.
Week 6	Field comparison between plants with sexual reproduction and clonal reproduction for the same plant.
Week 7	Applications for calculating heritability, genetic variance, additional genetic variance, Dominant and Over-dominant variance.
Week 8	Calculating general Combining ability and specific Combining ability.
Week 9	Using a technique to transfer a trait resistant to a disease or insect in the field and laboratory
Week 10	Using the technique of variation in the number of chromosomes.
Week 11	A field visit to the experimental fields to follow up on the breeding operations carried out by hybridization and selection.
Week 12	Field comparison between selected traits and plant community.
Week 13	Implementing the method of pro gene test for cotton and potatoes.
Week 14	Applying the cultivation of varieties exposed to nuclear radiation and comparing them with normal varieties.
Week 15	Technique of separating, isolating and packing ears, stalks, selected fruits and nuts.
Week 16	Exam

### Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
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Required Texts	Plant Breeding الدكتور ارشد ذنون حمودي النعيمي	Yes
Recommended Texts	Plant Breeding ( 2)	No
Websites	<a href="mailto:arshadthanoon@yahoo.com">arshadthanoon@yahoo.com</a>	

Grading Scheme مخطط الدرجات				
Group	Grade	التقدير	Marks %	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group	FX - Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded

(0 - 49)	F - Fail	راسب	(0-44)	Considerable amount of work required
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**Note:** Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

## MODULE DESCRIPTION FORM

### نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Plant Tissue Culture		Module Delivery
Module Type	Core		<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input checked="" type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	PLP 406		
ECTS Credits	3		
SWL (hr/sem)	4		
Module Level	fourth	Semester of Delivery	
Administering Department	Plant Production PLP	College	Technical Agricultural College
Module Leader	Fahad Khalaf Yassein	e-mail	fahadbiologymycology@ntu.edu.iq
Module Leader's Acad. Title	Asst.prof.	Module Leader's Qualification	Ph.D.
Module Tutor	Khawla Mahmood Yahya AL-Nooh	e-mail	kawllamhmood@ntu.edu.iq
Peer Reviewer Name	Khawla Mahmood Yahya AL-Nooh	e-mail	kawllamhmood@ntu.edu.iq
Scientific Committee Approval Date	01/06/2021	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	General Botany		Semester Two
Co-requisites module	Plant Growth Regulators		Semester Two

## Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<b>Module Objectives</b> أهداف المادة الدراسية	99. <b>Introducing and training students on plant tissue culture technology</b> 100. <b>Introducing the student to the benefits of tissue culture and its uses</b> 101. <b>Learn about callus and how to manage callus farms</b> 102. <b>Learn about Cell suspensions</b>
<b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية	1. <b>The student will be able to use tissue culture technology to propagate commercial plants</b> 2. <b>The student will be familiar with how to prepare agricultural media</b> 3. <b>The student will be aware of the prospects and benefits of plant tissue culture</b> 4. <b>The student will be aware of the benefits of plant growth regulators and how to use them in plant tissue culture</b> 5. <b>The student will be aware of how to acclimatize plants and transport them to the field</b>
<b>Indicative Contents</b> المحتويات الإرشادية	<p><b>Indicative content includes the following.</b></p> <p><b><u>Part A - theoretical part</u></b></p> <p><b>History and present situation of plant tissue culture and application. [3 hrs]</b></p> <p><b>tissue culture laboratory. [3 hrs]</b></p> <p><b>Nutrient media (Organic and inorganic constituents ). [3 hrs]</b></p> <p><b>plant growth regulators. [3 hrs]</b></p> <p><b>Callus initiation techniques . [3 hrs]</b></p>



	<p><u>Part B - practical part</u></p> <p>tissue culture laboratory function and operation of tissue culture inst. [9 hrs].</p> <p>preparation of whole medium. [9 hrs].</p> <p>Sterilization of media and plant materials . [9 hrs].</p> <p>Callus initiation medium . [9 hrs].</p> <p>Suspension Culture. [9 hrs].</p>
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<b>Learning and Teaching Strategies</b> استراتيجيات التعلم والتعليم	
<b>Strategies</b>	<p>The necessity of practical practice of plant tissue culture technology to gain experience. And obtain new scientific information in the field of scientific research (videos). And obtain new scientific information in the field of scientific research (videos). Access to modern scientific literature. Participation in relevant scientific conferences. Scientific laboratories with other universities.</p>

<b>Student Workload (SWL)</b> الحمل الدراسي للطالب محسوب لـ 60 ساعة			
<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	50	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعياً	3
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطالب خلال الفصل	10	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطالب أسبوعياً	1
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	<b>60</b>		

## Module Evaluation

### تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO #5, #8 and #10
Summative assessment	Midterm Exam	2hr	10% (10)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

## Delivery Plan (Weekly Syllabus)

### المنهاج الاسبوعي النظري

Week	Material Covered
Week 1	History and present situation of plant tissue culture and application
Week 2	tissue culture laboratory
Week 3	Nutrient media (Inorganic constituents)
Week 4	Organic Constituents
Week 5	Growth regulators 1
Week 6	Growth regulators 2
Week 7	Exam
Week 8	Sterilization of media
Week 9	Sterilization of plant materials
Week 10	Initiation and growth of callus
Week 11	Callus Initiation medium

Week 12	Callus Initiation techniques
Week 13	Cell Suspension Culture
Week 14	Initiation of Suspension Culture
Week 15	Suspension Culture methods
Week 16	Preparatory week before the final Exam

### Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

week	Material Covered
Week 1	tissue culture laboratory function and operation of tissue culture inst
Week 2	preparation of nutrition components of tissue culture medium
Week 3	preparation of some concentrations of plant Growth regulators
Week 4	preparation of whole medium
Week 5	In vitro micropropagation of carrots
Week 6	In vitro micropropagation of lettuce
Week 7	Root Culture of tomatoes
Week 8	Stage of somatic embryogenesis in carrots
Week 9	Assessment of the previous practicals , writing report
Week 10	In Vitro Micropropagation of some field crops
Week 11	In Vitro Micropropagation of some field crops
Week 12	In Vitro Micropropagation of some field crops
Week 13	Author and pollen cultures of some field crop
Week 14	Assessment of experiments and discussing reports
Week 15	Preparatory week before the final Exam
Week 16	Exam

### Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	اساسيات زراعة الانسجة النباتية / محمود توفيق شرباش / دار المعارف للطباعة والنشر / 2009	Yes
Recommended Texts	تجارب في زراعة الانسجة النباتية	
Websites		

## Grading Scheme

### مخطط الدرجات

Group	Grade	التقدير	Marks %	Definition
<b>Success Group (50 - 100)</b>	<b>A - Excellent</b>	امتياز	90 - 100	Outstanding Performance
	<b>B - Very Good</b>	جيد جدا	80 - 89	Above average with some errors
	<b>C - Good</b>	جيد	70 - 79	Sound work with notable errors
	<b>D - Satisfactory</b>	متوسط	60 - 69	Fair but with major shortcomings
	<b>E - Sufficient</b>	مقبول	50 - 59	Work meets minimum criteria
<b>Fail Group</b>	<b>FX - Fail</b>	راسب (فقد المعالجة)	(45-49)	More work required but credit awarded

(0 - 49)	F - Fail	راسب	(0-44)	Considerable amount of work required
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**Note:** Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

## MODULE DESCRIPTION FORM

### نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Scientific research methodology		Module Delivery
Module Type	Core		<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	NTU 410		
ECTS Credits	2		
SWL (hr/sem)	2		
Module Level	Fourth	Semester of Delivery	
Administering Department	Plant Production PLP	College	Technical Agricultural College
Module Leader	Fahad Khalaf Yassein	e-mail	fahadbiologymycology@ntu.edu.iq
Module Leader's Acad. Title	Asst.prof	Module Leader's Qualification	Ph.D.
Module Tutor	Fahad Khalaf Yassein	e-mail	fahadbiologymycology@ntu.edu.iq
Peer Reviewer Name	Name	e-mail	E-mail
Scientific Committee Approval Date	01/06/2021	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	Seminar and Project		Second
Co-requisites module			Third

## Module Aims, Learning Outcomes and Indicative Contents

### أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<b>Module Objectives</b> أهداف المادة الدراسية	<p>Training the student on scientific thinking and research, how to conduct scientific experiments and apply them in the field, and how to take readings, analyze them, and give a logical analysis of the results.</p>
<b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية	<ul style="list-style-type: none"><li>- The student will be able to develop a research plan in any scientific subject, apply it, take the results, analyze them statistically, and give a scientific discussion of the results obtained from the research.</li></ul>
<b>Indicative Contents</b> المحتويات الإرشادية	<p>The modern scientific method,.[2] the beginning of the scientific theory and its steps,.[2] the assumptions on which the scientific approach to natural phenomena is based,.[2], the basic characteristics of scientific research,.[2], the characteristics of the successful researcher,.[2], the types of research and their applications,.[2], scientific research institutions, .[2] the foundations of choosing the problem,.[2] exploratory readings and review of previous research,.[2] the formulation of research hypotheses,.[2]</p>

## Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

<b>Strategies</b>	<ul style="list-style-type: none"><li>- The student will be able to think scientifically in solving any problem and develop a strategy to conduct research and investigate scientific facts to solve the problem, take data, analyze it logically, and come up with recommendations to address the problem.</li></ul>
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## Student Workload (SWL)

الحمل الدراسي للطالب محسوب ل75 ساعة

<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	30	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعياً	4
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غيرالمنتظم للطالب خلال الفصل	2	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غيرالمنتظم للطالب أسبوعياً	1
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	<b>32</b>		

## Module Evaluation

### تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO #5, #8 and #10
Summative assessment	Midterm Exam	2hr	10% (10)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
<b>Total assessment</b>			100% (100 Marks)		

## Delivery Plan (Weekly Syllabus)

### المنهاج الاسبوعي النظري

Week	Material Covered
Week 1	The modern scientific method
Week 2	the beginning of the scientific theory and its steps
Week 3	the assumptions on which the scientific approach to natural phenomena is based.
Week 4	the basic characteristics of scientific research.
Week 5	the characteristics of the successful researcher.
Week 6	the types of research and their applications,
Week 7	scientific research institutions,
Week 8	the foundations of choosing the problem,
Week 9	Ways to display information
Week 10	Discussing research
Week 11	Publishing research



<b>Week 12</b>	<b>Introduction to the Internet and its uses</b>
<b>Week 13</b>	<b>exploratory readings and review of previous research,</b>
<b>Week 14</b>	<b>the formulation of research hypotheses,</b>
<b>Week 15</b>	<b>The Internet and scientific research</b>

### Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

week	
Week 1	
Week 2	
Week 3	
Week 4	
Week 5	
Week 6	
Week 7	
Week 8	
Week 9	
Week 10	
Week 11	
Week 12	
Week 13	
Week 14	
Week 15	
Week 16	

### Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
<b>Required Texts</b>	Lectures on scientific research methodology / Professor Dr. Iyad Youssef Al-Haj Ismail / 2019	
<b>Recommended Texts</b>		
<b>Websites</b>		

## Grading Scheme

### مخطط الدرجات

Group	Grade	التقدير	Marks %	Definition
<b>Success Group (50 - 100)</b>	<b>A - Excellent</b>	امتياز	90 - 100	Outstanding Performance
	<b>B - Very Good</b>	جيد جدا	80 - 89	Above average with some errors
	<b>C - Good</b>	جيد	70 - 79	Sound work with notable errors
	<b>D - Satisfactory</b>	متوسط	60 - 69	Fair but with major shortcomings
	<b>E - Sufficient</b>	مقبول	50 - 59	Work meets minimum criteria
<b>Fail Group</b>	<b>FX - Fail</b>	راسب (فقد المعالجة)	(45-49)	More work required but credit awarded

(0 - 49)	F - Fail	راسب	(0-44)	Considerable amount of work required
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**Note:** Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

## MODULE DESCRIPTION FORM

### نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Seed Technology		Module Delivery
Module Type	Option		<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input checked="" type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	PLP452		
ECTS Credits	2		
SWL (hr/sem)	3		
Module Level	forth	Semester of Delivery	
Administering Department	Plant Production PLP	College	Technical Agricultural College
Module Leader	Fahad Khalaf Yassein		e-mail
Module Leader's Acad. Title	Asst.prof.	Module Leader's Qualification	
Module Tutor	Dr. Wadhah Thabit Abeed		e-mail
Peer Reviewer Name	Name	e-mail	E-mail
Scientific Committee Approval Date	01/06/2021	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	Plant Taxonomy		Semester
Co-requisites module	Plant Physiology		Semester
			Second
			Second

## Module Aims, Learning Outcomes and Indicative Contents

### أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<b>Module Objectives</b> أهداف المادة الدراسية	Introducing the student to the importance of seeds and means of improving the physical and genetic characteristics related to the production, processing, certification of seeds, and marketing of seeds, and learning about international instructions for examining and trading seeds.
<b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية	<ol style="list-style-type: none"><li>1. Using techniques to teste and estimate the physical and chemical properties of seeds</li><li>2. Determine the specializations available for diagnosis and examination of germs</li><li>3. Identify the important parameters of seeds intended for planting or intended for storage</li><li>4. Post-harvest grain management</li></ol>
<b>Indicative Contents</b> المحتويات الإرشادية	<p>Indicative content includes the following.</p> <p><b><u>Part A - theoretical part</u></b></p> <ol style="list-style-type: none"><li>1. An overview of screening agents in Iraq and ISTA activity [3 hrs]</li><li>2. Factors affecting seed germination [3 hrs]</li><li>3. The chemical composition of the seed and its relationship to its value as seeds [3 hrs]</li></ol>

	<p><u>Part B - practical part</u></p> <ol style="list-style-type: none"> <li>1. <b>Study of the Morphology of the seed</b> [9 hrs].</li> <li>2. <b>Devices and tools used in examining devices</b> [9 hrs].</li> <li>3. <b>Sample extraction</b> [9 hrs].</li> <li>4. <b>Components for testing the purity and cleanliness of seeds</b> [9 hrs].</li> </ol>
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<b>Learning and Teaching Strategies</b> استراتيجيات التعلم والتعليم	
<b>Strategies</b>	<p><b>The necessity of visiting to gain experience from others. Obtaining new scientific information in the field of scientific research (videos). Practical training in the field. Access to modern scientific literature. Participation in relevant scientific conferences. Scientific laboratories with other universities.</b></p>

<b>Student Workload (SWL)</b> الحمل الدراسي للطالب محسوب ل45 ساعة			
<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	40	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعيا	2
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطالب خلال الفصل	5	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطالب أسبوعيا	1
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	<b>45</b>		

## Module Evaluation

### تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO #5, #8 and #10
Summative assessment	Midterm Exam	2hr	10% (10)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

## Delivery Plan (Weekly Syllabus)

### المنهاج الاسبوعي النظري

Week	Material Covered
Week 1	Introduction to seed technology, definition of technology, definitions of seed technology, grain technology.
Week 2	Aime of seed technology, introduction to seeds, definition of seed, definition of seed according to seed technology, foreign terms used in seed technology
Week 3	Definition of warehouse science, warehouse manufacturing, overview of inspection control, warehouse friendly and foundation of ISTA, what matters in ISTA controlled testing
Week 4	General information about the plant kingdom, identifying the fruit, types of fruits, the importance of the seed, specifications of good seeds prepared for planting, benefits of seeds, harms of seeds, seed formation, chemical changes that occur in the seed during its formation,
Week 5	Formation of the seed embryo, the phenomenon of multiple embryos, physiological maturity and full maturity, the yield and its components
Week 6	Chemical composition of seeds and their relationship to their value as seeds. Chemical components of the seed
Week 7	Seed diagnosis, seed composition, seed germination, seed germination requirements, sequence of processes that occur during germination, seed dormancy.
Week 8	Seed vitality, seed vigor, purity testing.
Week 9	Tests indicating seed quality, improved seed production, and seed treatments
Week 10	Seed revitalization, definition of seed revitalization, benefits of seed revitalization.
Week 11	Seed response to magnetic treatment process, seeds
Week 12	Seeds, the importance of seeds, multiplying seeds
Week 13	Field foundations for seed multiplication.
Week 14	Behavior of grains during storage and handling, factors causing deterioration of stored seeds.
Week 15	Manifestations of deterioration of stored seeds
Week 16	exame

## Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

week	Material Covered
Week 1	The concept of the seed, the devices and tools used in tests
Week 2	Sample extraction, some concepts used
Week 3	Tools used to extract samples
Week 4	The process of extracting samples, preparing the required samples that will be sent for examination
Week 5	Data written on the card, shipping and sending the sample, problems with extracting the sample
Week 6	How to obtain a practical sample, mixing consignments of different seeds
Week 7	Purity testing, sample components, tools used in purity testing
Week 8	Experiment about germination
Week 9	Sample analysis, components of the seed purity test, nature of the test procedure
Week 10	Germination examination, reasons for the appearance of abnormal seedlings, ways to overcome dormancy
Week 11	Seed source for germination testing, necessary equipment in the germination laboratory, methods of growing seeds intended for germination testing
Week 12	Show scientific films
Week 13	Points to consider in the germination laboratory, special characteristics of abnormal seedlings in the germination examination
Week 14	Germination strength test, 1000 seed weight test, test weight, moisture content determination
Week 15	Seed viability tests, seed safety testing
Week 16	Exam

## Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	<b>Seed Technology</b> تكنولوجيا البذور / عبد الستار سمير الرجيو	Yes
Recommended Texts	معجم مصطلحات تكنولوجيا البذور 2013	No
Websites	<a href="https://ketabpedia.com/%D8%AA%D8%AD%D9%85%D9%8A%D9%84/%D985%D8%B9%D8%AC%D9%85%D9%85%D8%B5%D8%B7%D9%84%D8%D%D8%A7%D8%AA%D8%AA%D9%83%D9%86%D9%88%D9%84%D9%88%D8%AC%D9%8A%D8%A7%D8%A7%D9%84%D8%A8%D8%B0%D9%88%D8B1/">https://ketabpedia.com/%D8%AA%D8%AD%D9%85%D9%8A%D9%84/%D985%D8%B9%D8%AC%D9%85%D9%85%D8%B5%D8%B7%D9%84%D8%D%D8%A7%D8%AA%D8%AA%D9%83%D9%86%D9%88%D9%84%D9%88%D8%AC%D9%8A%D8%A7%D8%A7%D9%84%D8%A8%D8%B0%D9%88%D8B1/</a>	

## Grading Scheme

### مخطط الدرجات

Group	Grade	التقدير	Marks %	Definition
<b>Success Group (50 - 100)</b>	<b>A - Excellent</b>	امتياز	90 - 100	Outstanding Performance
	<b>B - Very Good</b>	جيد جدا	80 - 89	Above average with some errors
	<b>C - Good</b>	جيد	70 - 79	Sound work with notable errors
	<b>D - Satisfactory</b>	متوسط	60 - 69	Fair but with major shortcomings
	<b>E - Sufficient</b>	مقبول	50 - 59	Work meets minimum criteria
<b>Fail Group</b>	<b>FX - Fail</b>	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded

<b>(0 - 49)</b>	<b>F - Fail</b>	راسب	(0-44)	Considerable amount of work required

**Note:** Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.



# MODULE DESCRIPTION FORM

## نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Weed control		Module Delivery
Module Type	Core		<input checked="" type="checkbox"/> Theory
Module Code	PLP 404		<input type="checkbox"/> Lecture
ECTS Credits	2		<input type="checkbox"/> Lab
SWL (hr/sem)	3		<input type="checkbox"/> Tutorial
			<input checked="" type="checkbox"/> Practical
			<input type="checkbox"/> Seminar
Module Level	Forth	Semester of Delivery	Forth
Administering Department	Plant Production PLP	College	Technical Agricultural College
Module Leader	Fahad Khalaf Yassein Asst.prof.	e-mail	fahadbiologymycology@ntu.edu.iq
Module Leader's Acad. Title	Asst.prof	Module Leader's Qualification	Ph.D.
Module Tutor	Dr. Wadhah Thabit Abeed	e-mail	Wadah8324@ntu.edu.iq
Peer Reviewer Name	Name	e-mail	E-mail
Scientific Committee Approval Date	01/06/2021	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	Plant Taxonomy	Semester	Second
Co-requisites module	Plant Physiology	Semester	Second

## Module Aims, Learning Outcomes and Indicative Contents

### أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<b>Module Objectives</b> أهداف المادة الدراسية	Introducing and training the student to identify the types of weeds plants growing with the main crops in the field, what are their specifications and control techniques, and be able to diagnose them and prescribe the necessary treatment for them.
<b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية	<ol style="list-style-type: none"><li>1. The student has knowledge about weeds plants cycle.</li><li>2. Identify the available techniques to weeds control.</li><li>3. Identifying the nature of plants and their types and the extent to which they are affected by the field crops.</li></ol>
<b>Indicative Contents</b> المحتويات الإرشادية	<p>Indicative content includes the following.</p> <p><b><u>Part A - theoretical part</u></b></p> <ul style="list-style-type: none"><li>. Definition of weeds, their spread and reproduction [3 hrs]</li><li>. Harmful effects of weeds plants, benefits of weeds plants [3 hrs]</li><li>. How can weeds plants reduce yields [3 hrs]</li><li>. Methods used to control weed plants [3 hrs]</li></ul>

	<p><u>Part B - practical part</u></p> <ul style="list-style-type: none"> <li>- <b>Methods of collecting plant samples for the purpose of drying and identifying them. [6 hrs].</b></li> <li>- <b>Identify methods for drying samples and the seed diagnosis mechanism [6 hrs].</b></li> <li>- <b>Identify the types of herbicides, the mechanism of action of the herbicide, and calculate the necessary amount of herbicide per unit area [6 hrs].</b></li> <li>- <b>Identify the types of sprayers, methods of calibrating the sprayer, and preparing the spray solution [6 hrs].</b></li> </ul>
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<b>Learning and Teaching Strategies</b> استراتيجيات التعلم والتعليم	
<b>Strategies</b>	<p><b>The necessity of visiting to gain experience from others. Obtaining new scientific information in the field of scientific research (videos). Practical training in the field. Access to modern scientific literature. Participation in relevant scientific conferences. Scientific laboratories with other universities.</b></p>

<b>Student Workload (SWL)</b> الحمل الدراسي للطالب محسوب ل45 ساعة			
<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	40	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعياً	3
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطالب خلال الفصل	5	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطالب أسبوعياً	1
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	<b>45</b>		

## Module Evaluation

### تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO #5, #8 and #10
Summative assessment	Midterm Exam	2hr	10% (10)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

## Delivery Plan (Weekly Syllabus)

### المنهاج الاسبوعي النظري

Week	Material Covered
Week 1	Definition of weeds: The losses caused by weeds in the agricultural, social and health aspects of humans.
Week 2	The medical benefits of weeds plants: preserving soil from erosion, how to diagnose soil salinity, weedss are fodder crops.
Week 3	Division of weeds plants, according to the growing season, according to the duration of life, according to the damage they cause, and methods of spreading the weeds.
Week 4	Alelobathy and inhibition in weeds plants.
Week 5	Prevention of weeds plants.
Week 6	The mechanical method of combating weeds, the use of agricultural mechanized equipment in combating weeds, the perennial weed control program.
Week 7	Biological method of control, using insects, pathogens, fish, goats, and others.
Week 8	Using the physiological method of control, using suffocating, temporary crops, using fire, and using water dispersal.
Week 9	Methods of absorption and transport of herbicides, root and cellular transport systems, and common parietal transport.
Week 10	Chemical control of weeds, types of acute poisoning, concentration of herbicides, selection, division, and classification.
Week 11	Herbicides and soil, factors affecting the effectiveness of herbicides in soil, residual effect of herbicides in soil.
Week 12	Herbicides and soil, factors affecting the effectiveness of herbicides in soil, residual effect of herbicides in soil.
Week 13	Study of the herbicides of the Piperidium group (paraquait, diquait).
Week 14	Study of phenoxy group herbicides
Week 15	Study of the Triazine group (atrazine, cymarin).
Week 16	Exam

## Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

week	Material Covered
Week 1	Methods of drying weeds plants with a visit to the college field and diagnosis of the weeds.
Week 2	Identification of summer and winter weed seeds.
Week 3	Comparison between mechanical and chemical methods in combating a perennial weed.
Week 4	Implementing a field experiment on a vegetable crop to combat weeds with herbicides.
Week 5	Completion.
Week 6	Types of sprays used in pest control, calculating the amount of herbicide needed per unit area.
Week 7	Diagnosing the weeds remaining from the previous experience.
Week 8	Spray the herbicide Cramaxon on wild reed plants and monitor the results.
Week 9	Spraying the herbicide Terflan in beans and cauliflower fields and monitoring the results.
Week 10	Spraying the herbicide 2,4-D in wheat and barley fields.
Week 11	Use of the herbicide atrazine to control corn weeds.
Week 12	Using the herbicide Lancer and Chemoset to combat perennial weeds in ditches and irrigation canals.
Week 13	Conduct an experiment to determine the remaining effect of the herbicide in the soil.
Week 14	Discussing the results in student reports.
Week 15	A continuation.
Week 16	Exam

## Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Weed and weed control (مقاومة الحشائش والاعشاب) د. محمد محمود زين الدين د. كمال محمد الهباشة 1992م	Yes
Recommended Texts	Weed control ,2020	No
Websites	<a href="https://drive.google.com/file/d/1NCG3bdfHR5YFUWlccqb9iXFdPXEsRNR4/view?usp=sharing">https://drive.google.com/file/d/1NCG3bdfHR5YFUWlccqb9iXFdPXEsRNR4/view?usp=sharing</a>	

## Grading Scheme

### مخطط الدرجات

Group	Grade	التقدير	Marks %	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group	FX - Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded

(0 - 49)	F - Fail	راسب	(0-44)	Considerable amount of work required

**Note:** Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.