



MODULE DESCRIPTION FORM

Module Information				
Module Title	Democracy and human rights		Module Delivery	
Module Type	B		☒ Theory ☐ Lecture ☐ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	NTU 100			
ECTS Credits	2			
SWL (hr/sem)	50			
Module Level	1 st Level	Semester of Delivery	1	
Administering Department	Department of Desertification Control Technology	College	Technical Agricultural College	
Module Leader	Ahmed Faris Salim		e-mail	ahmedalsawaf@ntu.edu.iq
Module Leader's Acad. Title	lecturer	Module Leader's Qualification		
Module Tutor	Name (if available)	e-mail	E-mail	
Peer Reviewer Name	Amina mahir azeez	e-mail	Amina.mahir@ntu.edu.iq	
Scientific Committee Approval Date		Version Number	TAC	

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

Module Aims, Learning Outcomes and Indicative Contents

Module Objectives	1. Introducing the student to the most important laws related to human rights 2. Introducing the student to the most important Iraqi constitutions and their relationship to human rights. 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
Module Learning Outcomes	1. Definition of human rights, goals of human rights 2. Learn about human rights through the divine books. 3. The student must have complete knowledge of human rights rules and the international and regional recognition of these rights 4. Teach the student that freedom of expression is guaranteed by the Iraqi Constitution 5. Identify the components of the social fabric and the differences in their cultures and languages.

Learning and Teaching Strategies

Strategies	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.
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Student Workload (SWL)

Structured SWL (h/sem)	33	Structured SWL (h/w)	2
Unstructured SWL (h/sem)	17	Unstructured SWL (h/w)	1.13
Total SWL (h/sem)	50		

Module Evaluation

		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)	Continuou s	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)

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

	Text	Available in the Library?
Required Texts	محاضرات في الديمقراطية و حقوق الانسان	Yes
Recommended Texts		
Websites		

Grading Scheme

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

(0 - 49)	F - Fail	(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

Module Information					
Module Title	English Language		Module Delivery		
Module Type	B		☒ Theory ☐ Lecture ☐ Lab ☐ Tutorial ☐ Practical ☐ Seminar		
Module Code	NTU 101				
ECTS Credits	2				
SWL (hr/sem)	50				
Module Level		1st Level	Semester of Delivery		1
Administering Department		Department of Desertification Control Technology	College	Technical Agricultural College	
Module Leader	Ahmed Faris Salim		e-mail	ahmedalsawaf@ntu.edu.iq	
Module Leader's Acad. Title		lecturer	Module Leader's Qualification		
Module Tutor			e-mail		
Peer Reviewer Name		Name	e-mail	E-mail	
Scientific Committee Approval Date			Version Number		

Relation with other Modules			
Prerequisite module		Semester	
Co-requisites module		Semester	

Module Aims, Learning Outcomes and Indicative Contents

Module Objectives	1. Enabling students to obtain knowledge and introduction to the rules of the English language 2. Enabling students to obtain knowledge of the origins of speech and sentences and what they consist of and their types 3. Enabling students to obtain knowledge of the correct pronunciation of English vocabulary
Module Learning Outcomes	1. Students acquire general knowledge of the English language 2. Gaining students the ability to speak properly and in accordance with the principles of the language 3. Acquire and require the ability to correctly pronounce letters and vocabulary 4. Students acquire the skill of writing sentences correctly and with the fewest possible errors
Indicative Contents	Indicative content includes the following. <u>Part A - theoretical part</u> 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]
	<u>Part B - practical part</u> 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]

Learning and Teaching Strategies

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

Structured SWL (h/sem)	33	Structured SWL (h/w)	2
Unstructured SWL (h/sem)	17	Unstructured SWL (h/w)	1.13
Total SWL (h/sem)	50		

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)	Continuou s	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)

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

	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

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

(0 - 49)	F - Fail	(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

Module Information					
Module Title	General Chemistry		Module Delivery		
Module Type	B		☒ Theory ☐ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar		
Module Code	TAMO 100				
ECTS Credits	6				
SWL (hr/sem)	150				
Module Level		1st Level	Semester of Delivery		1
Administering Department		Department of Desertification Control Technology	College	Technical Agricultural College	
Module Leader	Ahmed Faris Salim		e-mail	ahmedalsawaf@ntu.edu.iq	
Module Leader's Acad. Title		lecturer	Module Leader's Qualification		Ph.D.
Module Tutor			e-mail		
Peer Reviewer Name		Omar ahmed fathi	e-mail	omar.ah.f@ntu.edu.iq	
Scientific Committee Approval Date			Version Number		

Relation with other Modules			
Prerequisite module		Semester	
Co-requisites module		Semester	

Module Aims, Learning Outcomes and Indicative Contents

Module Objectives	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.
Module Learning Outcomes	- Identify solutions and methods of preparing them. - Identify the preparation of diluted and concentrated acids and stimulants. - Identify the principles of chromatographic analysis.
Indicative Contents	Indicative content includes the following. General Chemistry: You learn basic concepts such as atomic structure, electronic structure, ions, and forces operating between molecules.[10] Accurate analysis: To learn how to collect and extract a sample, analyze statistics, and use advanced technological measurements.[10] Thermodynamics and Kinetics: For practice in understanding the laws of thermodynamics and how they relate to chemical systems.[10] Spectrometry and Spectroscopy: Ratios between electromagnetic readings and matter have been discovered.[10].

Learning and Teaching Strategies

Strategies	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.
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Student Workload (SWL)			
Structured SWL (h/sem)	78	Structured SWL (h/w)	5.2
Unstructured SWL (h/sem)	72	Unstructured SWL (h/w)	4.8
Total SWL (h/sem)	200		

Module Evaluation					
		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)	Continuou s	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)	
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)

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

	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	https://praxilabs.com/arabic/blog/6-most-important-chemistry-laws/	

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

(0 - 49)	F - Fail	(0-44)	Considerable amount of work required
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MODULE DESCRIPTION FORM

Module Information					
Module Title	Occupational safety			Module Delivery	
Module Type	B			☒ Theory ☐ Lecture ☐ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	TAMO 101				
ECTS Credits	2				
SWL (hr/se3m)	50				
Module Level	1st Level		Semester of Delivery		
Administering Department		Department of Desertification Control Technology		College	Technical Agricultural College
Module Leader	Ahmed Faris Salim			e-mail	ahmedalsawaf@ntu.edu.iq
Module Leader's Acad. Title		lecturer		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		Version Number		TAC	

Relation with other Modules			
Prerequisite module		Semester	
Co-requisites module		Semester	

Module Aims, Learning Outcomes and Indicative Contents

Module Objectives	Protecting the human element: Ensuring the safety and health of workers by .reducing risks and injuries in the work environment Maintaining facilities and equipment: Preventing damage and losses .resulting from accidents by applying safety standards Providing a safe work environment: Implementing occupational safety and .health requirements to ensure a risk-free work environment Promoting safety awareness: Educating workers on occupational safety and .health practices and the importance of following them Encouraging research and development: Supporting research and participating in conferences to improve occupational safety and health .standards
Module Learning Outcomes	Understanding the principles of occupational safety and health: The ability to define and apply the concepts of occupational safety and health in different work environments. Risk assessment: The ability to identify and evaluate potential hazards in the work environment and develop strategies to reduce them. Legislation and standards: Understanding and applying local and international laws and legislation related to occupational safety and health. Safety management: Developing and implementing occupational safety and health programs and procedures in institutions. Training and awareness: Designing and implementing training programs to increase awareness of the importance of occupational safety and health.
Indicative Contents	1. Introduction to Occupational Safety and Health: Definition and importance of safety in the work environment. 2. Risk assessment: Methods of identifying and assessing risks and strategies for reducing them. 3. Personal protective equipment (PPE): Types, use and maintenance. 4. Emergency procedures: Emergency plans, evacuation and accident handling. 5. Training and awareness: Safety training programs and spreading a culture of safety among workers.

Learning and Teaching Strategies

Strategies	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
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Student Workload (SWL)

Structured SWL (h/sem)	33	Structured SWL (h/w)	2
Unstructured SWL (h/sem)	17	Unstructured SWL (h/w)	1.13
Total SWL (h/sem)	50		

Module Evaluation					
		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)	Continuou s	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)	
Week	Material Covered
Week 1	Occupational Safety Concept
Week 2	Regulations, Laws and Legislation
Week 3	Identifying Agricultural Hazards
Week 4	Safety from Physical Hazards
Week 5	Safety from Biological Hazards
Week 6	Safety from Chemical Hazards
Week 7	Safety from Mechanical Hazards
Week 8	Safety from Common Diseases
Week 9	Handling Agricultural Machinery
Week 10	Handling Agricultural Waste
Week 11	Accidents and Injuries in the Agricultural Sector
Week 12	Accident Reporting Procedures
Week 13	First Aid
Week 14	Safe Use of Pesticides and Fertilizers
Week 15	Training

Learning and Teaching Resources

	Text	Available in the Library?
Required Texts	“Occupational Safety and Health” by Dr. Nasser Al-Daghmi, Al-Yazouri Publishing and Distribution House, 2016.	no
Recommended Texts	“General Professional Safety” by Khaled Fathy Madi and Ahmed Ragheb Al-Khatib, Kunuz Al-Ma’rifah Al-Ilmiyyah House, 2011	no
Websites	الملف السلامة والصحة المهنية الوطنية - جمهورية العراق (2022) International Labour Organization (ilo.org)	

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

(0 - 49)	F - Fail	(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	General Botany			Module Delivery	
Module Type	B			☒ Theory ☐ Lecture ☒ Lab ☐ Tutorial ☒ Practical ☒ Seminar	
Module Code	DES 100				
ECTS Credits	7				
SWL (hr/sem)	175				
Module Level	1st Level		Semester of Delivery		
Administering Department		Department of Desertification Control Technology		College	Technical Agricultural College
Module Leader	Ahmed Faris Salim			e-mail	ahmedalsawaf@ntu.edu.iq
Module Leader's Acad. Title		lecturer		Module Leader's Qualification	
				Ph.D.	
Module Tutor	Mohammed Salem Ahmed			e-mail	mohameedsa66@ntu.edu.iq
Peer Reviewer Name		Name		e-mail	E-mail
Scientific Committee Approval Date				Version Number	TAC

Relation with other Modules			
Prerequisite module		Semester	
Co-requisites module		Semester	

Module Aims, Learning Outcomes and Indicative Contents

Module Objectives	1. Introducing the student to the most important basic information about different plants, their reproduction, propagation, and breeding 2. Teaching and training the student to know its plant classification . 3. Teaching and training the student to take plants tissue.
Module Learning Outcomes	1. The use of techniques to confront desertification and moisture tension 2. The possibility of managing agricultural and livestock activity in dry agriculture areas in order to achieve the best possible efficiency 3. Developing means, equipment and machinery in line with the nature of dry areas. 4. The student has knowledge about dry areas and their nature 5. Identify the available techniques to cope with drought 6. Identifying the nature of plants and their types and the extent to which they are affected by the environment of this region.
Indicative Contents	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]
	<u>Part B - practical part</u> Plant classification, Using alight microscope to stading cell Cell division. [9 hrs]. Chemical compound of plant, Plant body study, Gymnosperm plants. [9 hrs]. Angiosperm plants , Experment about diffusion and osmosis, Absorption and tran sport of water. [9 hrs]. Transport Across cell memberans, Anotomy of roots, stems, leaves and flowers, Show scientific films . [9 hrs]. Seed structure and Germination, Vegetative reproduction, Plant hormones. [9 hrs].

Learning and Teaching Strategies

Strategies	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.
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Student Workload (SWL)

Structured SWL (h/sem)	93	Structured SWL (h/w)	6.2
Unstructured SWL (h/sem)	82	Unstructured SWL (h/w)	5.5
Total SWL (h/sem)	225		

Module Evaluation

		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)

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)

week	Material Covered
Week 1	Plant classification
Week 2	Using alight microscope to stading 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	Experment about diffusion and osmosis
Week 9	Absorption and tran sport of water
Week 10	Transport Across cell memberans
Week 11	Anotomy 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

Learning and Teaching Resources

	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	https://www.everand.com/book/282617930/General-Botany	

Grading Scheme

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

(0 - 49)	F - Fail	(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	C		☒ Theory ☐ Lecture ☒ Lab ☐ Tutorial ☒ Practical ☐ Seminar	
Module Code	DES 101			
ECTS Credits	7			
SWL (hr/sem)	175			
Module Level	1 st Level	Semester of Delivery		
Administering Department	Department of Desertification Control Technology		College	Technical Agricultural College of Mosul
Module Leader	Ahmed Faris Salim		e-mail	ahmedalsawaf@ntu.edu.iq
Module Leader's Acad. Title	Lecturer		Module Leader's Qualification	Ph.D
Module Tutor			e-mail	
Peer Reviewer Name	Omar Younis Hasan		e-mail	mti.lec224.omar@ntu.edu.iq
Scientific Committee Approval Date			Version Number	1.0

Relation with other Modules			
Prerequisite module		Semester	
Co-requisites module		Semester	

Module Aims, Learning Outcomes and Indicative Contents

Module Objectives	Course objectives - Learn about soil science and related sciences: 1- Identify the factors of soil formation and its formation processes. 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. 3- Measuring morphological characteristics in the field, such as color, composition, and humidity. 4- Measuring soil chemical characteristics - colloids - organic matter - exchange capacity - ion exchange - ph - E.C. 5- Measuring physical characteristics such as humidity, true density, and calculating porosity - knowing the mechanical analysis of soil to determine its components.
Module Learning Outcomes	g-Cognitive objectives 1. Identify the composition of the soil and its organic states. 2. The relationship between soil components and plant condition 3. Paying attention to the quality of soil water, air, soil temperature, and moisture stress. 4. Identify colloids, their types, and their relationship with the organic state. 5. Learn how to manage soil, manage water, and maintain soil fertility and productivity. 6. Submitting reports on the quality of the soil, its organic state, the quality of irrigation water, and the suitability of groundwater wells for irrigation. D- The skills objectives of the course. 1. Estimating soil moisture and its potential to achieve agricultural production. 2. Estimating the soil texture to determine the quality of the soil. 3. Estimating the ketone exchange capacity in relation to fertilization. 4. Determine the salinity of river irrigation water or groundwater 5. The ability to determine the salinity and acidity of the soil, which is related to fertilization, salinization, and agriculture.
Indicative Contents	1- That what the student studies should be consistent with his inclinations and thinking trends 2- That the student feels the importance of correcting refractive errors in the eye 3-The student should listen carefully to the professor's explanation 4- That the student feels what cognitive excellence and excellence mean 5- That the student recognizes the impact of science and scientists 6-The student must pay attention to respecting the time and class system

Learning and Teaching Strategies	
Strategies	1-Types of communication in the field of work 2- The ability to express ideas clearly and reliably 3- Teamwork.

Student Workload (SWL)			
Structured SWL (h/sem)	93	Structured SWL (h/w)	6.2
Unstructured SWL (h/sem)	82	Unstructured SWL (h/w)	5.5
Total SWL (h/sem)	200		

Module Evaluation					
		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)	Continuou s	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.
Week 11	Soil salinity, sources of salinity, causes of salinity, classification of salinized soils, reclamation of saline soils, inspection of salinity...etc
Week 12	Soil fertility, macro and micro nutrients, their importance, sources, and symptoms of deficiency.
Week 13	The relationship of soil, water and plants.
Week 14	Soil classification
Week 15	Iraqi soil
Week 16	Exam

Delivery Plan (Weekly Practical Syllabus)	
	Material Covered
Week 1	Soil laboratory, definition, tools and equipment used in it, definition of occupational safety requirements and conditions that must be applied.
Week 2	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.
Week 3	Preparing the plant for laboratory procedures and analyses
Week 4	Physical properties, estimation of moisture content, preparation of saturated dough and identification of its properties.
Week 5	Apparent density, true density.
Week 6	Mechanical analysis of soil by absorbent and hydrogen methods to estimate texture.
Week 7	Training in preparing standard solutions
Week 8	Training on preparing soil suspensions and extracts.
Week 9	Soil chemical properties, PH and EC.
Week 10	Organic matter, calcium carbonate
Week 11	Estimation of some nutrients in the soil, potassium, sodium.
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

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

(0 - 49)	F - Fail	(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	Forestry		Module Delivery	
Module Type	C		☒ Theory ☐ Lecture ☐ Lab ☒ Tutorial ☐ Practical ☒ Seminar	
Module Code	DES 102			
ECTS Credits	6			
SWL (hr/sem)	225			
Module Level	1st Level	Semester of Delivery		1
Administering Department	Department of Desertification Control Technology	College	Technical Agricultural College	
Module Leader	Ahmed Faris Salim		e-mail	ahmedalsawaf@ntu.edu.iq
Module Leader's Acad. Title	lecturer	Module Leader's Qualification		Ph.D
Module Tutor	Samir F. Ayoud		e-mail	Samir.f.ayoub@ntu.edu.iq
Peer Reviewer Name			e-mail	
Scientific Committee Approval Date			Version Number	TAC

Relation with other Modules			
Prerequisite module		Semester	
Co-requisites module		Semester	

Module Aims, Learning Outcomes and Indicative Contents

Module Objectives

1. Understanding the installation and function of the forest:
 - 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.
 2. Study environmental and economic impacts:
 - Analyzing the impact of humanitarian activities on the forests, and studying environmental and economic factors that affect the health and sustainability of forests.
 3. Development of scientific skills:
 - Enhancing research, analysis and critical thinking skills in the field of forests, including collection and analysis of data and logically and systematically providing results.
 4. Definition of environmental policies:
 - 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.
 5. Enhancing environmental awareness:
 - Encouraging students to think responsible about the environmental challenges related to forests and adopting sustainable behaviors to maintain these vital resources.
-
1. Understanding the installation and function of the forest:
 - 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.
 2. Study environmental and economic impacts:
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 4. Definition of environmental policies:
 - 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.
 5. Enhancing environmental awareness:
 - Encouraging students to think responsible about the environmental challenges related to forests and adopting sustainable behaviors to maintain these vital resources.

Module Learning Outcomes	1. A deep understanding of the foundations of forest development: These concepts include the principles of forest manufacturing, forest regulation techniques, environmental sustainability, and forestry environment. 2. Design and planning skills: Students can acquire skills in planning forest land, artificial forest design, and forest management management. 3. Learn about the types of trees and plants: Students can learn about a variety of trees and plants in the forests and understand the role of each type in the forest environment. 4. Environmental management skills: These skills include understanding how to maintain biological diversity and maintain natural ecosystems in forests. 5. The ability to assess environmental impact: Students learn how to assess the impact of human activities on forests and apply strategies to reduce these negative effects. 6. Participation in scientific research: The course may encourage students to participate in research related to forest development, which helps them to understand the problems and challenges facing forests and create sustainable solutions.
Indicative Contents	1. Introduction to Forest Development: Definition of forest development and its importance. The history of forest development and the development of concepts and practices. 2. Forest environment: Environmental factors that affect the growth and development of forests. The effect of climatic changes on the forests. 3. Forest manufacturing: Forest manufacturing concepts and principles. Trees transplant techniques and forest renovation. 4. Forestry Management: Methods and tools of forest resource management. Forest's strategic planning. 5. Biological diversity and the preservation of environmental systems: The importance of biological diversity in forests and methods of preserving it. The effect of human activities on the forest environment and how to mitigate this effect. 6. Modern techniques in forest development: The use of technology to evaluate and manage forests. Artificial intelligence applications and data analysis in forest development. 7. Status studies and field visits: Review cases of various forest development projects around the world. Field visits to local forest projects to identify practical applications. 8. Search and innovation in forest development: The role of scientific research in developing forest development practices. Stimulating students to conduct research in the field of forest development and provide innovative solutions.

Learning and Teaching Strategies	
Strategies	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.

Student Workload (SWL)			
Structured SWL (h/sem)	78	Structured SWL (h/w)	5.2
Unstructured SWL (h/sem)	72	Unstructured SWL (h/w)	4.8
Total SWL (h/sem)	225		

Module Evaluation

		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)	Continuou s	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) ,

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)

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	https://shepherd.com/best-books/important-reads-about-forests	No

Websites	https://www.fao.org/biotech/sectoral-overviews/biotech-forestry/ar/ https://www.un.org/ar/208338
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Grading Scheme			
Group	Grade	Marks %	Definition
Success Group (50 - 100)	A - Excellent	90 - 100	Outstanding Performance
	B - Very Good	80 - 89	Above average with some errors
	C - Good	70 - 79	Sound work with notable errors
	D - Satisfactory	60 - 69	Fair but with major shortcomings
	E - Sufficient	50 - 59	Work meets minimum criteria
Fail Group	FX - Fail	(45-49)	More work required but credit awarded

(0 - 49)	F - Fail	(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

Module Information			
Module Title	Computer		Module Delivery
Module Type	B		☒ Theory ☐ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar
Module Code	NTU 102		
ECTS Credits	3		
SWL (hr/sem)	75		
Module Level	1st Level	Semester of Delivery	2
Administering Department	Department of Desertification Control Technology	College	Technical Agricultural College
Module Leader	Ahmed Faris Salim	e-mail	ahmedalsawaf@ntu.edu.iq
Module Leader's Acad. Title	lecturer	Module Leader's Qualification	
Module Tutor	Manhal Mohamad Basher	e-mail	manhalbasher@ntu.edu.iq
Peer Reviewer Name	Name	e-mail	E-mail
Scientific Committee Approval Date		Version Number	

Relation with other Modules			
Prerequisite module		Semester	
Co-requisites module		Semester	

Module Aims, Learning Outcomes and Indicative Contents

Module Objectives	4. Understand the basics of computing: Provide students with a basic understanding of computing concepts, including its history, development, and types of computing systems. 5. 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. 6. 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. 7. 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. 8. 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. 9. Promoting interaction and teamwork: Encouraging students to collaborate on group programming projects and in solving complex programming problems.
Module Learning Outcomes	1. Understand basic concepts in computer science such as data, software, hardware, and networks. 2. Ability to analyze problems and understand basic algorithms used in programming and software development. 3. Learn basic programming languages such as C, Python, or Java and understand the basics of writing and executing code. 4. Ability to use software development tools such as text editors and integrated development environments (IDEs). 5. Understand the concepts of information security and privacy in the context of technology use. 6. The ability to understand and analyze computer systems, networks, and communication concepts between devices. 7. Learn about artificial intelligence concepts and their basic applications. 8. Learn about the basics of operating systems and how to manage computer resources and processes.

Indicative Contents

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.



Learning and Teaching Strategies

Strategies	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.
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Student Workload (SWL)

Structured SWL (h/sem)	33	Structured SWL (h/w)	2.2
Unstructured SWL (h/sem)	42	Unstructured SWL (h/w)	2.8
Total SWL (h/sem)	75		

Module Evaluation					
		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)	Continuou s	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)

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 www.microsoft.com
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

	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, الؤفس 2010 د. زياد محمد عبود, 2013	No
Websites	الامريكية, موقع الشركة الرسمي Microsoft نظام التشغيل ويندوز 7, شركة مايكروسوفت www.microsoft.com	

Grading Scheme

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

(0 - 49)	F - Fail	(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

Module Information					
Module Title	Arabic Language		Module Delivery		
Module Type	B		☒ Theory ☐ Lecture ☐ Lab ☐ Tutorial ☐ Practical ☒ Seminar		
Module Code	NTU 103				
ECTS Credits	2				
SWL (hr/se3m)	50				
Module Level		1st Level	Semester of Delivery		2
Administering Department		Department of Desertification Control Technology	College	Technical Agricultural College	
Module Leader	Ahmed Faris Salim		e-mail	ahmedalsawaf@ntu.edu.iq	
Module Leader's Acad. Title		lecturer	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			Version Number		TAC

Relation with other Modules			
Prerequisite module		Semester	
Co-requisites module		Semester	

Module Aims, Learning Outcomes and Indicative Contents

Module Objectives	1-Preparing students who have the ability to pronounce correctly and write .without errors as much as possible 2.Encouraging the student to follow correct spelling rules 3.Paying attention to punctuation marks and how to use them in writing
Module Learning Outcomes	1. Learn about the basic and important rules of the Arabic language. 2. Focus on correct spelling rules 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.
Indicative Contents	Instructional content includes the following _Alert students to common linguistic errors, as well as benefit from correcting these errors in their formal and informal writing. (4 hours _Knowing the necessary spelling rules. (4 hours _Knowing punctuation marks and how to use them. (4 hours Part B - practical part

Learning and Teaching Strategies

Strategies	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
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Student Workload (SWL)

Structured SWL (h/sem)	33	Structured SWL (h/w)	2
Unstructured SWL (h/sem)	17	Unstructured SWL (h/w)	1.13
Total SWL (h/sem)	50		

Module Evaluation					
		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)	
Week	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

Learning and Teaching Resources

	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.	
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.	
Websites		

Grading Scheme

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

(0 - 49)	F - Fail	(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

Module Information					
Module Title	Plant Physiology			Module Delivery	
Module Type	B			☒ Theory ☐ Lecture ☒ Lab ☒ Tutorial ☐ Practical ☐ Seminar	
Module Code	DES 103				
ECTS Credits	7				
SWL (hr/sem)	175				
Module Level	1st Level		Semester of Delivery		2
Administering Department	Department of Desertification Control Technology		College	Technical Agricultural College	
Module Leader	Ahmed Faris Salim		E-mail	ahmedalsawaf@ntu.edu.iq	
Module Leader's Acad. Title				Module Leader's Qualification	
Module Tutor	Omar Ahmed Fathi		e-mail	omar.ah.f@ntu.edu.iq	
Peer Reviewer Name	Name		e-mail	E-mail	
Scientific Committee Approval Date				Version Number	

Relation with other Modules			
Prerequisite module		Semester	
Co-requisites module		Semester	

Module Aims, Learning Outcomes and Indicative Contents

Module Objectives	1. Expanding the student's understanding of the most important basic information about plant physiology. 2. Teaching and training the student to know the most important physiological processes that occur within the plant. 3. Teaching and training students on the most important biological reactions carried out by plants. 4. Introducing the student to how plants perform these activities and the mechanisms and mechanisms of their occurrence. 5. Giving students knowledge of the physiology laboratory supplies, how to deal with them, use them, and conduct simple physiological experiments.
Module Learning Outcomes	1. Understand how plants perform their various functions. 2. Identifying the plant's growth needs and thus using them to increase agricultural production. 3. Determine the plant's needs in order to provide them. 4. Understanding the physiological state of plants and providing the student with the scientific knowledge to diagnose different physiological states of plants. 5. Identify the nature and types of plants and the extent to which they are affected by their external environment.
Indicative Contents	Instructional content includes the following. Part A – Theoretical part 1. Plant, physiology, cell, types, and organelles. [3 hours] 2. Cell structure, components, and functions. [3 hours] 3. Solutions, their types, methods of measuring them, and methods of preparing them. [3 hours] 4. Diffusion, osmosis, water potential, the importance of osmosis for plants. [3 hours] 5. Water relationship with plants, water absorption, xylem, phloem tissue. [3 hours] 6. Water loss from plants, transpiration, stomata, mechanism of opening and closing stomata [3 hours] 7. Physiological processes, photosynthesis, respiration [3 hours]

	<u>Part B – practical part</u> 1. Using an optical microscope to identify the cell and its structure. [9 hours]. 2. Preparing solutions and methods for measuring their concentrations. [9 hours]. 3. Experiments on diffusion, osmosis, absorption and transport of water. [9 hours]. 4. Cell organs, anatomy of the root system, stems and leaves, showing scientific films. [9 hours]. 5. Tissue culture, plant hormones. [9 hours].
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Learning and Teaching Strategies	
Strategies	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.

Student Workload (SWL)			
Structured SWL (h/sem)	78	Structured SWL (h/w)	5.2
Unstructured SWL (h/sem)	97	Unstructured SWL (h/w)	6.5
Total SWL (h/sem)	175		

Module Evaluation					
		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)	Continuou s	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)	
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 ₂ fixation) C ₃ plants and C ₄ 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

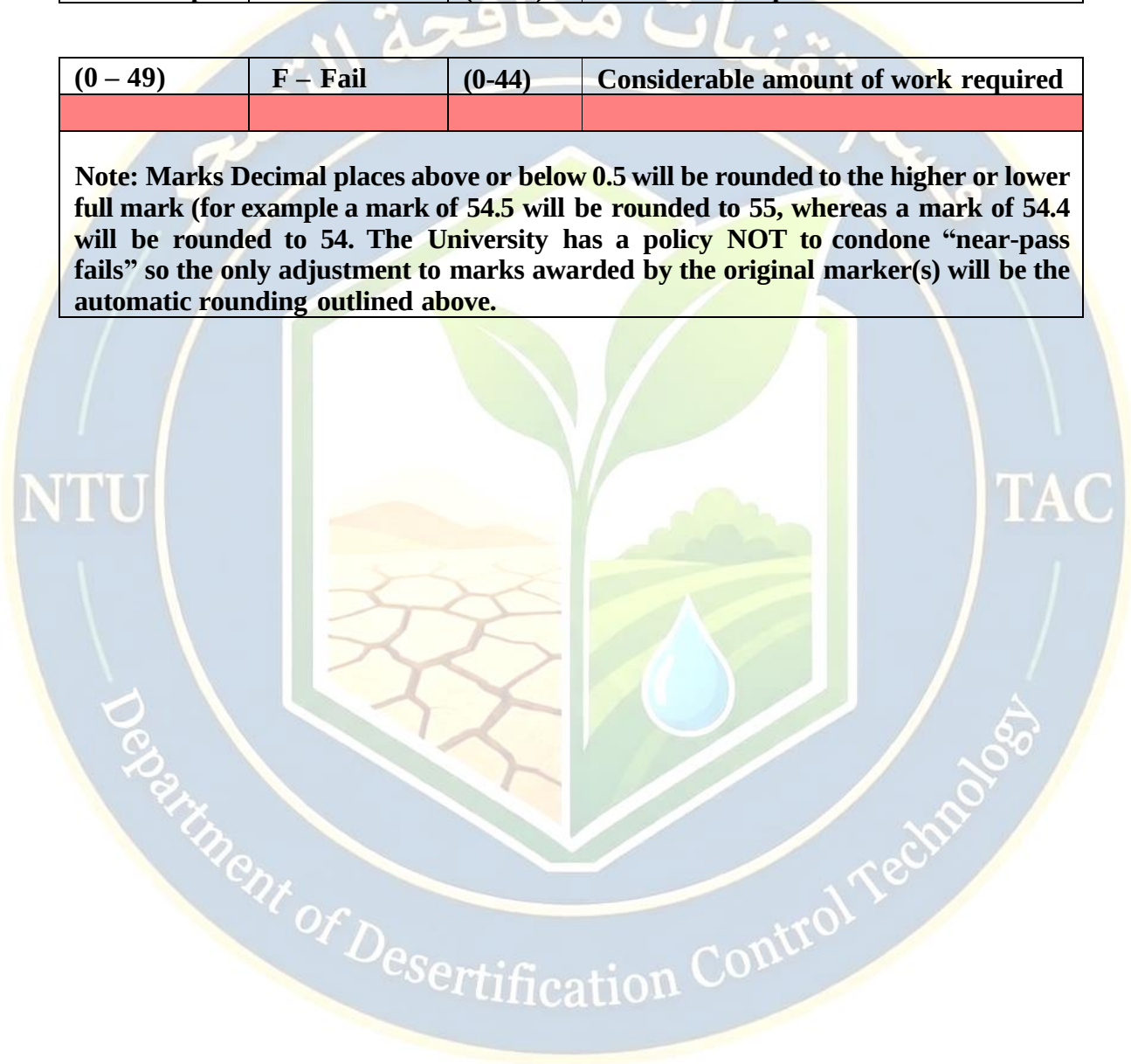
Delivery Plan (Weekly Lab. Syllabus)	
week	Material Covered
Week 1	Learn about Laboratory equipment and solutions preparation
Week 2	Microscopy and cell examination – using an optical microscope – types of microscopes
Week 3	Detection of some substances in the cell such as carbohydrates, proteins and 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		
	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	https://global.oup.com/ushe/product/fundamentals-of-plant-physiology-9780197614167?cc=us&lang=en	

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

(0 – 49)	F – Fail	(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

Module Information					
Module Title	Soil Chemistry			Module Delivery	
Module Type	C			☒ Theory ☐ Lecture ☒ Lab ☐ Tutorial ☒ Practical ☐ Seminar	
Module Code	DES 104				
ECTS Credits	8				
SWL (hr/sem)	200				
Module Level	1 st Level				
Administering Department		Department of Desertification Control Technology	College	Technical Agricultural College of Mosul	
Module Leader	Ruaa Nawfal Nafea		e-mail	E-mail: Ruaaa9@ntu.edu.iq	
Module Leader's Acad. Title		Asst.Lecture	Module Leader's Qualification		Master
Module Tutor	Ruaa Nawfal Nafea		e-mail	E-mail: Ruaaa9@ntu.edu.iq	
Peer Reviewer Name			e-mail	E-mail	
Scientific Committee Approval Date			Version Number	1.0	

Relation with other Modules			
Prerequisite module	Fundamental of soil science	Semester	
Co-requisites module		Semester	

Module Aims, Learning Outcomes and Indicative Contents

Module Objectives	Teaching and introducing students to soil chemistry and the chemical reactions that occur and their impact on soil properties, development and use, as well as providing the student with skill in how to estimate chemical properties in the soil.
Module Learning Outcomes	Important: Write atleast 6 Learning Outcomes, better to be equal to the number of study weeks. Cognitive objectives - The ability to determine the elements of soil chemistry in dry areas. - The ability to synthesize chemical elements in the soil of dry areas - Study of plants and their relationship to the ecosystem and climate elements in dry areas and their relationship to the soil - Identifying the plant succession and regions of Iraq in terms of soil and environmental types. - The skills objectives of the course. - The ability to discuss in a scientific spirit and express what is involved in studying the subject. - The ability to communicate and inquire with the subject teacher - 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.
Indicative Contents	1- That what the student studies should be consistent with his inclinations and thinking trends 2- That the student feels the importance of correcting refractive errors in the eye 3- The student should listen carefully to the professor's explanation 4- That the student feels what cognitive excellence and excellence mean 5- That the student recognizes the impact of science and scientists 6- The student must pay attention to respecting the time and class system

Learning and Teaching Strategies

Strategies	1- Types of communication in the field of work 2- The ability to express and convey ideas clearly and confidently 3- Teamwork.
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Student Workload (SWL)

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Module Evaluation

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
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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	Chapter One: Mineral chemistry, chemical composition of soil, mineral composition of clay, Bowling's rules for atomic arrangement
Week 2	Isomorphic replacement in minerals, silicate minerals, clay mineral groups
Week 3	Chapter Two: Chemistry of organic minerals, sources of organic matter, formation of humus, chemical and physical properties of humus
Week 4	The main groups of humic compounds, the interaction between mineral and organic colloids, organic complexes and chelates.
Week 5	Chapter Three: Soil solution, composition of soil solution, neutralization reactions of acids and bases
Week 6	Oxidation and reduction reactions, strong oxidation state, strong reduction state
Week 7	The concept of Pe and Eh and the relationship between them, chemical potential and the Nernst equation

Week 8	Chapter Four: Dissolution equilibrium in soil, carbonate equilibrium, ionization of carbonic acid and its forms, natural systems for describing carbonate equilibrium.
Week 9	Distribution of carbonate forms in the soil, phosphorus balance, ionization of phosphoric acid and its forms
Week 10	Distribution of phosphate forms in the soil, phosphorus interactions in the soil, phosphate compounds.
Week 11	Chapter Five: Ion exchange, the concept of ion exchange, sources of responsible charge on ion exchange sites.
Week 12	Characteristics of ion exchange, factors affecting ion exchange
Week 13	Physicochemical exchange equations, chemical exchange equations.
Week 14	Chapter Six: Soil acidity and alkalinity, soil acidity, sources of H in the soil, active acidity, latent acidity,
Week 15	Soil alkalinity, sources of OH in the soil, active alkalinity, latent alkalinity
Week 16	Exam

Delivery Plan (Weekly Practical Syllabus)

	Material Covered
Week 1	Methods of collecting soil samples from the field
Week 2	The effect of water extraction on the balance between electrical conductivity and the degree of soil interaction.
Week 3	The effect of water extraction on the balance between electrical conductivity and the degree of soil interaction.
Week 4	Estimating mutual bases and base saturation percentage
Week 5	Estimating mutual bases and base saturation percentage
Week 6	Estimation of soil active carbons
Week 7	Estimation of soil buffer
Week 8	Estimation of soil buffer
Week 9	Estimating the soil regulatory capacity
Week 10	Estimating the soil regulatory capacity
Week 11	Extraction and separation of humic compounds from soil
Week 12	Extraction and separation of humic compounds from soil
Week 13	Measurement of negative charges of clay separator
Week 14	Measurement of negative charges of clay separator
Week 15	Estimation of effective cation exchange capacity

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	Chemical analysis of soil / Dar Al-Hekma Printing	Yes
Recommended Texts	Recommended books and references (scientific journals, reports,....)	yes
Websites	Electronic references, Internet sites	

Grading Scheme			
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