



**Republic of Iraq Ministry of Higher Education &
Scientific Research
Northern Technical University
Technical Agricultural College/ Mosul
Department of Desertification Control Technology**

MODULE DESCRIPTION FORM

Module Information			
Module Title	Crimes of the Baath regime in Iraq		Module Delivery
Module Type	B	☒ Theory ☐ Lecture ☐ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	NTU 200		
ECTS Credits	2		
SWL (hr/sem)	50		
Module Level	2 nd level	Semester of Delivery	Three
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

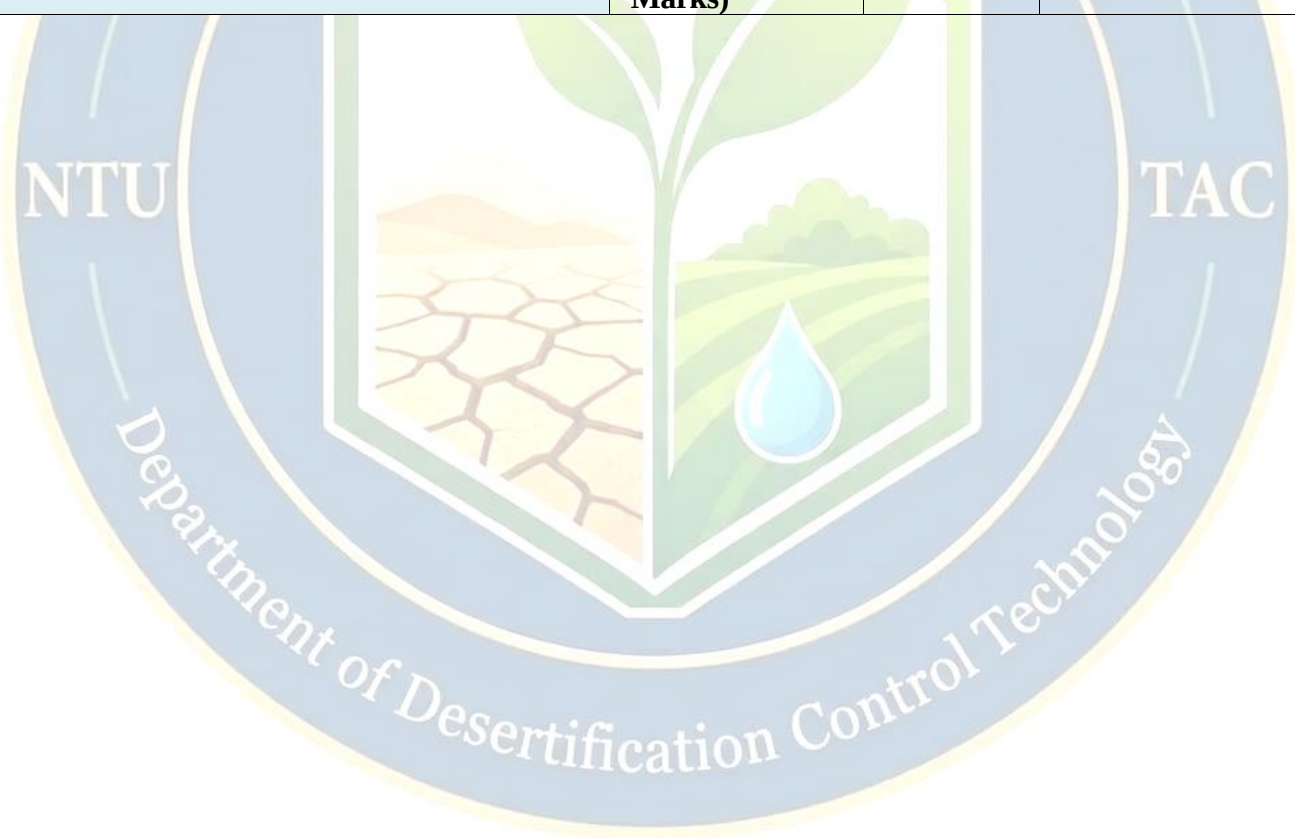
Module Objectives	1. Providing students with basic concepts related to defining crimes, their types and categories. 2. Introducing the crimes and violations of the former regime and the types of international crimes 3. Introducing mass grave crimes and violations of Iraqi laws 4. Addressing environmental crimes, the destruction of cities, demographic change policies, and extrajudicial detention 5. Explaining the role of the Supreme Criminal Court in dealing with the crimes of the Baath regime
Module Learning Outcomes	1. Enabling students to understand the concept of crime and the types of national and international crimes. 2. Developing knowledge aspects related to human rights protection and guarantees. 3. Developing students' ability to distinguish between crimes and human rights violations and how to confront them
Indicative Contents	Indicative content includes the following. 1. Developing legal culture 2. Carrying out his duties at work sites for professional motives. 3. Instilling the values of tolerance and cooperation in society.

Learning and Teaching Strategies

Strategies	Periodic reports / periodic tests / practical case studies.
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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)	1.3
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	Crimes of the Baath regime according to the Law of the Supreme Iraqi Criminal Court in 2005 - The concept of crimes and their categories Definition of crime linguistically and idiomatically
Week 2	Crime departments - The crimes of the Baath regime according to the documentation of the Law of the Supreme Iraqi Criminal Court in 2005
Week 3	- Types of international crimes Decisions issued by the Supreme Criminal Court
Week 4	- Psychological and social crimes and their effects. - Psychological crimes - Mechanisms of psychological crimes Psychological effects of crimes
Week 5	Social crimes - Militarization of society - The Baath regime's position on religion
Week 6	- Violations of Iraqi laws Pictures of human rights violations and crimes of power
Week 7	Some decisions regarding political and military violations of the Baath regime
Week 8	Prison and detention places of the Baath regime
Week 9	Environmental crimes of the Baath regime in Iraq
Week 10	Military and radioactive contamination and mine explosions
Week 11	Destruction of cities and villages , scorched earth policy
Week 12	Drying the marshes Razing palm groves, trees and crops
Week 13	Mass grave crimes Introduction to mass graves
Week 14	Mass graves and genocide committed by the Baathist regime
Week 15	Chronological classification of genocide graves in Iraq
Week 16	The preparatory week before the final exam

Learning and Teaching Resources		
	Text	Available in the Library?
Required Texts	Literature on crime, penal law, and human rights is available in the college library and the university's central library	Yes
Recommended Texts		
Websites	Human rights 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 201			
ECTS Credits	2 nd level			
SWL (hr/sem)	50			
Module Level	2	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	Bashar Mohsin Mohammed able		e-mail	Bashar_mohsin.m@ntu.edu.iq
Peer Reviewer Name	Name	e-mail	E-mail	
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. 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

		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	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	Biochemistry		Module Delivery	
Module Type	Core		☒ Theory ☐ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	TAMO 200			
ECTS Credits	6			
SWL (hr/sem)	150			
Module Level	2 nd level			
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	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	The student learns about the biochemical processes that occur within a plant in order for it to obtain food, grow, and produce.
Module Learning Outcomes	1- The course mainly identifies students on how to find out their military membership and non-vehicle status 2- Membership is focused on medically relevant topics 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 4- Scientific knowledge of scientific techniques in a new medical procedure
Indicative Contents	- Part A - Definition of the biochemistry , historical brief scope of the biochemistry . correlation [5] - Lipids (fatty materials) and fatty acids [5]. - Enzymes , vitamins , coenzymes [5]. - Metabolism of carbohydrates (brief) [5] - Part B - PH , Buffer solution , indicators , Physical Biochemistry colloids , imbibitions , viscosity . adsorption [10]. - Effect of the bases and acids on saccharides, Physical properties of fatty material [10]. - iodine No. polenski No. , Acydy no. , Millons test , sakoguchs test Aldenylde test .[10]. - Nucleo acids , metabolism of proteins , and others .[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)	4
Unstructured SWL (h/sem)	72	Unstructured SWL (h/w)	4.8
Total SWL (h/sem)	150		

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	Definition of the biochemistry , historical brief scope of the biochemistry . correlation
Week 2	Importance of the cell in the study of the biochemistry , Brief deception to the physical
Week 3	Water and reaction degree (PH)
Week 4	Chemistry of the carbohydrates
Week 5	Amino acids
Week 6	Peptides
Week 7	Lipids (fatty materials) and fatty acids
Week 8	Nudeo acids
Week 9	Enzymes , vitamins , coenzymes
Week 10	Bioenergetic (out lines)
Week 11	Bioenergetic (out lines)
Week 12	Metabolism of carbohydrates (brief)
Week 13	Metabolism of carbohydrates (brief)
Week 14	Metabolism of carbohydrates (brief)
Week 15	Metabolism of carbohydrates (brief)

Delivery Plan (Weekly Lab. Syllabus)

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

Learning and Teaching Resources

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

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	Organic Agriculture		Module Delivery
Module Type	C	☒ Theory ☐ Lecture ☐ Lab ☒ Tutorial ☒ Practical ☐ Seminar	
Module Code	DES 200		
ECTS Credits	7		
SWL (hr/sem)	175		
Module Level	2nd level		
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	Ahmed Faris Salim	e-mail	ahmedalsawaf@ntu.edu.iq
Peer Reviewer Name		e-mail	
Relation with other Modules			
Prerequisite module		Semester	
Co-requisites module		Semester	

Module Aims, Learning Outcomes and Indicative Contents

Module Objectives	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.
Module Learning Outcomes	1-The student must be familiar with the concepts of organic agriculture. 2-Identify agricultural cycles that help improve soil properties using modern agricultural methods instead of traditional agriculture. 3-Emphasizing the importance of soil for plants and the most important physical properties of soil.
Indicative Contents	Indicative content includes the following. Part A-theoretical * The concept of organic farming. * Organic farming requirements . * Organic farming requirements. Indicative content includes the following. Part B-practical part: *The concept of the organic farming system. * Establishment steps and standards that must be followed to establish organic farms.

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)	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 concept of organic farming.
Week 2	Organic farming requirements.
Week 3	Humic acids, humus formation.
Week 4	Humic acids, composition of humus.
Week 5	Organic fertilizers and soil conditionersTypes of organic fertilizers.
Week 6	Industrial organic fertilizer (compost).
Week 7	Biofertilizers.
Week 8	Pollution.
Week 9	Soil and its importance in organic agriculture.
Week 10	Agricultural cycles.
Week 11	Agricultural soil pollution.
Week 12	Steps and standards for establishing organic farms
Week 13	Nitrogen cycle in nature
Week 14	The role of organic agriculture in achieving sustainable development
Week 15	Organic agriculture and agricultural pests

Delivery Plan (Weekly Lab. Syllabus)

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	Standards used to establish an organic farm
Week 12	Methods of making compost
Week 13	Factors affecting organic fertilizer production
Week 14	Field observations
Week 15	Films for illustration

Learning and Teaching Resources

	Text	Available in the Library?
	-Sami Abdel Hamid Hammad, El Metwally Mustafa Selim, Magdy Mohamed El Shazly, 2011, Environment and Organic Agriculture. -Ibrahim Adam Al-Dakhiri, June 2020, Guide to Organic Agriculture in the Arab World, Sudan. -Tamar Tawfik, 2017a, Organic agriculture as a source of sustainable food security in Algeria, Journal of Studies Contemporary Economy, Issue 03/, Algeria. -Nadia SCIALABBA, 2015, Training manual for ORGANIC AGRICULTURE. -Donatella Privitera, 2010, THE IMPORTANCE OF ORGANIC AGRICULTURE IN TOURISM RURAL, Applied Studies in Agribusiness and Commerce, Agroinform Publishing House, Budapest. - FiBL & IFOAM, 2021, organics international: The world of organic agriculture statistics & emerging trends, GERMANY.	no

Recommended Texts		No
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	Fertilizers & Fertility	Module Delivery	
Module Type	Department requirement	☐ Theory ☐ Lecture ☒ Lab ☒ Tutorial ☐ Practical ☐ Seminar	
Module Code	DES201		
ECTS Credits	6		
SWL (hr/sem)	150		
Module Level	2 nd level		
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	Master
Module Tutor	Mohammed Salem Ahmed	e-mail	mohameedsa66@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			
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	
Module Objectives	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.
Module Learning Outcomes	U- Cognitive objectives 1. The ability to determine the elements of fertility and fertilization in dry areas. 2. The ability to determine the elements of climate and its impact on soil fertilization in dry areas
Indicative Contents	Study of plants and their relationship to the ecosystem and climate elements in dry areas P- The skills objectives of the course. 1. The ability to discuss in a scientific spirit and express what is involved in studying the subject. 2. The ability to communicate and inquire with the subject teacher

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|--|---|
| | <p>3. 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.</p> |
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Learning and Teaching Strategies

Strategies	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.
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Student Workload (SWL)

Structured SWL (h/sem)	93	Structured SWL (h/w)	6.2
Unstructured SWL (h/sem)	57	Unstructured SWL (h/w)	3.8
Total SWL (h/sem)	150		

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 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	Exam

Delivery Plan (Weekly Lab. Syllabus)

week	Material Covered
Week 1	Identifying the types of fertilizers, their physical and chemical properties, and descriptive tests.
Week 2	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.
Week 3	Calculations related to the use of types of fertilizers for transactions and training on methods of adding them.
Week 4	Evaluating soil fertility using anvils, calculating the required fertilizers, and conducting the required transactions.
Week 5	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.
Week 6	Determination of exchangeable ammonium, extraction and determination of nitrates in soil.
Week 7	Extraction and estimation of ready phosphorus in soil.
Week 8	Determination and extraction of potassium in soil.
Week 9	Plant analysis, methods of digesting plant models, performing the digestion process for plant models using the dry and wet method
Week 10	Completing plant models and estimating nitrogen
Week 11	Determination of potassium in plant tissues
Week 12	Determination of phosphorus in plant tissues
Week 13	Soil analysis methods
Week 14	Completing the composting experiment that took place at the beginning of the semester and submitting a report about it to each group of students
Week 15	Complete the discussion of the results of the field experiment and the anvil experiment, and discuss the student reports.
Week 16	Exam

Learning and Teaching Resources		
	Text	Available in the Library?
Required Texts	Autocad 2014	Yes
Recommended Texts	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/llnIDwAAQBAJ?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	yes

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	Geographic Information Systems (GIS)		Module Delivery
Module Type	c	☒ Theory ☐ Lecture ☐ Lab ☐ Tutorial ☒ Practical ☐ Seminar	
Module Code	DES 202		
ECTS Credits	7		
SWL (hr/sem)	175		
Module Level	2 nd level		
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	Samir f. ayoub	e-mail	Samir.f.ayoub@ntu.edu.iq
Peer Reviewer Name	Name	e-mail	E-mail
Scientific Committee Approval Date		Version Number	1.0

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

Module Aims, Learning Outcomes and Indicative Contents

Module Objectives	The student should be able to identify the principles of geographic information systems, their components, their relationship to other sciences, their functions, and the technologies associated with them, and to deal with them and use them to draw various plans and maps.
Module Learning Outcomes	Cognitive objectives 1. The ability to identify geographic information systems. 2. Study geographic information in arid areas 3. Study plants and their relationship to the ecosystem and climate elements in arid areas 4. Skill objectives specific to the course. 5. The ability to discuss in a scientific spirit and express what is problematic in studying the subject. 6. The ability to communicate and inquire with the subject teacher 7. Write reports related to the subject vocabulary after identifying the scientific sources available in the library on topics related to the environment and arid areas.
Indicative Contents	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

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)		

Student Workload (SWL)			
Structured SWL (h/sem)	93	Structured SWL (h/w)	6.2
Unstructured SWL (h/sem)	83	Unstructured SWL (h/w)	5.5
Total SWL (h/sem)	175		

Delivery Plan (Weekly Syllabus)	
	Material Covered
Week 1	- Definition of Geographic Information Systems, a historical overview of the emergence of Geographic Information Systems, the concept of layers in Geographic Information Systems, components of Geographic Information Systems, (computer systems, Geographic Information Systems software, spatial and descriptive data and information, users, data management and spatial analysis).
Week 2	- The relationship of Geographic Information Systems to other sciences (remote sensing, cartography, statistics, geography, computer science).
Week 3	Functions of Geographic Information Systems (data collection, data storage, data query, analysis operations, output).
Week 4	Benefits of using Geographic Information Systems.
Week 5	Technologies associated with Geographic Information Systems (remote sensing, geodesy, photogrammetric surveying, cartography).
Week 6	Advantages of Geographic Information Systems software.
Week 7	- Advantages and disadvantages of using the area model "Raster".
Week 8	- Types of data in GIS (spatial, non-spatial, temporal, dynamic spatial).
Week 9	- Sources of linear data "Sources of Vector Data".
Week 10	- Sources of area data "Sources of Raster Data" - Primary sources - Secondary sources (maps of all types, aerial images, satellite data and visuals, global positioning system, digital elevation model). - Non-spatial data sources. Entering spatial data into the computer (the concept of the process of entering spatial and descriptive data, criteria for evaluating spatial
Week 11	
Week 12	Methods of entering spatial data into the computer (using the manual and automatic "Digitizer" numbering device and its features. - Coordinate system.

	- Classification of map projections. - Coordinate definition, map correction and selection of map projection. - Steps for representing the corrected map features using the "ARC GIS" program. - Creating layers for the features that make up the map. - Representing point, linear and area phenomena for map features. Data tables, entering descriptive data related to point, linear and area spatial data.
Week 13	Data processing (selecting features using spreadsheets, selecting features by location from other features, selecting features by shape, "Statistics" dialog box, "Summarize" dialog box)
Week 14	Spatial analysis of data in GIS, spatial analysis of linear data (topological matching and its types, spatial analysis in the surveying system (cellular), digital elevation model "DEM", regular and irregular grid structure, extrapolation of data from digital elevation model "DEM", derivation of contour maps "Countour maps", slope maps "Aspect map", hill shade maps, slope maps "Slope", view shed, elevation profiles, production of drainage network maps.
Week 15	
Week 16	Preparatory week before the final Exam



Delivery Plan (Weekly Practical Syllabus)

	Material Covered
Week 1	- Definition of the Geographic Information System, installation of the program, - Getting to know the program interface "ARC GIS 9.3" "ArcCatalog", "Arc Map" and "Arc Toolbox". - Types of data that the program deals with.
Week 2	- Selecting the appropriate map projection, defining the coordinates, and correcting and adjusting the map image using four reference points with known coordinates on the map.
Week 3	Create a "Shapefile" for the features that represent the map features, taking into account the rules and principles of cartographic representation. Define the map elements "Point, Line, Polygon".
Week 4	- Working with the "Tools" toolbar. Working with the "Standard" toolbar
Week 5	- Working with the "Editor Toolbar"
Week 6	Working with the "Editor Toolbar"
Week 7	Working with the "Editor Toolbar"
Week 8	Drawing tools in the "Sketch tool" menu and the "Edit" menu commands in the viewport.
Week 9	- Working with the "Effect" toolbar.
Week 10	- Types of lines and colors for features. "Advance editing" toolba
Week 11	- Types of lines and colors for features. "Advance editing" toolba
Week 12	- Preparing the map for printing and working with the "Layout" toolbar "Insert" toolbar for inserting map elements.
Week 13	- Data tables, entering metadata related to point, line and area spatial data. Data processing (selecting features using spreadsheets, selecting features by location from other features, selecting features by shape, "Statistics" dialog box, "Summarize" dialog box
Week 14	- Spatial analysis of data in GIS, spatial analysis of linear data (topological matching and its types, spatial analysis in the surveying system (cellular), digital elevation model "DEM", regular and irregular grid structure, extrapolation of data from digital elevation model "DEM", derivation of contour maps "Countour maps", slope maps "Aspect map", shade maps "Hill shade", slope maps "Slope", view shed, elevation profiles, production of drainage network maps.
Week 15	- Spatial analysis of data in GIS, spatial analysis of linear data (topological matching and its types, spatial analysis in the surveying system (cellular), digital elevation model "DEM", regular and irregular grid structure, extrapolation of data from digital elevation model "DEM", derivation of contour maps "Countour maps", slope maps "Aspect map", shade maps "Hill shade", slope maps "Slope", view shed, elevation profiles, production of drainage network maps.

Learning and Teaching Resources

	Text	Available in the Library?
Required Texts	GIS text book	
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
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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	Computer			Module Delivery	
Module Type	B			☒ Theory ☐ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	NTU 202				
ECTS Credits	3				
SWL (hr/sem)	75				
Module Level		2nd 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		TAC

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.

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, الاوفس 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
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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	Arabic Language		Module Delivery	
Module Type	B	☒ Theory ☐ Lecture ☐ Lab ☐ Tutorial ☐ Practical ☐ Seminar		
Module Code	NTU 203			
ECTS Credits	2			
SWL (hr/se3m)	50			
Module Level		2 nd level	Semester of Delivery	4
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	

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

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	Soil Physics		Module Delivery
Module Type	c	☒ Theory ☐ Lecture ☐ Lab ☐ Tutorial ☒ Practical ☐ Seminar	
Module Code	DES 203		
ECTS Credits	9		
SWL (hr/sem)	225		
Module Level		2 nd level	Semester of Delivery
Administering Department		Department of Desertification Control Technology	College TAMO 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

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

Module Aims, Learning Outcomes and Indicative Contents	
Module Objectives	Soil as a tertiary phase, mathematical relationships (real density, apparent density, porosity), derivation of Stock's law, soil construction and the mechanics of soil construction, derivation of the capillary rise equation and the concept of surface tension, soil air, soil temperature
Module Learning Outcomes	Important: Write atleast 6 Learning Outcomes, better to be equal to the number of study weeks. 1. Cognitive objectives 2. The skills objectives of the course.
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.

Student Workload (SWL)			
Structured SWL (h/sem)	93	Structured SWL (h/w)	6.2
Unstructured SWL (h/sem)	132	Unstructured SWL (h/w)	8.8
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)	
	Material Covered
Week 1	Soil as a triple phase
Week 2	Mathematical relationships (real density, apparent density, porosity)
Week 3	Soil texture
Week 4	Derivation of Stock's law
Week 5	Assumptions and processing
Week 6	Classification of American and international soil fines
Week 7	Characteristics of sand, clay, and clay
Week 8	Soil surface crust (flaking), mechanical properties and measurement of fracture coefficient
Week 9	Evidence of non-culpability and relative non-culpability evidence with applied issues
Week 10	Shear force and Coulomb's law
Week 11	Mechanics of shear force
Week 12	Soil temperature: its importance and some definitions such as specific heat, heat capacity, and some soil components according to heat capacity Using the equation for the amount of heat needed to raise the soil temperature from the surface to a certain depth with mathematical problems
Week 13	Soil as a triple phase
Week 14	Mathematical relationships (real density, apparent density, porosity)
Week 15	Soil texture
Week 16	Exam

Delivery Plan (Weekly Practical Syllabus)	
	Material Covered
Week 1	Estimating soil moisture by gravimetric method
Week 2	Applied questions about the three phases of soil (such as a three-phase phase)
Week 3	Estimating soil texture using the hydrometer method (1). (2)Pipette
Week 4	Estimating soil texture using the hydrometer method (1). (2)Pipette
Week 5	Estimation of bulk density (1) paraffin wax (2) Undisturbed soil (3) Rubber balon method (4) Sand funnel
Week 6	Estimation of bulk density (1) paraffin wax (2) Undisturbed soil (3) Rubber balon method (4) Sand funnel
Week 7	Estimating the stability of mwd soil aggregates Dry sieving and wet sieving
Week 8	Estimating the stability of mwd soil aggregates Dry sieving and wet sieving
Week 9	Measuring the moisture tension curve
Week 10	Measurement of saturated water conductivity (1) Constant pressure (2) Variable pressure method
Week 11	Measurement of saturated water conductivity (1) Constant pressure (2) Variable pressure method
Week 12	Moisture content is at the minimum level Measuring the upper limit of the bone Measurement of brick content at the adhesion point (saturated soil paste)
Week 13	Moisture content is at the minimum level Measuring the upper limit of the bone Measurement of brick content at the adhesion point (saturated soil paste)
Week 14	An experiment on the stability of soil aggregates and measuring the change in volume upon soaking
Week 15	take samples

Learning and Teaching Resources		
	Text	Available in the Library?
Required Texts	Soil physics / Dr. Youssef Muhammad Abdel Hadi	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

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	Hydrology			Module Delivery	
Module Type	B			☒ Theory ☐ Lecture ☐ Lab ☐ Tutorial ☒ Practical ☐ Seminar	
Module Code	DES 204				
ECTS Credits	8				
SWL (hr/sem)	200				
Module Level		2 nd 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	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	1.0

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

Module Aims, Learning Outcomes and Indicative Contents

Module Objectives	This course description provides a concise summary of the main features of the course and the learning outcomes expected of the student, demonstrating whether he or she has made the most of the learning opportunities available. It must be linked to the programme description
Module Learning Outcomes	Important: Write atleast 6 Learning Outcomes, better to be equal to the number of study weeks. 1- The ability to identify the elements of water management in dry areas 2- Study the plant and its relationship to the ecosystem and climate elements in dry areas 3- Identify the plant succession and the climatic regions of Iraq and the types of environment in it. 4- The ability to discuss in a scientific spirit and express what is difficult for him in studying the subject. 5- The ability to communicate and inquire with the subject teacher 6- 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	P- The skills objectives of the course. 1. The ability to discuss in a scientific spirit and express what is involved in studying the subject. 2. The ability to communicate and inquire with the subject teacher 3. 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

Learning and Teaching Strategies

Strategies	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.
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Student Workload (SWL)

Structured SWL (h/sem)	78	Structured SWL (h/w)	5.2
Unstructured SWL (h/sem)	122	Unstructured SWL (h/w)	8.1
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	introduction
Week 2	hydrologic cycle
Week 3	Hydrologic Measurements
Week 4	Precipitation
Week 5	ception and Depression Storage
Week 6	Evaporation and Transpiration
Week 7	infiltration
Week 8	Runoff
Week 9	Surface Water Hydrology Hydrographs
Week 10	Statistical Methods in Hydrology
Week 11	groundwater
Week 12	Water table Characteristics of Aquifers
Week 13	Darcy low
Week 14	Characteristics of wells Drilling of weels
Week 15	Water table Characteristics of Aquifers
Week 16	Preparatory week before the final Exam

Delivery Plan (Weekly Practical Syllabus)	
	Material Covered
Week 1	Average rainfall in stations
Week 2	Intensity-duration analysis
Week 3	Morphological analysis of basins
Week 4	Discharge measurement in rivers
Week 5	Separation of hydrographs
Week 6	Frequency analysis of flood
Week 7	Visit to the hydrological construction
Week 8	Flood routing
Week 9	Measurement of flow in Aquifers
Week 10	Seepage in hydraulic structures
Week 11	Flow line
Week 12	Average rainfall in stations
Week 13	Intensity-duration analysis
Week 14	Morphological analysis of basins
Week 15	Discharge measurement in rivers

Learning and Teaching Resources		
	Text	Available in the Library?
Required Texts	Modern water management approach	
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	Fruit Production at Deserts		Module Delivery	
Module Type	C		☐ Theory ☐ Lecture ☒ Lab ☒ Tutorial ☐ Practical ☐ Seminar	
Module Code	DES205			
ECTS Credits	8			
SWL (hr/sem)	200			
Module Level		2 nd level		
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	1.0

Relation with other Modules			
Prerequisite module	Basics of Fruit Production at Deserts		Semester
			one

Module Aims, Learning Outcomes and Indicative Contents

Module Objectives	Introducing students to the most important types of fruit trees and the extent of their successful cultivation in the dry areas of Iraq
Module Learning Outcomes	- Cognitive objectives The student will be able to: 1. Identify the most important types of perennial and deciduous plants that are successfully cultivated in the dry areas of Iraq. 2. Knowledge of the environmental factors affecting fruit trees and orchard farming systems. 3. How to perform the most important service operations that take place in fruit orchards. B- The skills objectives of the course. • Identify the most important types of perennial and deciduous plants that are successfully cultivated in the dry areas of Iraq. • Knowledge of the environmental factors affecting fruit trees and orchard farming systems. • How to perform the most important service operations that take place in fruit orchards.
Indicative Contents	<u>part One:</u> 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). <u>Part two:</u> Drawing arcs and polygons, learning methods of deletion and addition to drawing, as well as learning to draw triangular projections (9 hours). <u>Part three:</u> 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).

Learning and Teaching Strategies

Strategies	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.
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Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)	
Week	Material Covered
Week 1	The importance of fruit and methods of classifying it, the economic and nutritional importance of fruit, theoretical foundations for establishing new fruit orchards and ensuring the selection of the appropriate plot of land, preparation and preparation processes for planting.
Week 2	Evergreen fruit suitable for dry areas
Week 3	Palm/habitat, distribution, economic and nutritional importance.
Week 4	Palm trees/environmental factors, soil factors, climate factors, service operations
Week 5	Palm trees/flowering and fruiting, the phenomenon of metazenia, the pollination process, pollen extraction, and stages of fruit development
Week 6	Olives/the phenomenon of floating, its causes, ways to overcome it, service operations
Week 7	Buckthorn, prickly pear/habitat, distribution, economic and nutritional importance, environmental factors, reproduction, varieties.
Week 8	Deciduous fruit suitable for dry areas
Week 9	Grapes/original habitat, economic importance and nutritional value, plant division, suitable environment
Week 10	Grapes/reproduction, nature of pregnancy, breeding methods and fruit pruning
Week 11	Peaches/original habitat, nutritional value, economic importance, suitable environment, nature of pregnancy, reproduction, service operations, varieties
Week 12	Almonds / original habitat, nutritional value, economic importance, suitable environment, nature of pregnancy, reproduction, service operations, varieties
Week 13	Pistachios/original habitat, nutritional value, economic importance, suitable environment, nature of pregnancy, reproduction, service operations, flowering and pollination, varieties,
Week 14	Pomegranate/original habitat, nutritional value, economic importance, suitable environment, nature of pregnancy, reproduction, service operations, varieties.
Week 15	Figs/original habitat, economic and nutritional importance, suitable environment, methods of pollination, propagation, service operations, varieties,
Week 16	Exam

Delivery Plan (Weekly Lab. Syllabus)

week	Material Covered
Week 1	Methods of breeding and pruning deciduous fruit trees, the main stem method, the main stem method, and dense cultivation
Week 2	See the types of fruits available and distinguish between evergreen and deciduous types of fruit trees.
Week 3	Palm/description of morphology (root, stem, trunk, leaves, inflorescence)
Week 4	Sexual (seed) reproduction: Uprooting and preparing seedlings for the purpose of planting them and preparing a suitable bed for planting, planting seeds correctly, evaluating sexual propagation and identifying good seedlings, practicing the process of correct extraction of seedlings for the purpose of preparing them for planting.
Week 5	Planting cuttings (preparing suitable land, places for planting and irrigation, identifying irrigation methods used for palm trees).
Week 6	Olive propagation (sexual reproduction, vegetative reproduction, using cuttings, distinguishing between types of cuttings, preparing the appropriate bed)
Week 7	View buckthorn and fig trees, and learn about their parts and methods of reproduction.
Week 8	Grape breeding methods - the most important methods used in grape breeding
Week 9	Grape pruning - Grape pruning according to different grape breeding methods
Week 10	Planning and planting a fruit orchard, including: methods for establishing a right angle using the Pythagorean theorem, theodolite device, prisms, digging seedling sites, and planting seedlings.
Week 11	Morphological characteristics of deciduous fruit trees include leaves, buds, flowers, pods, fruits, and seeds.
Week 12	Study of the nature of load in deciduous fruit trees
Week 13	Irrigating fruit trees - the importance of irrigation, irrigation methods, the most common methods of irrigation
Week 14	Yield improvement processes include thinning, slitting, and slitting
Week 15	Harvesting, sorting, grading and packing operations
Week 16	Exam

Learning and Teaching Resources

	Text	Available in the Library?
Required Texts	Autocad 2014	Yes
Recommended Texts	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%A7/1lnIDwAAQBAJ?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	yes

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