

**Academic Program Description Form**  
**For the Academic Year 2023–2024**

**University Name:** Al-Furat Al-Awsat Technical University

**Institute:** Musayyib Technical Institute

**Scientific Department:** Farm Machinery Techniques Department

**Professional Program Name:** Diploma in Farm Machinery Techniques

**Final Certificate Name:** Diploma in Farm Machinery Techniques

**Academic System:** Semester

**Description Preparation Date:** 2024 – 2023

**File Completion Data:** 14/2/2024

**Signature:**

**Head of Department Name:**

**Dr. Riyadh A. Sarhan**

**Date:** 14/2/2024

**Signature:**

**Scientific Associate Name:**

**Dr. Mohammed H. Sabry**

**Date:** 14/2/2024

**The file is checked by:**

**Department of Quality Assurance and University Performance**

**Director of the Quality Assurance and University Performance Department:**

**Date:** 14/2/2024

**Signature:**

**Approval of the Dean**

### **1. Program Vision**

The Department of Farm Machinery Techniques works through its educational programs to create a technical system based on the requirements and needs of the community and the service facility related to the specialization in a way that serves the technological and technical development in agricultural mechanization sciences.

### **2. Program Mission**

Working to achieve the department's goals and aspirations by creating an appropriate educational environment and providing all the material and human requirements necessary to achieve this. And work to graduate groups capable of serving the community in providing scientific competence in the field of Farm Machinery Techniques sciences through technical education in accordance with internationally approved quality standards.

### **3. Program Objectives**

The Department of Farm Machinery Techniques aims to prepare technical personnel with the ability to work in the field of mechanical, electrical and hydraulic agricultural machinery and equipment and to know how to manage and maintain them.

### **4. Program Accreditation**

There is none.

### **5. Other external influences**

There is none.

## 6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
Institution Requirements	30	130	% 100	
College Requirements	30	130	% 100	
Department Requirements	30	130	% 100	
Summer Training	1	Satisfied	Satisfied	
Other				

\* This can include notes whether the course is basic or optional.

## 7. Program Description

Year/Level	Course Code	Course Name	Credit Hours	
			theoretical	practical
First academic year / Autumn semester		Farm Tractors	2	4
		General Soil	2	3
		Plant Production	2	3
		Animal Production	2	2
		Engineering Drawing	–	4
		Human Rights	2	–
	First academic year / Spring semester		Internal Combustion Engines	2
		Workshop	–	8
		Soil Preparation equipment	2	3
		Mathematics	3	–
		Plane and Topographic Surveying	2	3
		Industrial Drawing	–	4
		Computer Applications (1)	2	4
		English Language (1)	2	–
Second academic year / Autumn semester		Tractors Maintenance	1	3
		Transmission	2	3

		<b>Agricultural Machines Electricity</b>	<b>2</b>	<b>3</b>
		<b>Irrigation Equipment</b>	<b>2</b>	<b>2</b>
		<b>Agricultural Machines Hydraulics</b>	<b>2</b>	<b>3</b>
		<b>Agriculture Crop Service</b>	<b>1</b>	<b>3</b>
		<b>Al Baath Regime Crimes</b>	<b>2</b>	<b>-</b>
<b>Second academic year / Spring semester</b>		<b>Tractors Repairing</b>	<b>1</b>	<b>3</b>
		<b>Harvesting Machine</b>	<b>2</b>	<b>3</b>
		<b>Animal Production Machine</b>	<b>1</b>	<b>3</b>
		<b>Agriculture Machine Economic</b>	<b>2</b>	<b>1</b>
		<b>Reclamation Machine &amp; Equipment</b>	<b>2</b>	<b>3</b>
		<b>Principle Machine Use</b>	<b>2</b>	<b>3</b>
		<b>Project</b>	<b>4</b>	<b>-</b>
		<b>Computer Applications (2)</b>	<b>2</b>	<b>4</b>
		<b>English Language (2)</b>	<b>2</b>	<b>-</b>

## 8. Expected learning outcomes of the program

### Knowledge

- A1- Knowing the types of agricultural machinery and equipment.  
A2- Knowing the types of agricultural pullers.  
A3- Knowing the parts of the hydraulic system in the tug.  
A4- Knowing the types of equipment used in the field of turning and filing  
A5- Knowing the types of heavy equipment  
A6- Knowing the types of equipment used in mechanizing animal production

### Skills

- B1 – Driving agricultural tugs  
B2 – Calibrating the seeds and calculating the amount of seeds needed per unit area and according to the type of seeds  
B3 – Estimate the density of the electrolytic liquid

### Ethics

Written tests, semester exams, final exams, daily evaluation.

## 9. Teaching and Learning Strategies

Lecture, workshop, laboratory, summer training

## 10. Evaluation methods

Written tests, semester exams, final exams, daily evaluation.

## 11. Faculty

### Faculty Members

Academic Rank	Specialization		Special Requirements/Skills (if applicable)		Number of the teaching staff	
	General	Special			Staff	Lecturer
Assistant Professor	Engineering	Production and minerals			1	
lecturer	Engineering	Mechanical			1	
lecturer	Engineering	Agricultural mechanization			1	
lecturer	Engineering	Physics			1	
lecturer	Engineering	Mechanical			1	
Assistant lecturer	Engineering	Agricultural mechanization			1	
Assistant lecturer	Engineering	Agricultural mechanization			1	

## Professional Development

### Mentoring new faculty members

- 1- Teaching and the ability to cover different subjects efficiently.
- 2- Commitment to working hours and office hours.
- 3- Preparing teaching materials.
- 4- Working as a team.
- 5- Feedback through the peer-to-colleague evaluation process.

### **Professional development of faculty members**

- 1- Research activity.
- 2- Participation and interaction in committees and department meetings.
- 3- Participation in scientific activities.
- 4- The ability to scientific and research development.

### **12. Acceptance Criterion**

Central admission

### **13. The most important sources of information about the program**

[https://ims.atu.edu.iq/?page\\_id=6230](https://ims.atu.edu.iq/?page_id=6230)

### **14. Program Development Plan**

- 1- Holding workshops to train faculty members.
- 2- Review the description of curriculum vocabulary according to the learning outcomes.
- 3- Sending the program and curricula for external review.
- 4- Reviewing learning policies in light of the results of some exams.

Program Skills Outline															
				Required program Learning outcomes											
Year/Level	Course Code	Course Name	Basic or optional	Knowledge				Skills				Ethics			
				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4
First academic year / Autumn semester		Farm Tractors	Basic			*			*				*		
		General Soil	Basic		*					*		*			
		Plant Production	Basic				*	*					*		
		Animal Production	Bas				*		*				*		
		Engineering Drawing	Basic	*					*				*		
		Human Rights	Basic				*	*						*	
First academic year / Spring semester		Internal Combustion Engines	Basic		*					*				*	
		Workshop	Basic			*				*			*		
		Soil Preparation equipment	Basic		*				*				*		
		Mathematics	Basic		*				*					*	
		Plane and Topographic Surveying	Basic	*				*				*			

		<b>Industrial Drawing</b>	<b>Basic</b>	*				*						*
		<b>Computer Applications (1)</b>	<b>Basic</b>		*					*	*			
		<b>English Language (1)</b>	<b>Basic</b>		*			*				*		
<b>Second academic year / Autumn semester</b>		<b>Tractors Maintenance</b>	<b>Basic</b>		*				*			*		
		<b>Transmission</b>	<b>Basic</b>	*				*				*		
		<b>Agricultural Machines Electricity</b>	<b>Basic</b>			*		*					*	
		<b>Irrigation Equipment</b>	<b>Basic</b>		*			*			*			
		<b>Agricultural Machines Hydraulics</b>	<b>Basic</b>		*				*		*			
		<b>Agriculture Crop Service</b>	<b>Basic</b>			*		*					*	
		<b>Al Baath Regime Crimes</b>	<b>Basic</b>			*		*						*
<b>Second academic year / Spring semester</b>		<b>Tractors Repairing</b>	<b>Basic</b>			*		*			*			
		<b>Harvesting Machine</b>	<b>Basic</b>		*			*				*		
		<b>Animal Production Machine</b>	<b>Basic</b>	*				*				*		
		<b>Agriculture Machine Economic</b>	<b>Basic</b>	*				*			*			



		<b>Reclamation Machine &amp; Equipment</b>	<b>Basic</b>		*						*	*			
		<b>Principle Machine Use</b>	<b>Basic</b>	*					*				*		*
		<b>Project</b>	<b>Basic</b>		*				*				*		
		<b>Computer Applications (2)</b>	<b>Basic</b>			*				*				*	
		<b>English Language (2)</b>	<b>Basic</b>			*				*			*		

- Please tick the boxes corresponding to the individual program learning outcomes under evaluation.

## Course Description Form

1. Course Name: Farm Tractors

2. Course Code: First academic year / Autumn semester

3. Semester / Year: First academic year / Autumn semester

4. Description Preparation Date: 2024/2/14

5. Available Attendance Forms: Attend a lecture

6. Number of Credit Hours (Total) / Number of Units (Total): 6hours / 6 units

7. Course administrator's name (mention all, if more than one name):

Name: Abass F. Abd

Email: [Abbas.fadhil1983.ism@atu.edu.iq](mailto:Abbas.fadhil1983.ism@atu.edu.iq)

### 8. Course Objectives

- |                          |   |
|--------------------------|---|
| <b>Course Objectives</b> | <ul style="list-style-type: none"><li>• Explaining the meaning of an agricultural tug and how to repair it.</li><li>• Learn about the types of maintenance and how to carry out it in the field.</li><li>• Enabling the student to use the agricultural tug and the ability to diagnose and repair faults.</li><li>• Introducing the student to the systems present in the agricultural tractor and on which the machine depends for operation.</li></ul> |
|--------------------------|---|

### 9. Teaching and Learning Strategies

- |                 |   |
|-----------------|---|
| <b>Strategy</b> | <ol style="list-style-type: none"><li>1- Identify the types of systems in the agricultural tractor.</li><li>2- Identify the engine parts in the agricultural tug.</li><li>3- Identify the means of transferring power in the agricultural tug.</li><li>4- Identify the types of maintenance used.</li></ol> |
|-----------------|---|

## 10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
The First	6	Identify the types of pullers	The importance of mechanization - types of agricultural pullers	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Second	6	Identify the main parts of the tug and the function of each part	Main parts of agricultural tug	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Third	6	Identifying human ability to tolerate heat and noise - driving space requirements	The influence of the human factor on the design of tugs	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Fourth	6	Identifying the relationship between the soil and the tow truck by learning about sliding and soil mechanics	Drag theory	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Fifth	6	Identify the effect of the tow weight on the towing process and overcoming rolling resistance	Rolling resistance – the effect of weight on drag	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Sixth	6	Learn how to distribute weights and balance - determine the moment of inertia	Mechanical structure of the tug	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Seventh	6	Learn about methods for determining the center of gravity of a tug	Center of gravity and how to find it	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Eighth	6	Identify the parts of the electrical system and the function of each part	Electrical system	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Ninth	6	Identify the parts of the electric generator and the theory of its operation	The generator, its parts, and the theory of its operation	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Tenth	6	Identify the means of transmission - gear box - clutch	Means of transportation	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation

Eleventh	6	Identify the main parts of the hydraulic system and the types of pumps used in it	Hydraulic system	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Twelfth	6	Identify the main parts of the rotation device, their function, malfunctions, and maintenance	Rotation device	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Thirteenth	6	Identify the sources of power in the tug from the tow shaft, the hydraulic device, and the rear drive shaft	Power sources in the tug	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Fourteenth	6	Identify the types of power emerging from the tug and how to measure it	Tug tests – methods for calculating capacity	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Fifteenth	6	Maintaining agricultural tractors and preparing them for work	Methods of maintaining agricultural tractors	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation

### 11. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

### 12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	General principles for agricultural haulers
Main references (sources)	General principles for agricultural haulers
Recommended books and references (scientific journals, reports...)	A collection of books in the field of maintenance of agricultural tractors and their types
Electronic References, Websites	Check out websites in this field

## Course Description Form

13. Course Name: Workshop

14. Course Code: First academic year / Autumn semester

15. Semester / Year: First academic year / Autumn semester

16. Description Preparation Date: 2024/2/14

17. Available Attendance Forms: Attend a lecture

18. Number of Credit Hours (Total) / Number of Units (Total): 4 hours / 4 units

19. Course administrator's name (mention all, if more than one name):

Name: Dr. Riyadh A. Sarhan

Email: [Sarhan.Riyadh@atu.edu.iq](mailto:Sarhan.Riyadh@atu.edu.iq)

### 20. Course Objectives

- |                          |  |
|--------------------------|--|
| <b>Course Objectives</b> | <ul style="list-style-type: none"> <li>• <b>Training the student on the types and methods of welding to benefit from them in equipment repair operations.</b></li> </ul> |
|--------------------------|--|

### 21. Teaching and Learning Strategies

- |                 |   |
|-----------------|---|
| <b>Strategy</b> | <p><b>1- Introducing and training the student on the components of welding devices and how to use them.</b></p> <p><b>2- The student will be able to perform various welding operations using gas welding and the cutting process Gas and electric arc welding in its various for</b></p> |
|-----------------|---|

### 22. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method

The First	4	Identifying the welding device (oxyacetylene) - the components of the device - how to read and organize the device's measurements - how to obtain the appropriate torch - how to use the welding torch and the cutting head.	Welding device (oxyacetylene) - the components of the device - how to read and organize the device's measurements - how to obtain the appropriate torch - how to use the welding torch and the cutting head.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Second	4	Learn about a practical exercise on welding and gas leakage in a straight line using iron wire and lead - how to use a welding torch - the correct grip of the handle and how to weld.	Practical exercise on welding and gas leakage in a straight line using iron wire and lead - how to use a welding torch - the correct grip of the handle and how to weld.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Third	4	Learn about a practical exercise on welding and gas deposition in the shape of the letter (V) using iron wire and lead.	Practical exercise on welding and gas deposition in the shape of the letter (V) using iron wire and lead.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Fourth	4	Learn about a practical exercise on L-shaped gas welding and welding.	Practical exercise on L-shaped gas welding and welding.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Fifth	4	Learn about a practical exercise on gas cutting - how to cut metal pieces - using a cutting head.	Practical exercise on gas cutting - how to cut metal pieces - using a cutting head.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Sixth	4	Learn about a practical exercise on cutting with gas using guidance tools - how to cut straight with gas.	Practical exercise on cutting with gas using guidance tools - how to cut straight with gas.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Seventh	4	Getting to know the electric arc welding device - getting to know the device and the fixed and engine-powered electric current generators -	the electric arc welding device - getting to know the device and the fixed and engine-powered electric current generators - learning about the	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation

		learning about the electrodes, the wire and its relationship to the electric current - and the types of wires.	electrodes, the wire and its relationship to the electric current - and the types of wires.		
Eighth	4	Learn about a practical exercise on welding and deposition - using an electric arc in a straight line using iron wires suitable for current.	Practical exercise on welding and deposition - using an electric arc in a straight line using iron wires suitable for current.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Ninth	4	Learn about a practical exercise on zigzag arc welding and deposition using suitable iron wires.	Practical exercise on zigzag arc welding and deposition using suitable iron wires.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Tenth	4	Learn about a practical exercise on welding and deposition by electric arc in an oval shape using iron wires suitable for current.	Practical exercise on welding and deposition by electric arc in an oval shape using iron wires suitable for current.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Eleventh	4	Learn about a practical exercise on welding and deposition with an electric arc in the shape of the letter (V) using iron wires suitable for current.	Practical exercise on welding and deposition with an electric arc in the shape of the letter (V) using iron wires suitable for current.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Twelfth	4	Learn about a practical exercise on L-shaped arc welding and deposition using suitable iron wires.	Practical exercise on L-shaped arc welding and deposition using suitable iron wires.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Thirteenth	4	Learn about a practical exercise on welding and deposition by electric arc (angle welding).	Practical exercise on welding and deposition by electric arc (angle welding).	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Fourteenth	4	Learn about a practical exercise on welding and deposition by electric arc (vertical welding).	Practical exercise on welding and deposition by electric arc (vertical welding).	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation

Fifteenth	4	Learn about a practical exercise on welding two pieces together (with an electric arc).	Practical exercise on welding two pieces together (with an electric arc).	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
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### 23. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

### 24. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	Check out websites in this field



## Course Description Form

25. Course Name: General Soil

26. Course Code: First academic year / Autumn semester

27. Semester / Year: First academic year / Autumn semester

28. Description Preparation Date: 2024/2/14

29. Available Attendance Forms: Attend a lecture

30. Number of Credit Hours (Total) / Number of Units (Total): 5 hours / 5 units

31. Course administrator's name (mention all, if more than one name):

Name: Mustafa H. Waryoosh

Email: [Wr.mustafa@atu.edu.iq](mailto:Wr.mustafa@atu.edu.iq)

### 32. Course Objectives

- |                          |   |
|--------------------------|---|
| <b>Course Objectives</b> | <ul style="list-style-type: none"><li>• <b>Identifying the nature and properties of soil as a medium for various agricultural mechanization activities and creating a suitable bed for the seed.</b></li><li>• <b>The possibility of analyzing soil characteristics to determine the type and size of agricultural mechanization necessary to serve the crop.</b></li></ul> |
|--------------------------|---|

### 33. Teaching and Learning Strategies

- |                 |   |
|-----------------|---|
| <b>Strategy</b> | <ol style="list-style-type: none"><li><b>1- Learn about soil science.</b></li><li><b>2- Identifying the mortar rocks of the soil.</b></li><li><b>3- Identify the physical properties of the soil.</b></li><li><b>4- Identify the types of layers that make up the soil.</b></li></ol> |
|-----------------|---|

### 34. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
The First	5	Learn about soil science	Soil science - its definition and branches - applied value.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Second	5	Identify the rocks that make up the parent material	The rocks that make up the parent material.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Third	5	Identify the physical properties of soil - bulk density	A study of the physical properties of soil - bulk density.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Fourth	5	Identify the true density of the soil	True density.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Fifth	5	Soil porosity	Soil porosity.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Sixth	5	Soil texture (texture)	Soil texture (texture).	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Seventh	5	Learn about methods for measuring soil water and soil temperature	Soil water - soil temperature.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Eighth	5	Identify soil air	Soil air.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Ninth	5	Identify soil salinity	Soil salinity.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Tenth	5	Identifying soil fertility - soil fertilization	Soil fertility - soil fertilization.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Eleventh	5	Identifying organic matter in soil	Organic matter in the soil.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation

Twelfth	5	Identify the morphological signs of soil	Soil morphological indicators.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Thirteenth	5	Identify the differentiation of its layers and the formation and development of the soil complex	Differentiation of its layers and formation and development of the soil complex.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Fourteenth	5	Identify the types of soil color	Study of soil color.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Fifteenth	5	Learn about the general classification of soil	General classification of soil.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation

### 35. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

### 36. Learning and Teaching Resources

Required textbooks (curricular books, if any)	General principles of soil
Main references (sources)	General principles of soil
Recommended books and references (scientific journals, reports...)	A collection of books in the field of general soil
Electronic References, Websites	Check out websites in this field

## Course Description Form

37. Course Name: Plant Production

38. Course Code: First academic year / Autumn semester

39. Semester / Year: First academic year / Autumn semester

40. Description Preparation Date: 2024/2/14

41. Available Attendance Forms: Attend a lecture

42. Number of Credit Hours (Total) / Number of Units (Total): 5 hours / 5 units

43. Course administrator's name (mention all, if more than one name):

Name: Dr. Mawahib M. Hussein

Email: [Mawahib.Medhat@atu.edu](mailto:Mawahib.Medhat@atu.edu)

### 44. Course Objectives

#### Course Objectives

- The student will be able to know the importance of crops, gardening, and the production of various horticultural crops, including vegetables and fruits, as well as field crops, including grains, legumes, and oil and industrial crops.
- The student's knowledge of field applications in the cultivation of grain crops and horticultural crops.

### 45. Teaching and Learning Strategies

#### Strategy

- 1- Identify the types of field crops.
- 2- Identify soil service processes.
- 3- Identify methods of plant propagation.
- 4- Identify the basic rules in planning gardens and parks.

## 46. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
The First	5	Identifying the field crop and dividing field crops	field crop and dividing field crops	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Second	5	Identifying soil service/tillage operations - their importance - when they are performed - smoothing - leveling - amendment	soil service/tillage operations - their importance - when they are performed - smoothing - leveling - amendment	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Third	5	Learn about crop cultivation methods - patching and weeding - thinning - fertilization - irrigation - pest control	crop cultivation methods - patching and weeding - thinning - fertilization - irrigation - pest control	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Fourth	5	Identifying grain crops - wheat - barley	grain crops - wheat - barley	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Fifth	5	Identifying grain crops - yellow corn - rice	grain crops - yellow corn - rice	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Sixth	5	Identifying oil crops - cotton - sunflower	oil crops - cotton - sunflower	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Seventh	5	Identifying leguminous crops - lucerne - clover	leguminous crops - lucerne - clover	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Eighth	5	Identifying leguminous crops - fava beans - lentils	leguminous crops - fava beans - lentils	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Ninth	5	Identify the impact of environmental and soil factors on the production of horticultural crops	impact of environmental and soil factors on the production of	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation

			horticultural crops		
The Tenth	5	Learn about the methods of propagating horticultural plants, including 1- Sexual reproduction 2- Asexual reproduction	the methods of propagating horticultural plants, including 1- Sexual reproduction 2- Asexual reproduction	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Eleventh	5	Identifying transplanting and producing seedlings - the benefits of transplanting - the effect of transplanting on plant growth	transplanting and producing seedlings - the benefits of transplanting - the effect of transplanting on plant growth	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Twelfth	5	Learn about establishing fruit orchards	establishing fruit orchards	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Thirteenth	5	Learn about raising and pruning fruit trees	raising and pruning fruit trees	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Fourteenth	5	Identify citrus production	citrus production	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Fifteenth	5	Learn about the basic rules in planning gardens and parks	the basic rules in planning gardens and parks	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation

#### 47. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

#### 48. Learning and Teaching Resources

Required textbooks (curricular books, if any)	General principles of Plant Production
Main references (sources)	General principles of Plant Production
Recommended books and references (scientific journals, reports...)	A collection of books in the field of Plant Production
Electronic References, Websites	Check out websites in this field

## Course Description Form

49. Course Name: Animal production

50. Course Code: First academic year / Autumn semester

51. Semester / Year: First academic year / Autumn semester

52. Description Preparation Date: 2024/2/14

53. Available Attendance Forms: Attend a lecture

54. Number of Credit Hours (Total) / Number of Units (Total): 4 hours / 4 units

55. Course administrator's name (mention all, if more than one name):

Name: Marwa Khaled Abdel Karim      Email: [marwa.khalid@atu.edu.iq](mailto:marwa.khalid@atu.edu.iq)

### 56. Course Objectives

#### Course Objectives

- Teaching students to raise farm animals (sheep and cows) as well as poultry in terms of barns, management , and proper nutrition, .the purpose of this study
- Introducing the student to the economic importance of farm .animals
- Introducing the student to the types of farm animals, types of .fields, breeding, and nutrition
- Training the student on field components, including tools, devices, and field operations and how to conduct them, as well .as introducing and training him on records

### 57. Teaching and Learning Strategies

<b>Strategy</b>	<p><b>1- Identify the economic importance of birds .</b></p> <p><b>2- Learn about poultry production processes .</b></p> <p><b>3- Learn about meat production methods .</b></p> <p><b>4- Identify the basic rules in hatching operations .</b></p>
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### 58. Course Structure

<b>Week</b>	<b>Hours</b>	<b>Required Learning Outcomes</b>	<b>Unit or subject name</b>	<b>Learning method</b>	<b>Evaluation method</b>
The First	4	Identifying the economic importance of raising poultry birds the poultry industry - in Iraq..	The economic importance of raising poultry the poultry - industry in Iraq ..	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Second	4	Identifying the types of poultry production - hatching - incubation - poultry farming requirements.	Types of poultry production - hatching - incubation - poultry farming requirements.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Third	4	Identifying egg production - breeds of laying hens - rearing systems for laying hens factors affecting egg - production.	Egg production breeds of - laying hens - rearing systems for laying hens factors - affecting egg production.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Fourth	4	Identifying meat production - breeds of broiler chickens - requirements for raising broiler chickens factors affecting the - economic characteristics of broiler chickens.	Meat production - breeds of broiler chickens - requirements for raising broilers - factors affecting the economic characteristics of broilers.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Fifth	4	Identifying hatching and hatching management -	Hatching and hatching management - hatching -	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation



		hatching - hatching machine.	hatching machine.		
Sixth	4	Identify the factors that affect the quality of hatching eggs - specifications of eggs suitable for hatching.	Factors that affect the quality of hatching eggs - specifications of eggs suitable for hatching.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Seventh	4	Learn about the economic importance of sheep.	The economic importance of sheep.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Eighth	4	Learn about the classification of sheep international sheep - breeds.	Sheep classification - international sheep breeds.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Ninth	4	Identifying reproduction, pregnancy and birth in sheep.	Reproduction, pregnancy and birth in sheep.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Tenth	4	Learn about milk production and wool production in sheep.	Milk production and wool production in sheep.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Eleventh	4	Identifying goat breeds raising goats -.	Goat breeds - goat breeding.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Twelfth	4	Learn about the economic importance of cows.	The economic importance of cows.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Thirteenth	4	Learn about the classification and types of cows.	Classification of cows and their types.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Fourteenth	4	Identify the foundations of milk and meat production in cows.	Foundations of milk and meat production in cows.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Fifteenth	4	Learn about cow field management.	Management of cow fields.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation

### 59. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

## 60. Learning and Teaching Resources

Required textbooks (curricular books, if any)	General principles of Plant Production
Main references (sources)	General principles of Plant Production
Recommended books and references (scientific journals, reports...)	A collection of books in the field of Plant Production
Electronic References, Websites	Check out websites in this field



- 2- Learn about the drawing processes in the program .
- 3- Learn about meat production methods .
- 4- Identify the basic rules in hatching operations .

## 70. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
The First	4	Getting to know the AutoCAD drawing program - the program interface - toolbars - through the two windows of the AutoCAD 2000 - 2008 program - choosing units and angles - organizing the sheet - selecting the sheet - auxiliary commands - precision tools in drawing - grid - jumping.	Getting to know the AutoCAD drawing program - the program interface - toolbars - through the two windows of the AutoCAD 2000 program - 2008 - choosing units and angles - organizing the sheet - selecting the sheet - auxiliary commands - precision tools in drawing - grid - jumping.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Second	4	the Learn about methods of entering coordinates - modification operations on the drawing - drawing scale - printing and outputting drawings.	Methods of entering coordinates - modification operations on the drawing - drawing scale - printing and outputting drawings .	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Third	4	Identifying the types of lines in engineering drawing - changing the shapes of the lines - their colors and thickness - adding texts to the drawing - drawing different types of lines - dividing a straight line - setting up columns - dividing angles - drawing geometric shapes and two-dimensional(2D) drawing - precise drawing.	Types of lines in engineering drawing - changing the shapes of the lines - their colors and thickness - adding texts to the drawing - drawing all types of lines - dividing a straight line - setting up columns - dividing angles - drawing geometric shapes and two-dimensional(2D)	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation

			drawing - precise drawing.		
The Fourth	4	Recognizing the division of the board and organizing the placement of projections for projecting geometric objects - the three levels of projection using construction lines - logical operations (subtraction unification - - intersection) - the three levels of projection.	Dividing the board and organizing the placement of projections for projecting geometric objects - the three levels of projection using construction lines - logical operations subtraction - ) unification - intersection) - the three levels of projection.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Fifth	4	Learn about dimensional placement using AutoCAD	Setting dimensions using AutoCAD	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Sixth	4	Learn how to draw solids (drawing and projection methods) - Draw solids using polar coordinates - Create drawings of three-dimensional objects using the method( extrusion - changingThought).	How to draw objects (drawing and projection methods) - drawing objects using polar coordinates - creating drawings of three-dimensional objects using the method( extrusion - changingThought).	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Seventh	4	Identifying the reproduction of the third projection using two known projections drawing the known - projections - reproducing the third projection - drawing the model using the AutoCAD drawing style.	Reproducing the third projection using two known projections - drawing the known projections - reproducing the third projection - drawing the model using the AutoCAD drawing style.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Eighth	4	Hatch _ recognition All kinds and shapes.	Hatch, in all its forms and types.	The workshop lecture Laboratory	Written tests Quarterly exams final exams Daily evaluation

				summer training	
Ninth	4	Recognition Creating sectors - an idea about the importance of sectors - parts that cannot be cut - choosing the best cutting level - the Slice command - the Section command	Creating sectors - an idea about the importance of sectors - parts that cannot be cut - choosing the best cutting level - the Slice command - the Section command	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Tenth	4	Get to know comprehensive exercises for each student who has completed his studies in applying the AutoCAD program.	Comprehensive exercises for every student who has completed his studies applying the AutoCAD program.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Eleventh	4	Getting to know the AutoCAD drawing program - the program interface - toolbars - through the two windows of the AutoCAD 2000 - 2008 program - choosing units and angles - organizing the sheet - selecting the sheet - auxiliary commands - precision tools in drawing - grid - jumping.	Getting to know the AutoCAD drawing program - the program interface - toolbars - through the two windows of the AutoCAD 2000 program - 2008 - choosing units and angles - organizing the sheet - selecting the sheet - auxiliary commands - precision tools in drawing - grid - jumping.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Twelfth	4	Learn about the methods of entering coordinates - modification operationson the drawing - drawing scale - printing and outputting drawings.	Methods of entering coordinates - modification operationson the drawing - drawing scale - printing and outputting drawings .	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Thirteenth	4	Identifying the types of lines in engineering drawing - changing the shapes of the lines - their colors and thickness - adding texts to the drawing - drawing different types of lines - dividing a	Types of lines in engineering drawing - changing the shapes of the lines - their colors and thickness - adding texts to the drawing - drawing all types of lines -	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation

		straight line - setting up columns - dividing angles - drawing geometric shapes and two-dimensional(2D) drawing - precise drawing.	dividing a straight line - setting up columns - dividing angles - drawing geometric shapes and two-dimensional(2D) drawing - precise drawing.		
Fourteenth	4	Recognizing the division of the board and organizing the placement of projections for projecting geometric objects - the three levels of projection using construction lines - logical operations (subtraction unification - - intersection) - the three levels of projection.	Dividing the board and organizing the placement of projections for projecting geometric objects - the three levels of projection using construction lines - logical operations subtraction - ) unification - intersection) - the three levels of projection.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Fifteenth	4	Recognition Setting dimensions using AutoCAD	Setting dimensions using AutoCAD	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation

### 71. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

### 72. Learning and Teaching Resources

Required textbooks (curricular books, if any)	General principles of engineering drawing
Main references (sources)	General principles of engineering drawing
Recommended books and references (scientific journals, reports...)	A collection of books in the field of engineering drawing
Electronic References, Websites	Check out websites in this field

## Course Description Form

73. Course Name: Computer Applications (1)

74. Course Code: First academic year / Autumn semester

75. Semester / Year: First academic year / Autumn semester

76. Description Preparation Date: 2024/2/14

77. Available Attendance Forms: Attend a lecture

78. Number of Credit Hours (Total) / Number of Units (Total): 3 hours / 3 units

79. Course administrator's name (mention all, if more than one name):

Name: Zaid Jafar Hashem

Email: [Zaid.Jaffar@atu.edu.iq](mailto:Zaid.Jaffar@atu.edu.iq)

### 80. Course Objectives

#### Course Objectives

- Introducing the student to electronic computers, their importance, their operating system and parts, preparing him to deal with the calculator, and training him to do or participate in applied programs in the field of specialization.
- The student works on the calculator, enters data, and obtains the results.

### 81. Teaching and Learning Strategies

#### Strategy

- 1- Identify the parts of a calculator.
- 2- Learn about operating system commands.
- 3- Identify control panels for computers.
- 4- Getting to know the Paint program .



## 82. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
The First	3	Learn about the definition of calculator calculator generations - hardware and - software	Definition of calculator - calculator generations - hardware and software	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Second	3	Learn about theMS-Dos operating system , the concept of the system, the system signal, disks, directories and their levels, files, internal and external commands	MS-Dos operating system , system concept, system signal, disks, directories and their levels, files, internal and external commands	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Third	3	Identify the operating system's internal and external commands.	Internal and external operating system commands.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Fourth	3	Getting to know the Windows operating system the concept of , the system, advantages, basic requirements, operating the system, desktop components, the concept of icons , how to use the mouse , the importance and components of the Task Bar , the Start menu , and exiting the system. Dealing with desktop icons, dealing with the components of the My Computer icon in terms of disks, folders, and files, formatting disks, copying files and folders, taking advantage of Cut and Paste operations , dealing with the Recycle Bin how to ,	Windows operating system , the concept of the system, advantages, basic requirements, operating the system, desktop components, the concept of icons , how to use the mouse the , importance and components of the Task Bar , the Start menu , exiting the system. Dealing with desktop icons, dealing with the components of the My Computer icon in terms of disks, folders, and files, formatting disks, copying files and folders, taking advantage of Cut	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation

		delete files and recover .them.	and Paste operations , dealing with theRecycle Bin how to delete files , .and recover them.		
Fifth	3	Panel programs , changing the desktop wallpaper, controlling the Screen Saver, adding and deleting programs to the start menuAdd and Remove Program.	Panel programs , change the desktop wallpaper, control the Screen Saver, add and remove programs to the start menuAdd and Remove Program.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Sixth	3	Taking advantage of theRun command to execute programs directly.	Taking advantage of theRun command to execute programs directly.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Seventh	3	Learn about using entertainment programsWindow media player taking , advantage of additional programsAccessories , and using the calculator.	Use entertainment , programsWindow media player take , advantage of additional ,programsand use the calculator.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Eighth	3	Learn how to use the Paint programto create, save, and retrieve drawings. Dealing withOffice applications. How to get helpHelp.	Working with the Paint drawing program to create, save and retrieve drawings. Dealing withOffice applications. How to get helpHelp.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Ninth	3	Learn about the concept of computer viruses, how they are infected, types of viruses, how to treat them and deal with them using anti-virus programs.	The concept of computer viruses, how they are infected, types of viruses, how to treat them and deal with them using anti-virus programs.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Tenth	3	Get to know comprehensive exercises for each student who has completed his studies in applying the AutoCAD program.	Comprehensive exercises for every student who has completed his studies applying the AutoCAD program.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation

Eleventh	3	Getting to know the AutoCAD drawing program - the program interface - toolbars - through the two windows of the AutoCAD 2000 - 2008 program - choosing units and angles - organizing the sheet - selecting the sheet - auxiliary commands - precision tools in drawing - grid - jumping.	Getting to know the AutoCAD drawing program - the program interface - toolbars - through the two windows of the AutoCAD 2000 program - 2008 - choosing units and angles - organizing the sheet - selecting the sheet - auxiliary commands - precision tools in drawing - grid - jumping.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Twelfth	3	Learn about the methods of entering coordinates - modification operations on the drawing - drawing scale - printing and outputting drawings.	Methods of entering coordinates - modification operations on the drawing - drawing scale - printing and outputting drawings	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Thirteenth	3	Identifying the types of lines in engineering drawing - changing the shapes of the lines - their colors and thickness - adding texts to the drawing - drawing different types of lines - dividing a straight line - setting up columns - dividing angles - drawing geometric shapes and two-dimensional(2D) drawing - precise drawing.	Types of lines in engineering drawing - changing the shapes of the lines - their colors and thickness - adding texts to the drawing - drawing all types of lines - dividing a straight line - setting up columns - dividing angles - drawing geometric shapes and two-dimensional(2D) drawing - precise drawing.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Fourteenth	3	Recognizing the division of the board and organizing the placement of projections for projecting geometric objects - the three levels of projection using construction	Dividing the board and organizing the placement of projections for projecting geometric objects - the three levels of projection using construction lines -	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation

		lines - logical operations (subtraction unification - - intersection) - the three levels of projection.	logical operations subtraction - ) unification - intersection) - the three levels of projection.		
Fifteenth	3	Recognition Setting dimensions using AutoCAD	Setting dimensions using AutoCAD	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation

### 83. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

### 84. Learning and Teaching Resources

Required textbooks (curricular books, if any)	General principles of computers
Main references (sources)	General principles of computers
Recommended books and references (scientific journals, reports...)	A collection of books in the field of computers
Electronic References, Websites	Check out websites in this field

## Course Description Form

85. Course Name: Human Rights

86. Course Code: First academic year / Autumn semester

87. Semester / Year: First academic year / Autumn semester

88. Description Preparation Date: 2024/2/14

89. Available Attendance Forms: Attend a lecture

90. Number of Credit Hours (Total) / Number of Units (Total): 2 hours / 2 units

91. Course administrator's name (mention all, if more than one name):

Name: Mounir Hadi Hussein

Email: [muneer.hadi@atu.edu.iq](mailto:muneer.hadi@atu.edu.iq)

### 92. Course Objectives

#### Course Objectives

- Identifying the most important rights of the citizen in the past, present, and future, and the most important laws that govern this.
- Learn about regional charters, constitutions, guarantees of respect and protection of human rights, and legitimate rules of law .

### 93. Teaching and Learning Strategies

#### Strategy

- 1- Learn about human rights .
- 2- Learn about human rights in Islamic law .
- 3- Learn about human rights in contemporary and modern history.
- 4- Learn about human rights in the Iraqi constitutions .

### 94. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
The First	2	Learn about human rights, their definition, and goals. Human rights in ancient civilizations, especially the Mesopotamian civilization.	Human rights, their definition, and goals. Human rights in ancient civilizations, especially the Mesopotamian civilization.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Second	2	Learn about human rights in divine laws, with a focus on human rights in Islam.	Human rights in divine laws, with a focus on human rights in Islam.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Third	2	Getting to know human rights in contemporary and modern history: international recognition of human rights since World War I and the League of Nations.	Human rights in contemporary and modern history: international recognition of human rights since World War I and the League of Nations.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Fourth	2	Getting to know regional recognition of human rights: the European Convention on Human Rights in the American ,1950 Convention on Human Rights in 1969, the African Charter on Human Rights in 1981, the Arab Charter in Human Rights in 1994.	Regional recognition of human rights: European Convention on Human Rights American ,1950 Convention on Human Rights African ,1969 Charter on Human Rights 1981, Arab Charter on Human Rights 1994.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Fifth	2	Identify non-governmental organizations and human rights International ) Committee of the Red Cross, Amnesty International, Human Rights Watch, national human rights organizations.	Non-governmental organizations and human rights International ) Committee of the Red Cross, Amnesty International, Human Rights Watch, national	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation

			human rights organizations.		
Sixth	2	Identifying human rights in Iraqi constitutions between theory and reality.	Human rights in Iraqi constitutions between theory and reality.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Seventh	2	Identifying the relationship between human rights and public freedoms: 1. In the Universal Declaration of Human Rights.	The relationship between human rights and public freedoms: 1. In the Universal Declaration of Human Rights.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Eighth	2	Learn about regional charters and national constitutions.	In regional charters and national constitutions.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Ninth	2	Learn about economic, social and cultural human rights and civil and political human rights.	Economic, social and cultural human rights and civil and political human rights.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Tenth	2	Learn about modern human rights: facts in development, the right to a clean environment, the right to solidarity, the right to religion.	Modern human rights: facts in development, the right to a clean environment, the right to solidarity, the right to religion.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Eleventh	2	Learn about the guarantees of respect and protection of human rights at the national level, the guarantees in the constitution and laws, and the guarantees in the principle of the rule of law. - Guarantees in constitutional oversight, in freedom of the press and public opinion, and the role of non-governmental organizations in	Guarantees of respect and protection of human rights at the national level, guarantees in the constitution and laws, guarantees in the principle of the rule of law. - Guarantees in constitutional oversight, in freedom of the press and public opinion, and the	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation

		respecting and protecting human rights.	role of non-governmental organizations in respecting and protecting human rights.		
Twelfth	2	Learn about guarantees of respect for human rights at the international level:	Guarantees of respect for human rights at the international level:	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Thirteenth	2	Learn about the role of the United Nations and its specialized agencies in providing guarantees.	The role of the United Nations and its specialized agencies in providing guarantees.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Fourteenth	2	Identifying the role of regional organizations the Arab League, the ) European Union, the African Union, the Organization of American States, the (ASEAN Organization	The role of regional organizations (the Arab League, the European Union, the African Union, the Organization of American States, the ASEAN (Organization.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Fifteenth	2	Recognition The role of regional non-governmental organizations and public opinion in respecting and protecting human rights.	The role of regional non-governmental organizations and public opinion in respecting and protecting human rights.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation

#### 95. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

#### 96. Learning and Teaching Resources

Required textbooks (curricular books, if any)	General principles of human rights
Main references (sources)	General principles of human rights
Recommended books and references (scientific journals, reports...)	A collection of books in the field of human rights
Electronic References, Websites	Check out websites in this field



## Course Description Form

97. Course Name: Internal combustion engines

98. Course Code: First academic year / Second semester

99. Semester / Year: First academic year / Second semester

100. Description Preparation Date: 2024/2/14

101. Available Attendance Forms: Attend a lecture

102. Number of Credit Hours (Total) / Number of Units (Total): 6hours / 6 units

103. Course administrator's name (mention all, if more than one name):

Name: Shaker Mahmoud Musa

Email: [inmshr@atu.edu.iq](mailto:inmshr@atu.edu.iq)

### 104. Course Objectives

<b>Course Objectives</b>	<ul style="list-style-type: none"> <li>• <b>Introducing the student to internal combustion engines and their development - engine designs and manufacturing - learning about the performance and capabilities of engines and how to operate, use and maintain them.</b></li> <li>• <b>Introducing the student to engines, their development, designs and classification - Training the student on mathematical calculations in engine performance, its parts, thermal cycles - Introducing the student to combustion in diesel and gasoline engines - turbo engines, the Wankel engine, and exhaust gas and pollution tests.</b></li> </ul>
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### 105. Teaching and Learning Strategies

<b>Strategy</b>	<ol style="list-style-type: none"> <li>1- <b>Learn about the development and design of engines.</b></li> <li>2- <b>Identify the thermal cycles of engines.</b></li> <li>3- <b>Learn about methods for calculating engine efficiency.</b></li> <li>5- <b>Identify the types of combustion in engines.</b></li> </ol>
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## 106. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
The First	6	Learn about the history of the development and design of engines and their classification.	A historical overview of the development and design of engines and their classification.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Second	6	Identify the ideal and real thermal cycles for four-stroke spark ignition (gasoline) engines.	Ideal and real thermal cycles for four-stroke spark ignition (gasoline) engines.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Third	6	Identify the ideal and real thermal cycles for four-stroke (diesel) compression ignition engines.	Ideal and real thermal cycles for four-stroke (diesel) compression ignition engines.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Fourth	6	Identify the ideal and real thermal cycles for two-stroke gasoline and diesel engines.	Ideal and real thermal cycles for two-stroke gasoline and diesel engines.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Fifth	6	Learn about the four-stroke valve timing mechanism and compare it with the volume-pressure curve.	Identify the four-stroke valve timing mechanism and compare it with the volume-pressure curve.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Sixth	6	Identify the fixed and moving parts of the internal combustion engine.	Fixed and moving parts of the internal combustion engine.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Seventh	6	Learn about measuring the performance parameters of internal combustion engines - graphic power - ) braking power - (frictional power	Measuring the performance parameters of internal combustion engines - graphic power) braking - power -	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation

			frictional (power		
Eighth	6	Identify the swept volume and clearance volume - compression ratio - engine capacity.	Identify the swept volume and clearance volume - compression ratio - engine capacity.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Ninth	6	Identify the types of efficiencies mechanical, thermal, ) volumetric), work done in the cylinder, and specific fuel consumption.	Types of efficiencies mechanical, ) thermal, volumetric), work done in the cylinder, specific fuel consumption.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Tenth	6	Identifying friction and lubrication in the engine - mechanical friction in the elbow - mechanical friction of the piston - the effect of the number of rings.	Friction and lubrication in the engine - mechanical friction in the elbow - mechanical friction of the piston - the effect of the number of rings.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Eleventh	6	Identifying combustion combustion in diesel - engines - combustion in gasoline engines - stages of combustion.	Combustion - combustion in diesel engines - combustion in gasoline engines - stages of combustion.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Twelfth	6	Identifying the combustion chamber - basic requirements for a good combustion chamber - principles of combustion chamber design - types of combustion chambers.	Combustion chamber - basic requirements for a good combustion chamber - principles of combustion chamber design types of - combustion chambers.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Thirteenth	6	Identifying fuel - fuel for spark ignition	Fuel - fuel for spark ignition	The workshop lecture	Written tests Quarterly exams

		engines - octane number of gasoline - diesel fuel - cetane number in diesel fuel.	engines - octane number of gasoline - diesel fuel - cetane number in diesel fuel.	Laboratory summer training	final exams Daily evaluation
Fourteenth	6	Identifying rotary engines, the working principle - the air circulation in the turbine as a result of combustion when the pressure is constant - the use of turbine engines.	Rotary engines, working principle - air circulation in the turbine as a result of combustion when the pressure is constant - use of turbine engines.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Fifteenth	6	Learn about exhaust gas tests - gas pollution exhaust gas - compounds for spark ignition engines - exhaust gas compounds for diesel engines - controlling the reduction of types of exhaust pollution to improve the environment.	Exhaust gas tests - Gas pollution - Exhaust gas compounds for spark ignition engines - Exhaust gas compounds for diesel engines - Controlling the reduction of types of exhaust pollution to improve the environment.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation

### 107. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

### 108. Learning and Teaching Resources

Required textbooks (curricular books, if any)	General principles of engines
Main references (sources)	General principles of engines
Recommended books and references (scientific journals, reports...)	A collection of books in the field of combustion engines
Electronic References, Websites	Check out websites in this field

## Course Description Form

109. Course Name: Workshop

110. Course Code: First academic year / Second semester

111. Semester / Year: First academic year / Second semester

112. Description Preparation Date: 2024/2/14

113. Available Attendance Forms: Attend a lecture

114. Number of Credit Hours (Total) / Number of Units (Total): 4 hours / 4 units

115. Course administrator's name (mention all, if more than one name):

Name: Dr. Riyadh A. Sarhan

Email: [Sarhan.Riyadh@atu.edu.iq](mailto: Sarhan.Riyadh@atu.edu.iq)

### 116. Course Objectives

#### Course Objectives

- The student will be able to perform lathe and filing operations.
- The student will be able to identify the types and physical properties of metals and the methods of filing and turning in the field of agricultural machinery and machinery repair.

### 117. Teaching and Learning Strategies

#### Strategy

- 1- Learn about public safety in workshops.
- 2- Learn about different measurement tools.
- 3- Identify the types of files.
- 4- Learn about lathe operations.

## 118. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
The First	4	Learn about general safety in workshops - metal forming processes - definition of filings - measuring .tools	Public safety in workshops - metal forming operations - definition of filings - .measuring tools	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Second	4	Identifying accurate measuring tools, classification of minerals, mechanical .and physical properties	Precision measuring instruments - classification of minerals - mechanical .and physical properties	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Third	4	Identifying the types of files - their parts - how to use them - an exercise on how to .prepare the surface	Types of files - their parts - method of use - an exercise on how to .prepare the surface	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Fourth	4	Getting to know the processes of marking and shankar - using the marking needle - shankar and how to plan the train - cutting tools - an exercise in .planning and cutting	Marking and shankar operations - using the marking needle - shankar and how to plan the train - cutting tools - an exercise in .planning and cutting	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Fifth	4	Familiarity with filing exercises - training on various filing operations with planning, marking, cutting, straightening faces, and making .compositions	Training on filing - training on different filing operations with planning, marking, cutting, straightening faces, and making .compositions	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Sixth	4	Identifying the types of teeth - how to make an external and internal tooth - .exercise	Types of teeth - How to make an external and internal tooth - .Exercise	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Seventh	4	Getting to know a comprehensive exercise - training the student to do a comprehensive	Comprehensive exercise - training the student to do a comprehensive exercise on all filing .operations	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation

		exercise on all filing .operations			
Eighth	4	Identifying the types of lathes according to the type of work and the measurements of the lathes - how to operate and maintain them and perform .them on the lathes	Types of lathes according to the type of work and measurements of lathes how to operate and - maintain them and .perform them on lathes	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Ninth	4	Identifying the types of turning pens - the angles of the turning pen - the forces affecting the pens - how to sharpen the .pen	Types of engraving pens - angles of the engraving pen - forces affecting the pens - .how to sharpen the pen	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Tenth	4	Learn how to install the lathe pen on the axis. Learn about the lathe and install the workpiece on the lathe axis and how to ensure this. Training on longitudinal and .vertical feeding	How to install the turning pen on the lathe axis and fix the workpiece on the lathe axis and how to ensure this - training on longitudinal and .vertical feeding	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Eleventh	4	Recognizing longitudinal turning and making steps of different diameters - .exercise	Longitudinal lathe and making terraces of different diameters - .exercise	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Twelfth	4	Identifying internal turning - how to perform the cutting process on the lathe using cutting pens and how to make the bore .an exercise -	Internal turning - how to perform the cutting process on the lathe using cutting pens and how to make the bore - .an exercise	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Thirteenth	4	Identifying tooth production - types of teeth - tooth tables on .the lathe - exercise	Tooth production - types of teeth - tooth tables on the lathe - .exercise	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Fourteenth	4	Learn about a comprehensive exercise for lathe .operations	Comprehensive training for lathe .operations	The workshop lecture Laboratory	Written tests Quarterly exams final exams Daily evaluation

				summer training	
Fifteenth	4	Identifying the continuation of the previous exercise - .discussing reports	Continuation of the previous exercise - .discussion of reports	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation

### 119. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

### 120. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	Check out websites in this field



## Course Description Form

121. Course Name: Soil preparation equipment

122. Course Code: First academic year / Second semester

123. Semester / Year: First academic year / Second semester

124. Description Preparation Date: 2024/2/14

125. Available Attendance Forms: Attend a lecture

126. Number of Credit Hours (Total) / Number of Units (Total): 5 hours / 5 units

127. Course administrator's name (mention all, if more than one name):

Name: Abass F. Abd

Email: [Abbas.fadhil1983.ism@atu.edu.iq](mailto:Abbas.fadhil1983.ism@atu.edu.iq)

### 128. Course Objectives

<b>Course Objectives</b>	<ul style="list-style-type: none"><li>• <b>Introducing students to the machines and equipment used to prepare soil for agriculture and how to operate them.</b></li><li>• <b>The student should be able to use all types of plows and soil preparation machines, handle the machine and the tractor, choose them according to the type of soil, detect faults, and how to maintain them</b></li></ul>
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### 129. Teaching and Learning Strategies

<b>Strategy</b>	<ol style="list-style-type: none"><li><b>1- Identify the types of systems in the agricultural tractor.</b></li><li><b>2- Identify the engine parts in the agricultural tug.</b></li><li><b>3- Identify the means of transferring power in the agricultural tug.</b></li><li><b>4- Identify the types of maintenance used.</b></li></ol>
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### 130. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
The First	5	Learn about the introduction - the importance of tillage - the characteristics of good tillage - the positive and negative effects of tillage - the mechanical composition of the soil	Introduction - The importance of tillage - Characteristics of good tillage Positive and - negative effects of tillage - Mechanical composition of the soil	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Second	5	Identifying primary tillage equipment - types of plows - bottom plow - its types - areas of use - the reason for preferring the bottom plow	Primary tillage equipment - types of plows bottom plow - - types - areas of use - reason for preferring the bottom plow	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Third	5	Learn about Calculate the force acting on the bottom plow	Calculate the force acting on the bottom plow	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Fourth	5	Getting to know the disc plow - its types - the main parts - the reason for preferring the disc plow - how to .turn the soil	Disc plow - its types - main parts - the reason for preferring the disc plow - how to turn the .soil	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Fifth	5	Identifying the vertical disc plow - its main parts - its types - comparison between the disc plow and the vertical disc plow	Vertical disc plow - main parts - types - comparison between disc plow and vertical disc plow	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Sixth	5	Getting to know the chisel plow - the main parts - its types - advantages and disadvantages - the reason for preferring the chisel plow - types of beams - types of .weapons	Chisel plow - main parts - types - advantages and disadvantages - the reason for preferring the chisel plow - types of beams	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation

			types of - .weapons		
Seventh	5	Getting to know the rotary – how to transfer movement from the PTO its – types – types of weapons – benefit	Rotary - How to transfer movement from the PTO - Its types - Types of weapons - Benefit	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Eighth	5	Identifying subsoil - its importance - areas of use - main parts - calculating the force acting on it	Subsoil - its importance - areas of use - main parts - calculation of the force acting on it	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Ninth	5	Identifying secondary tillage equipment - its types - areas of use - general objective	Secondary tillage equipment - types - areas of use - general objective	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Tenth	5	Identifying combs - their types - areas of use - factors affecting comb penetration	Combs - their types - areas of use - factors affecting penetration of combs	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Eleventh	5	Identifying the disc comb - its type - areas of use - the toothed comb - advantages and disadvantages - connection and calibration	Disc comb - type - areas of use - toothed comb - advantages and disadvantages - connection and calibration	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Twelfth	5	Identifying leveling devices - their types - areas of use - leveling devices - types - connection and calibration - maintenance	Leveling devices - their types - areas of use - leveling devices - their types - connection and calibration - maintenance	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Thirteenth	5	Identifying rollers - their type - areas of use trenches - their parts -	Rolls - their type - areas of use - trenches - their parts -	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation

		connection and calibration	connection and calibration		
Fourteenth	5	Identifying installed equipment - its type - its importance - its use its benefit -	Installed equipment - type - importance - use - benefit	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Fifteenth	5	Learn about the maintenance and repair of agricultural machinery - the importance of maintenance - storage	Maintenance and repair of agricultural machinery - the importance of maintenance - storage	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation

### 131. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

### 132. Learning and Teaching Resources

Required textbooks (curricular books, if any)	General principles of soil preparation equipment
Main references (sources)	General principles of soil preparation equipment
Recommended books and references (scientific journals, reports...)	A collection of books in the field of soil preparati equipment
Electronic References, Websites	Check out websites in this field

## Course Description Form

133. Course Name: Mathematics

134. Course Code: First academic year / Second semester

135. Semester / Year: First academic year / Second semester

136. Description Preparation Date: 2024/2/14

137. Available Attendance Forms: Attend a lecture

138. Number of Credit Hours (Total) / Number of Units (Total): 3 hours / 3 units

139. Course administrator's name (mention all, if more than one name):

Name: Intisar M. Khudair

Email: [Intisar.mohammed@atu.edu.iq](mailto:Intisar.mohammed@atu.edu.iq)

140. Course Objectives

Course Objectives

- Introducing the student to the types of mathematical equations and the concepts of differentiation and integration and their applications.
- The student will be able to solve all types of mathematical problems, apply functions and determinants, and find distance, speed, and acceleration through general physical and engineering applications

141. Teaching and Learning Strategies

Strategy

- 1- Identify the types of equations and their degrees .
- 2- Identify functions and their derivatives .
- 3- Identify the types of trigonometric functions .
- 4- Learn about applications of calculus .

## 142. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
The First	3	Get to know a brief overview of mathematics and its benefits - types of equations and their degrees - algebraic terms - coefficients - .exponents	A brief overview of mathematics and its benefits - types of equations and their degrees - algebraic terms - coefficients .exponents -	lecture	Written tests Quarterly exams final exams Daily evaluation
The Second	3	Identify differentiation its concept - - derivatives, polynomial functions and their .derivatives	Differentiation - its concept - derivatives, polynomial functions and their .derivatives	lecture	Written tests Quarterly exams final exams Daily evaluation
The Third	3	Learn about applications of the .above	Applications of the .above	lecture	Written tests Quarterly exams final exams Daily evaluation
The Fourth	3	Identifying trigonometric functions a brief overview - - their derivatives - implicit functions - .their derivatives	Trigonometric functions - a brief overview - their derivatives - implicit functions - .their derivatives	lecture	Written tests Quarterly exams final exams Daily evaluation
Fifth	3	Learn about applications about .functions	Applications about .functions	lecture	Written tests Quarterly exams final exams Daily evaluation
Sixth	3	Identify applications of differentiation - maximum and minimum values - drawing ordinary functions and determining inflection .points	Applications of differentiation - maximum and minimum values - drawing ordinary functions and determining inflection .inflection points	lecture	Written tests Quarterly exams final exams Daily evaluation
Seventh	3	Learn about finding distance, speed, and acceleration - general physical and engineering .applications	Finding distance, speed, and acceleration - general physics and engineering .applications	lecture	Written tests Quarterly exams final exams Daily evaluation
Eighth	3	Identifying integration its concept - laws and - their relationship to differentiation -	Integration - its concept - laws and their relationship to differentiation -	lecture	Written tests Quarterly exams final exams Daily evaluation

		definite and indefinite .integration	definite and indefinite .integration		
Ninth	3	Learn about integration .applications	Applications about .integration	lecture	Written tests Quarterly exams final exams Daily evaluation
The Tenth	3	Learn about finding the area under curves and under the curve - the approximate area using the trapezoid and .Simpson	Finding the area under the curves and under the curve the approximate - area using the trapezoid and .Simpson	lecture	Written tests Quarterly exams final exams Daily evaluation
Eleventh	3	Learn about finding the arc length of a curve - .various applications	Finding the arc length of a curve - .various applications	lecture	Written tests Quarterly exams final exams Daily evaluation
Twelfth	3	Identify determinants, their properties, and various applications on .the topic	Determinants - their properties - various applications on the .topic	lecture	Written tests Quarterly exams final exams Daily evaluation
Thirteenth	3	Learn about the complement of applications around .determinants	Complementary applications about .determinants	lecture	Written tests Quarterly exams final exams Daily evaluation
Fourteenth	3	Identifying the center of gravity of the wipers the moment of inertia - .of the wipers	The center of gravity of the wipers - the moment of inertia .of the wipers	lecture	Written tests Quarterly exams final exams Daily evaluation
Fifteenth	3	Learn about applications about the center of gravity of spaces and moments of .inertia	Applications about the center of gravity of areas and .moment of inertia	lecture	Written tests Quarterly exams final exams Daily evaluation

### 143. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

### 144. Learning and Teaching Resources

Required textbooks (curricular books, if any)	General principles of mathematics
Main references (sources)	General principles of mathematics
Recommended books and references (scientific journals, reports...)	A collection of books in the field of mathematics
Electronic References, Websites	Check out websites in this field

## Course Description Form

1. Course Name: Plane and topographic space

2. Course Code: First academic year / Second semester

3. Semester / Year: First academic year / Second semester

4. Description Preparation Date: 2024/2/14

5. Available Attendance Forms: Attend a lecture

6. Number of Credit Hours (Total) / Number of Units (Total): 5 hours / 5 units

7. Course administrator's name (mention all, if more than one name):

Name: Ghada Majed Abdullah

Email: [Ghada.Majid@atu.edu.iq](mailto:Ghada.Majid@atu.edu.iq)

### 8. Course Objectives

#### Course Objectives

- The student will be able to understand the science of surveying, its sections, uses, settlement works of all kinds, and accompanying works such as contour maps, longitudinal and cross-sections of all kinds, drawing them, calculating their area, and using some angle measuring devices.
- The student will be able to measure horizontal and diagonal distances, as well as use land surveying devices to find the levels of points on the Earth's surface and means of benefiting from them, such as drawing longitudinal and cross-sections and calculating their area, as well as learning about types of maps, drawing scales, drawing contour maps, using the theodolite device, and the benefits of using it in agricultural projects.

### 9. Teaching and Learning Strategies

#### Strategy

- 1- Identify area measuring devices .
- 2- Learn about methods of calculating levels .
- 3- Learn about the types of maps .



## 10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
The First	5	Getting to know the definition of surveying its divisions - its uses - topographical - surveying - settlement some important - definitions in .settlement	Definition of surveying - its divisions - uses topographical - surveying - settlement - some important definitions in .settlement	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Second	5	Learn about measuring horizontal and inclined distances - setting up and dropping poles on and off the track using a tape	Measuring horizontal and inclined distances - erecting and dropping columns from and on the path of the travel line using a tape	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Third	5	Identifying the types of leveling devices - the tools used in leveling - the hairline method of measuring distances - selecting and checking .the machine	Types of leveling devices - tools used in leveling the hairline - method for measuring distances - selecting and checking the .machine	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Fourth	5	Learn about the methods of calculating levels - how to .heighten the device	Methods for calculating levels - method of device .height	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Fifth	5	IdentifyingGPS receivers - using them to determine locations, direct lines, and measure horizontal and .vertical distances	GPS receivers - used to determine locations, direct lines, and measure horizontal and vertical .distances	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Sixth	5	Recognizing the types of maps - scale	Types of maps: scale drawing,	The workshop lecture	Written tests Quarterly exams

		drawing - longitudinal drawing scale - .network drawing	longitudinal drawing scale, and network .drawing	Laboratory summer training	final exams Daily evaluation
Seventh	5	Getting to know the contour map - its properties - its uses - the contour interval and the factors that .determine its selection	Contour map - its properties - its uses - the contour period and the factors that determine .its selection	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Eighth	5	Learn about drawing a contour map using the .mathematical method	Drawing a contour map using the mathematical .method	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Ninth	5	Learn about ways to enlarge and reduce .maps and render them	Methods of enlarging and reducing maps and rendering .them	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Tenth	5	Identify longitudinal sections, their uses and .drawing	Longitudinal sections, their uses and .drawing	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Eleventh	5	Learn about the approximate method for calculating the longitudinal cross-sectional area of cuts .and backfills	The approximate method for calculating the longitudinal cross-sectional area of cuts and .backfills	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Twelfth	5	Identify cross sections, their uses and drawing .them	Cross sections, their uses and .drawing	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Thirteenth	5	Learn about the arithmetic and demarcation method for calculating the area .of cross sections	Arithmetic and demarcation method for calculating the area of cross .sections	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Fourteenth	5	Learn about calculating the cross-sectional area of irrigation channels and .trowels	Calculating the cross-sectional area of irrigation channels and .trowels	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Fifteenth	5	Getting to know the theodolite device - its	Theodolite device - its	The workshop lecture	Written tests Quarterly exams

		types - its uses in measuring angles and .directions	types - its uses in measuring angles and .directions	Laboratory summer training	final exams Daily evaluation
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### 11. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

### 12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	General principles of flat space
Main references (sources)	General principles of flat space
Recommended books and references (scientific journals, reports...)	A collection of books in the field of flat space
Electronic References, Websites	Check out websites in this field

## Course Description Form

145. Course Name: Industrial drawing

146. Course Code: First academic year / Second semester

147. Semester / Year: First academic year / Second semester

148. Description Preparation Date: 2024/2/14

149. Available Attendance Forms: Attend a lecture

150. Number of Credit Hours (Total) / Number of Units (Total): 4 hours / 4 units

151. Course administrator's name (mention all, if more than one name):

Name: Dr.. Riyad Ahmed Sarhan

Email: [Sarhan.Riyadh@atu.edu.iq](mailto: Sarhan.Riyadh@atu.edu.iq)

### 152. Course Objectives

#### Course Objectives

- Training the student to draw and read drawings of machines.
- Training the student on ways to connect mechanical parts.
- Training the student to represent mechanical parts by drawing.
- Training the student to install mechanical models on the drawing board.

### 153. Teaching and Learning Strategies

#### Strategy

- 1- Identify the connection of mechanical parts .
- 2- Identify the types of khawabir .
- 3- Identify the types of gears .
- 4- Identify the types of friction clutches .

## 154. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
The First	4	Learn about the methods of connecting mechanical parts - screws - their types - .types of nuts	Methods of connecting mechanical parts - screws - their types .types of nuts -	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Second	4	Identifying the power spiral - the moving spiral - drawing a .picture	Power screw - moving screw - .drawing a picture	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Third	4	Identifying rivets - their specifications - their use - drawing a .picture	Rivets - their specifications - their use - drawing a .picture	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Fourth	4	Identifying khawabirs - their types - drawing a .picture	Khawabir - their types - drawing a .picture	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Fifth	4	Identifying sealants - their types - drawing a .picture	Sealants - their types - drawing a .drawing	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Sixth	4	Identifying belts - belt pulleys - drawing a .picture	Conveyor belts - conveyor belt pulley - drawing a .picture	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Seventh	4	Identifying straight gears - worm gears - .drawing a picture	Straight gears - worm gears - .drawing a picture	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Eighth	4	Identifying bevel gears .drawing a picture -	Bevel gears - .drawing a picture	The workshop lecture Laboratory	Written tests Quarterly exams final exams Daily evaluation

				summer training	
Ninth	4	Learn about drawing an assembly plate for a .bevel gear box - edit	Drawing an assembly plate for a bevel gear box - .edit	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Tenth	4	Identifying the clutch - its types - drawing a .picture	Clutch - its types - .drawing a picture	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Eleventh	4	Identifying rollers - their types - drawing a .picture	Rollers - their types .drawing a picture -	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Twelfth	4	Identifying the pilot wheel - the flap axis - .drawing a picture	Pilot wheel - flap axle - drawing a .picture	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Thirteenth	4	Learn about assembling solid connections - drawing a .picture	Assembling solid connections - .drawing a picture	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Fourteenth	4	Learn about assembling a flexible joint - drawing a .picture	Assembling a flexible joint - .drawing a plate	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Fifteenth	4	Recognize the drawing of the pivot chair segmentation assembly .panel	Drawing a pivot chair retail .assembly panel	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation

### 155. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

## 156. Learning and Teaching Resources

Required textbooks (curricular books, if any)	General principles of industrial drawing
Main references (sources)	General principles of industrial drawing
Recommended books and references (scientific journals, reports...)	A collection of books in the field of industrial drawing
Electronic References, Websites	Check out websites in this field

## Course Description Form

157. Course Name: Computer Applications (1)

158. Course Code: First academic year / Autumn semester

159. Semester / Year: First academic year / Autumn semester

160. Description Preparation Date: 2024/2/14

161. Available Attendance Forms: Attend a lecture

162. Number of Credit Hours (Total) / Number of Units (Total): 3 hours / 3 units

163. Course administrator's name (mention all, if more than one name):

Name: Zaid Jafar Hashem

Email: [Zaid.Jaffar@atu.edu.iq](mailto:Zaid.Jaffar@atu.edu.iq)

### 164. Course Objectives

#### Course Objectives

- Introducing the student to electronic computers, their importance, their operating system and parts, preparing him to deal with the calculator, and training him to do or participate in applied programs in the field of specialization.
- The student works on the calculator, enters data, and obtains the results.

### 165. Teaching and Learning Strategies

#### Strategy

- 5- Identify the parts of a calculator.
- 6- Learn about operating system commands.
- 7- Identify control panels for computers.
- 8- Getting to know the Paint program .



## 166. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
The First	3	Learn about the definition of calculator calculator generations - hardware and - software	Definition of calculator - calculator generations - hardware and software	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Second	3	Learn about theMS-Dos operating system , the concept of the system, the system signal, disks, directories and their levels, files, internal and external commands	MS-Dos operating system , system concept, system signal, disks, directories and their levels, files, internal and external commands	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Third	3	Identify the operating system's internal and external commands.	Internal and external operating system commands.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Fourth	3	Getting to know the Windows operating system the concept of , the system, advantages, basic requirements, operating the system, desktop components, the concept of icons , how to use the mouse , the importance and components of the Task Bar , the Start menu , and exiting the system. Dealing with desktop icons, dealing with the components of the My Computer icon in terms of disks, folders, and files, formatting disks, copying files and folders, taking advantage of Cut and Paste operations , dealing with the Recycle Bin how to ,	Windows operating system , the concept of the system, advantages, basic requirements, operating the system, desktop components, the concept of icons , how to use the mouse the , importance and components of the Task Bar , the Start menu , exiting the system. Dealing with desktop icons, dealing with the components of the My Computer icon in terms of disks, folders, and files, formatting disks, copying files and folders, taking advantage of Cut	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation

		delete files and recover .them.	and Paste operations , dealing with theRecycle Bin how to delete files , .and recover them.		
Fifth	3	Panel programs , changing the desktop wallpaper, controlling the Screen Saver, adding and deleting programs to the start menuAdd and Remove Program.	Panel programs , change the desktop wallpaper, control the Screen Saver, add and remove programs to the start menuAdd and Remove Program.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Sixth	3	Taking advantage of theRun command to execute programs directly.	Taking advantage of theRun command to execute programs directly.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Seventh	3	Learn about using entertainment programsWindow media player taking , advantage of additional programsAccessories , and using the calculator.	Use entertainment , programsWindow media player take , advantage of additional ,programsand use the calculator.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Eighth	3	Learn how to use the Paint programto create, save, and retrieve drawings. Dealing withOffice applications. How to get helpHelp.	Working with the Paint drawing program to create, save and retrieve drawings. Dealing withOffice applications. How to get helpHelp.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Ninth	3	Learn about the concept of computer viruses, how they are infected, types of viruses, how to treat them and deal with them using anti-virus programs.	The concept of computer viruses, how they are infected, types of viruses, how to treat them and deal with them using anti-virus programs.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Tenth	3	Get to know comprehensive exercises for each student who has completed his studies in applying the AutoCAD program.	Comprehensive exercises for every student who has completed his studies applying the AutoCAD program.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation

Eleventh	3	Getting to know the AutoCAD drawing program - the program interface - toolbars - through the two windows of the AutoCAD 2000 - 2008 program - choosing units and angles - organizing the sheet - selecting the sheet - auxiliary commands - precision tools in drawing - grid - jumping.	Getting to know the AutoCAD drawing program - the program interface - toolbars - through the two windows of the AutoCAD 2000 program - 2008 - choosing units and angles - organizing the sheet - selecting the sheet - auxiliary commands - precision tools in drawing - grid - jumping.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Twelfth	3	Learn about the methods of entering coordinates - modification operations on the drawing - drawing scale - printing and outputting drawings.	Methods of entering coordinates - modification operations on the drawing - drawing scale - printing and outputting drawings .	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Thirteenth	3	Identifying the types of lines in engineering drawing - changing the shapes of the lines - their colors and thickness - adding texts to the drawing - drawing different types of lines - dividing a straight line - setting up columns - dividing angles - drawing geometric shapes and two-dimensional(2D) drawing - precise drawing.	Types of lines in engineering drawing - changing the shapes of the lines - their colors and thickness - adding texts to the drawing - drawing all types of lines - dividing a straight line - setting up columns - dividing angles - drawing geometric shapes and two-dimensional(2D) drawing - precise drawing.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Fourteenth	3	Recognizing the division of the board and organizing the placement of projections for projecting geometric objects - the three levels of projection using construction	Dividing the board and organizing the placement of projections for projecting geometric objects - the three levels of projection using construction lines -	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation

		lines - logical operations (subtraction unification - - intersection) - the three levels of projection.	logical operations subtraction - ) unification - intersection) - the three levels of projection.		
Fifteenth	3	Recognition Setting dimensions using AutoCAD	Setting dimensions using AutoCAD	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation

### 167. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

### 168. Learning and Teaching Resources

Required textbooks (curricular books, if any)	General principles of computers
Main references (sources)	General principles of computers
Recommended books and references (scientific journals, reports...)	A collection of books in the field of computers
Electronic References, Websites	Check out websites in this field

## Course Description Form

169. Course Name: Tractors Maintenance

170. Course Code: Second academic year / Autumn semester

171. Semester / Year: Second academic year / Autumn semester

172. Description Preparation Date: 2024/2/14

173. Available Attendance Forms: Attend a lecture

174. Number of Credit Hours (Total) / Number of Units (Total): 4 hours / 4 units

175. Course administrator's name (mention all, if more than one name):

Name: Abass F. Abd

Email: [Abbas.fadhil1983.ism@atu.edu.iq](mailto:Abbas.fadhil1983.ism@atu.edu.iq)

### 176. Course Objectives

Course Objectives

- **Definition of maintenance and maintenance, how to know how to read maintenance and maintenance books, how to perform maintenance according to the specified times and dates.**

### 177. Teaching and Learning Strategies

Strategy

- The student will be able to perform maintenance as an integrated program
- The student performs maintenance according to its schedule and adheres to safety rules while working, with savings Requirement to conduct it

178. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
The First	4	the Recognizing importance of maintenance and maintenance - defining it - identifying maintenance workshops And repair	The importance of maintenance and maintenance - its definition - identifying maintenance workshops And .repair	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Second	4	Recognition Maintenance application after (50) working hours - How to charge and maintain .the battery	Maintenance application after (50) working hours How to - charge and maintain the .battery	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Third	4	Recognition The procedure for connecting the gasket to the generator - how to tighten it correctly - loan it and how to .replace it	The procedure for connecting the gasket to the generator - how to tighten it correctly - loan it and how .to replace it	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Fourth	4	Recognition Knowing the properties of hydraulic oil - treating leaching and knowing its causes. System .maintenance	Knowing the properties of hydraulic oil - treating leaching and knowing its causes. System .maintenance	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Fifth	4	Recognition Maintenance after hours of work - (100) this maintenance is performed by the students - performing .the oil change	Maintenance after (100) hours of work - this maintenance is performed by the students - performing the .oil change	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Sixth	4	Learn about maintenance follow-up hours of work - (100) steps for changing the	Maintenance follow-up working (100) hours - steps	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation

		engine oil and filter - maintenance of the .fuel system	for changing the engine oil and filter - maintenance of .the fuel system		
Seventh	4	Recognition Performing the process of expelling air from the fuel system - maintaining tires - the effect of air pressure .on tires	Performing the process of expelling air from the fuel system - maintaining tires - the effect of air pressure .on tires	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Eighth	4	Recognition Maintenance after hours of work - (250) the importance of this maintenance and its components - the procedure for .calibrating valves	Maintenance after (250) hours of work - the importance of this maintenance and its components - the procedure for calibrating .valves	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Ninth	4	Recognition Maintenance follow-up after (250) working hours - maintaining the feed pump, calibrating it, and replacing the extruders	Maintenance follow-up after working (250) hours - maintaining the feed pump, calibrating it, and replacing the extruders	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Tenth	4	Learn about following up on the maintenance of other parts - performing separator calibration and brake .calibration	Following up on the maintenance of other parts - performing separator calibration and brake .calibration	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Eleventh	4	Learn about maintenance after (500) hours of work - maintaining and replacing fuel filters in .diesel engines	Maintenance after (500) working hours maintenance - and replacement of fuel filters in .diesel engines	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation

Twelfth	4	Getting to know the maintenance routine after (500) working hours - methods and importance of maintaining the front wheel bearings and assembling the axles	Maintenance follow-up after hours of (500) work - methods and importance of maintaining the front wheel loaders and assembling the axles	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Thirteenth	4	Recognition Maintenance follow-up after (500) working hours - How to maintain the cooling system and address external and internal leaks	Maintenance follow-up after working (500) hours - How to maintain the cooling system and address external and internal leaks	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Fourteenth	4	Recognition Maintenance after one year of actual operation - its importance - conducting practical applications for this	Maintenance after one year of actual operation - its importance - conducting practical applications for this	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Fifteenth	4	Recognition How to maintain the performance of transmission devices - steps to store the tow correctly	How to maintain the performance of transmission devices - steps to store the tow correctly	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation

### 179. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

### 180. Learning and Teaching Resources

Required textbooks (curricular books, if any)	General principles for maintaining agricultural tractors
Main references (sources)	General principles for maintaining agricultural tractors
Recommended books and references (scientific journals, reports...)	A collection of books in the field of maintenance agricultural tractors and their types
Electronic References, Websites	Check out websites in this field



## Course Description Form

181. Course Name: Transmission

182. Course Code: First academic year / Autumn semester

183. Semester / Year: Second academic year / Autumn semester

184. Description Preparation Date: 2024/2/14

185. Available Attendance Forms: Attend a lecture

186. Number of Credit Hours (Total) / Number of Units (Total): 5 hours / 5 units

187. Course administrator's name (mention all, if more than one name):

Name: Dr. Shakir M. Mousa

Email: [inmshr@atu.edu.iq](mailto:inmshr@atu.edu.iq)

188. Course Objectives

Course Objectives

- **Introducing the student to transmission belts and training him to use them correctly, maintain them, and maintain them**

189. Teaching and Learning Strategies

Strategy

- 1- The student will be able to know the transmission devices in terms types and components And knock .Use and maintenance
- 2- Be able to use means of transferring power and estimate it according .to the type of work
- 3- Be able to know the parts of the clutch, gearbox, and transmission group in a scientific and practical manner
- 4- The student will be able to disassemble and install parts of .transportation devices

190. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
The First	5	linear motion Identify speed - acceleration - - represent speed and acceleration and explain the importance of each	Linear motion - speed - acceleration - representing speed and acceleration and explaining the importance of each	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Second	5	Rotational Recognition motion - representing speed - acceleration - the relationship between linear motion and rotational motion	Rotational motion - representing speed - acceleration - the relationship between linear motion and rotational motion	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Third	5	Recognition Torque and work - the importance of each and its relationship to transmission devices - .examples	Torque and work - the importance of each and its relationship to transmission devices - .examples	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Fourth	5	Recognition Energy - its types - units - power - forms of power - solution to .exercises	Energy - its types - units - power - forms of power - solution to .exercises	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Fifth	5	Recognition Direct transmission - flexible connections - the importance of each - definition of the flexible connection - its features - theory of .operation - uses	Direct transmission - flexible connections - the importance of each - definition of the flexible connection - its features - theory of operation - ...uses	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation

Sixth	5	Identifying the power take-off shaft - its sources of movement - its various designs - drawing different models - the drive pulley in agricultural machinery - cases of .its use	Power take-off shaft - sources of its movement - different designs - drawing of different models - drive pulley in agricultural machines - .cases of its use	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Seventh	5	Recognition Slides and belts - the importance of each of them - the effect of the sliding process on the belts - transmission of movement using the slide method - drawing different shapes of them - disadvantages of using them - types of belts - their advantages and .disadvantages	Slides and belts the - importance of each of them - the effect of the sliding process on the belts - transmission of movement using the slide method - drawing different shapes of them disadvantages - of using them - types of belts - their advantages and .disadvantages	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Eighth	5	Recognition Separator its definition - types - - drawing the separator and explaining its parts exercises on sliding - and friction	Separator - its definition - types - drawing the separator and explaining its parts - exercises on sliding and friction	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Ninth	5	Recognition Hydraulic separator and hydraulic torque converter - importance .components -	Hydraulic separator and hydraulic torque converter - importance - .components	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Tenth	5	Identifying gears - the importance of	Gears - the importance of	The workshop lecture	Written tests Quarterly exams

		transmitting movement with them - the metal and shape of gears - their advantages and disadvantages - their types - the forces acting and the causes .of reduction	transmitting movement through them - the metal and shape of the gears - their advantages and disadvantages - their types - the forces acting and the cause .of reduction	Laboratory summer training	final exams Daily evaluation
Eleventh	5	Recognition Differential gears and the differential device - the importance of - each of them - their working principle - designs of differential gears - the working principle of the differential device - its parts - examples	Differential gears and the differential device - the importance of each of them - their working principle - designs of differential gears - the working principle of the differential device - its parts - .examples	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Twelfth	5	Identify solar gears - final transmission device - automatic gear box - features - parts for all of the .above	Solar gears - final transmission device - automatic gear box - features - parts for all of .the above	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Thirteenth	5	Recognition Ordinary gear box - its parts - its advantages and disadvantages - its function - its purpose - its maintenance	Ordinary gear box - its parts - its advantages and disadvantages - its function - its purpose - its maintenance	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Fourteenth	5	Recognition Automatic gear box - advantages and disadvantages - function - purpose - .maintenance	Automatic gear box - advantages and disadvantages - function -	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation

			purpose - .maintenance		
Fifteenth	5	Recognition Walking devices, tires, wheels, types, and methods of .reducing slippage	Walking devices, tires, wheels, types, and methods of reducing .slippage	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation

### 191. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

### 192. Learning and Teaching Resources

Required textbooks (curricular books, if any)	General principles for transmission devices
Main references (sources)	General principles for transmission devices
Recommended books and references (scientific journals, reports...)	A collection of books in the field of transmission devices
Electronic References, Websites	Check out websites in this field

## Course Description Form

193. Course Name: Agric. Machine Electricity

194. Course Code: Second academic year / Autumn semester

195. Semester / Year: Second academic year / Autumn semester

196. Description Preparation Date: 2024/2/14

197. Available Attendance Forms: Attend a lecture

198. Number of Credit Hours (Total) / Number of Units (Total): 5 hours / 5 units

199. Course administrator's name (mention all, if more than one name):

Name: Dr. Intisar M. Hamad Khdair

Email: [Intisar.moh@gmail.com](mailto:Intisar.moh@gmail.com)

### 200. Course Objectives

Course Objectives

- **Introducing and training the student on electrical devices and components in agricultural machinery and how to use them**

### 201. Teaching and Learning Strategies

Strategy

- 1- The student will be able to use electrical inspection and test devices
- 2- The student is familiar with all parts of the electrical system and its maintenance and maintenance of it.

## 202. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
The First	5	electrical Recognizing terms and symbols - inspection and testing devices for the .electrical system	Electrical terms and symbols - inspection and testing devices for the electrical .system	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Second	5	Induction, Recognition self-induction, mutual induction, magnetism, magnetic field, conductors and insulators, electrical .circuits	Induction, self-induction, mutual induction, magnetism, magnetic field, conductors and insulators, electrical .circuits	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Third	5	Recognition The battery - its installation .how it works -	The battery - its installation - .how it works	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Fourth	5	Recognition Battery maintenance - electrolytic fluid - types of battery charging - battery inspection - battery .storage	Battery maintenance - electrolytic fluid - types of battery charging - battery inspection - .battery storage	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Fifth	5	Recognition Generator components, operation, maintenance and .repair	Generator components, operation, maintenance .and repair	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Sixth	5	Identify the charging circuit - how current is converted in the .circuit	Charging circuit - how current is converted in .the circuit	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Seventh	5	Recognition Current regulator - types - work - parts - inspection and .replacement	Current regulator - types - work - parts - inspection and .replacement	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation

Eighth	5	Recognition The operation of the primary engine (predecessor), parts, maintenance, and .repair	The operation of the primary engine (predecessor), parts, maintenance, .and repair	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Ninth	5	Recognition The starter circuit - the starter motor switch - the function of each part - how to connect and connect the starter .circuit	The starter circuit - the starter motor switch - the function of each part - how to connect and connect the .starter circuit	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Tenth	5	Identify the occupancy file - work - installation - condenser - .installation - job	Occupancy file work - - installation - condenser - installation - .job	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Eleventh	5	Recognition Spark distributor - parts - function - calibration - spark breaker - parts - .work - calibration	Spark distributor - parts - function calibration - - spark breaker - parts - work - .calibration	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Twelfth	5	Identifying the goblet candle - parts - function - types of .goblet candles	Goblet candle - parts - function types of - .goblet candles	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Thirteenth	5	Recognition Distributor work - comparing it with the electric distributor	Distributor work - comparison with the electric .distributor	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Fourteenth	5	Recognition Lighting in tows and vehicles, wiring distribution system, traffic lights, maintenance and .repair	Lighting in tows and vehicles, wiring distribution system, traffic lights, maintenance .and repair	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Fifteenth	5	Recognition Maintenance of the electrical system -	Maintenance of the electrical system -	The workshop lecture Laboratory	Written tests Quarterly exams final exams



		inspection and testing of the electrical system for agricultural machinery	inspection and testing of the electrical system for agricultural machinery	summer training	Daily evaluation
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### 203. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

### 204. Learning and Teaching Resources

Required textbooks (curricular books, if any)	General principles for electrical agricultural machinery
Main references (sources)	General principles for electrical agricultural machinery
Recommended books and references (scientific journals, reports...)	A collection of books in the field of agricultural machinery electricity
Electronic References, Websites	Check out websites in this field

## Course Description Form

205. Course Name: Irrigation Equipment

206. Course Code: Second academic year / Autumn semester

207. Semester / Year: Second academic year / Autumn semester

208. Description Preparation Date: 2024/2/14

209. Available Attendance Forms: Attend a lecture

210. Number of Credit Hours (Total) / Number of Units (Total): 4 hours / 4 units

211. Course administrator's name (mention all, if more than one name):

Name: Dr. muatafa H. Waryoosh

Email: [Wr.mustafa@atu.edu.iq](mailto:Wr.mustafa@atu.edu.iq)

212. Course Objectives

Course Objectives

- **Knowing the importance of water and sources of irrigation water in Iraq, and learning about irrigation methods and pumps**

213. Teaching and Learning Strategies

Strategy

- The student will be able to determine the relationship of soil to water, plants, type of irrigation, and water measurement

## 214. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
The First	4	Learn about the beginning of irrigation, irrigation sources in Iraq	the beginning of irrigation, irrigation sources in Iraq	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Second	4	Learn about Soil – Water – Plant relationship	Soil – Water – Plant relationship	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Third	4	Learn about Irrigation Requirement, Consumptive Use	Irrigation Requirement, Consumptive Use	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Fourth	4	Learn about Irrigation water Conveyance	Irrigation water Conveyance	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Fifth	4	Learn about Pumps, their importance and types	Pumps, their importance and types	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Sixth	4	Learn about Pumping principle and pump efficiency measurement	Pumping principle and pump efficiency measurement	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Seventh	4	Learn about Power Requirement and Pumping efficiency	Power Requirement and Pumping efficiency	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Eighth	4	Learn about Factors limit to select pump	Factors limit to select pump	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Ninth	4	Learn about Centerfugal Pumps	Centerfugal Pumps	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Tenth	4	Learn about Turbine Pumps	Turbine Pumps	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Eleventh	4	Learn about Mixed Flow Pumps	Mixed Flow Pumps	The workshop lecture Laboratory	Written tests Quarterly exams final exams

				summer training	Daily evaluation
Twelfth	4	Learn about Piston Pumps	Piston Pumps	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Thirteenth	4	Learn about Conditions of Pumps Setup	Conditions of Pumps Setup	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Fourteenth	4	Learn about Methods of surface irrigation, sub-surface irrigation	Methods of surface irrigation, sub-surface irrigation	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Fifteenth	4	Learn about Sprinkler and Drip irrigation methods	Sprinkler and Drip irrigation methods	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation

#### 215. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

#### 216. Learning and Teaching Resources

Required textbooks (curricular books, if any)	General principles for irrigation equipment
Main references (sources)	General principles for irrigation equipment
Recommended books and references (scientific journals, reports...)	A collection of books in the field of irrigation
Electronic References, Websites	Check out websites in this field

## Course Description Form

217. Course Name: Agric. Machine Hydraulic

218. Course Code: Second academic year / Autumn semester

219. Semester / Year: Second academic year / Autumn semester

220. Description Preparation Date: 2024/2/14

221. Available Attendance Forms: Attend a lecture

222. Number of Credit Hours (Total) / Number of Units (Total): 5 hours / 5 units

223. Course administrator's name (mention all, if more than one name):

Name: Dr. Intisar M. Hamad Khdaif

Email: [Intisar.moh@gmail.com](mailto:Intisar.moh@gmail.com)

224. Course Objectives

Course Objectives

- **Introducing the student to the concept of hydraulics - hydraulic measuring devices - hydraulic devices and systems and how to use them and perform maintenance on them.**

225. Teaching and Learning Strategies

Strategy

- 1- Introducing and training the student on hydraulic devices and systems in agricultural machinery.
- 2- Introducing and training the student on the types of open and closed systems.
- 3- Introducing the student to hydraulic uses in pullers, heavy machinery, and excavators.

	4- Introducing the student to the nature of hydraulic fluids - their features - their replacement - treatment of seepage.
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## 226. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
The First	5	an Identifying introduction to hydraulics - basic principles in hydraulics - symbols - .units used	Introduction to hydraulics - basic principles in hydraulics - symbols - units .used	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Second	5	The main Recognition parts of the hydraulic system - types of .hydraulic systems	The main parts of the hydraulic system - types of hydraulic .systems	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Third	5	Recognition Open hydraulic systems - types of connections .for this type of system	Open hydraulic systems - types of connections for this type of .system	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Fourth	5	Recognition Closed hydraulic systems - types of connections ..for this type of system	Closed hydraulic systems - types of connections for this type of .system	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Fifth	5	Recognition Comparison between types of open and .closed systems	Comparison between types of open and .closed systems	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Sixth	5	Learn about hydraulic applications in .agricultural machinery	Hydraulic applications in agricultural .machinery	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Seventh	5	Recognition Use of the hydraulic system in the hydraulic driving .device	Use of the hydraulic system in the hydraulic .driving device	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Eighth	5	Recognition Use of the hydraulic system in the	Use of the hydraulic system in the	The workshop lecture Laboratory	Written tests Quarterly exams final exams

		hydraulic position .device	hydraulic .position device	summer training	Daily evaluation
Ninth	5	Recognition Using the hydraulic system in the lifting and lowering device for hydraulic .equipment in tows	Using the hydraulic system in the lifting and lowering device for hydraulic equipment in .tows	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Tenth	5	Identify the uses of the hydraulic system in heavy machinery (excavators - cranes)	Uses of the hydraulic system in heavy machinery excavators, ) (.cranes	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Eleventh	5	Recognition Hydraulic pumps - pump definition - classification of pumps .types -	Hydraulic pumps - pump definition - classification of pumps - .types	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Twelfth	5	Identifying hydraulic valves - their types - the function of each type - the location of .the valve in the system	Hydraulic valves - their types - the function of each type - the location of the valve in the .system	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Thirteenth	5	Recognition Hydraulic tank - its components - conditions that must be met - oil cooler - .types	Hydraulic tank its - components - conditions that must be met - oil cooler - .types	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Fourteenth	5	Recognition Hydraulic fluids - conditions that must be met - types of .oil cooling	Hydraulic fluids - conditions that must be met - types of oil .cooling	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Fifteenth	5	Recognition Daily and periodic maintenance of the hydraulic system - how to perform it at the .specified times	Daily and periodic maintenance of the hydraulic system - how to perform it at	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation

			the specified .times		
<b>227. Course Evaluation</b>					
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc					
<b>228. Learning and Teaching Resources</b>					
Required textbooks (curricular books, if any)			General principles of agricultural machine hydraulics		
Main references (sources)			General principles of agricultural machine hydraulics		
Recommended books and references (scientific journals, reports...)			A collection of books in the field of agricultural machinery hydraulics		
Electronic References, Websites			Check out websites in this field		



## Course Description Form

229. Course Name: Agriculture Crop Service

230. Course Code: Second academic year / Autumn semester

231. Semester / Year: Second academic year / Autumn semester

232. Description Preparation Date: 2024/2/14

233. Available Attendance Forms: Attend a lecture

234. Number of Credit Hours (Total) / Number of Units (Total): 4 hours / 4 units

235. Course administrator's name (mention all, if more than one name):

Name: Mina Masaher Alwan

Email: [mena.alwan@atu.edu.iq](mailto:mena.alwan@atu.edu.iq)

236. Course Objectives

**Course Objectives**

- Helping the student to use agricultural, seed, control and fertilization equipment and comparing it to manual farming and the extent of its impact on increasing and quality of agricultural .production

237. Teaching and Learning Strategies

**Strategy**

- 1- Distinguish between mechanized agriculture and manual agriculture.
- 2- Use agricultural equipment and serve the crop in a scientific and practical manner.
- 3- Conducting the process of adjustment, networking, calibration, maintenance and maintenance operations.

## 238. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
The First	4	the Recognizing importance of mechanized agriculture - a comparison between mechanized and .manual agriculture	The importance of mechanized agriculture - a comparison between mechanized and manual .agriculture	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Second	4	Scattering Recognition machine - types - installation - operation .calibration - use -	Scattering machine - types installation - - operation - calibration - use	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Third	4	Recognition Seed equipment - installation - seed feeding mechanism - types - cups - work mechanism - effect of speed on the quantity .of seeds	Seed equipment - installation - seed feeding mechanism - types - containers - work mechanism - effect of speed on the amount of seeds	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Fourth	4	Identifying the attachment of seed to the puller - laboratory and field calibration - types of seeds in terms of the method of attachment - mathematical .examples	Attaching the seed to the puller - laboratory and field calibration - types of seeds in terms of the method of attachment - mathematical .examples	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Fifth	4	Recognition Planting equipment in lines - seed models and square planting - types of square planting (at the bottom of the stalk on flat ground - on -	Planting equipment in lines - seed and square planting models - types of square planting (at the	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation

		shoulders) - seed storage unit - feeding mechanism - seed tubes - organization and standardization - .mulching unit	bottom of the stalk - on flat ground - on shoulders) - seed storage unit - feeding mechanism - seed tubes - organization and standardization mulching unit -		
Sixth	4	Identifying the yellow corn planter - installation - .calibration - use	Yellow corn planter - installation - calibration - .use	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Seventh	4	Recognition Cotton planter - installation - .calibration - use	Cotton planter - installation - calibration - .use	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Eighth	4	Recognition Sugar beet cultivator - types - installation - .calibration - use	Sugar beet cultivator - types - installation - calibration - .use	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Ninth	4	Recognition A general idea about mechanical seedlings - rice planting - seedling preparation - seed selection - seed .treatment - weeding	A general idea about mechanical seedlings - rice planting - seedling preparation - seed selection - seed treatment - weeding -	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Tenth	4	Identify field preparation (plowing - leveling - flooding) - machine installation - seedling mechanism - .calibration - use	Field preparation plowing - ) leveling - flooding) - machine installation - seedling mechanism - calibration - .use	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Eleventh	4	Recognition A general idea about pest control operations and	A general idea about pest control	The workshop lecture Laboratory	Written tests Quarterly exams final exams

		sprinklers in general - their types - the pumps used - their types - .their installation	operations and sprinklers in general - their types - the pumps used - their types - their .installation	summer training	Daily evaluation
Twelfth	4	Identifying automatic motorized sprayers - the purpose for which they are used - operating regulations - regulating the dosage - calculating the amount of pesticide	Automatic motorized sprayers - the purpose for which they are used - operating regulations - regulating the dosage - calculating the amount of pesticide	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Thirteenth	4	Recognition Fogging machines - their types installation - use - - operation - advantages disadvantages - - calculations for regulating the amount	Fogging machines - their types - installation - use - operation advantages - - disadvantages - calculations for regulating the .agent	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Fourteenth	4	Recognition Fertilization machines organic fertilizer - machine - installation - .calibration - operation	Fertilization machines - organic fertilizer machine - installation - calibration - .operation	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Fifteenth	4	Recognition Flame throwers - installation operation - use -	Flame throwers installation - - .operation - use	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation

### 239. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

### 240. Learning and Teaching Resources

Required textbooks (curricular books, if any)	General principles for crop cultivation and service equipment
Main references (sources)	General principles for crop cultivation and service equipment
Recommended books and references (scientific journals, reports...)	A collection of books in the field of crop farming and service equipment
Electronic References, Websites	Check out websites in this field

## Course Description Form

241. Course Name: Project

242. Course Code: Second academic year / Autumn semester

243. Semester / Year: Second academic year / Autumn semester

244. Description Preparation Date: 2024/2/14

245. Available Attendance Forms: Attend a lecture

246. Number of Credit Hours (Total) / Number of Units (Total): 2 hours / 2 units

247. Course administrator's name (mention all, if more than one name):

Name: Dr. muatafa H. Waryoosh

Email: [Wr.mustafa@atu.edu.iq](mailto:Wr.mustafa@atu.edu.iq)

248. Course Objectives

**Course Objectives**

- The student will be able to implement and manage agricultural projects

249. Teaching and Learning Strategies

**Strategy**

- 1- The student will be able to determine the cost of the project and determine its requirements
- 2- The student will be able to use machines and machinery, calibrate and adjust them during the period of their use to manage the project.
- 3- Be able to carry out maintenance, maintenance and storage of the equipment and machines used in the project

4- Be able to calculate the project's profits and confront and overcome obstacles.

## 250. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	how to use the library and find and .select sources	How to use the library and find and select .sources	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
2	2	How to Recognition use the Internet to collect information .about each experiment	How to use the Internet to collect information for .each experiment	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
3	2	Recognition Learn how to design and plan agricultural experiments	Learn how to design and plan agricultural experiments	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
4	2	Identify the project configuration , determine the allocated space, and prepare the machines required to prepare the .seedbed	Preparing the project, determining the allocated space, and preparing the machines required to prepare the .seedbed	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
5	2	Recognition Start the plowing process and follow the appropriate .method	Start the plowing process and follow the appropriate .method	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
6	2	Learn about the leveling process using a leveling machine and determining highs and lows	Conducting the leveling process using a leveling machine and determining highs and lows	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
7	2	Recognition Preparing the agricultural machine in brief with .laboratory calibration	Preparing the agricultural machine in brief with laboratory .calibration	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
10-8	2	Recognition Discussing seminars prepared by each	Discussing seminars prepared by each	The workshop lecture Laboratory	Written tests Quarterly exams final exams

		student under the supervision of .teaching staff	student under the supervision .of teaching staff	summer training	Daily evaluation
11	2	Recognition Collect data for each experiment from the library and the Internet	Collect data for each experiment from the library and the Internet	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
12	2	Learn about the steps of preparing and writing research	Learn about the steps for preparing and writing research	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
13	2	Recognition Planting the crop, making rakes, opening the tillers, and determining the amount of seeds per dunum and fertilizer as well	Planting the crop, making rakes, opening the tillers, and determining the amount of seeds per dunam and .fertilizer as well	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
14	2	Learn about watering the crop that has been planted, operating and maintaining pumps, following up on the crop in terms of maturity, and preparing harvesting .equipment	Watering the crop that has been planted, operating and maintaining pumps, monitoring the crop in terms of maturity, and preparing harvesting .equipment	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
15	2	Recognition Calculating the germination rate of the crop and studying the efficiency of the machine's cultivation .process	Calculating the germination rate of the crop and studying the efficiency of the machine's cultivation .process	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
16	2	Recognition Watering the crop and operating .baling machines	Watering the crop and operating baling .machines	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
17	2	Recognition Monitoring crop germination and determining the moisture content of the .crop's fruits	Monitoring crop germination and determining the moisture content of the crop's .fruits	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation



18	2	Recognition Use hoeing, weeding and pest control machines, specifying the quantity, type and method of mixing the pesticide - using the appropriate machine	Use hoeing, weeding and pest control machines, specifying the quantity, type and method of mixing the pesticide - using the appropriate machine	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
20-19	2	Recognition Follow the growth of the crop	Follow the growth of the crop	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
21	2	Recognition Carrying out the harvesting process	Carrying out the harvesting process	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
30-22	2	Recognition Collect the data obtained	Collect the data obtained	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation

### 251. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

### 252. Learning and Teaching Resources

Required textbooks (curricular books, if any)	General principles for a graduation research project
Main references (sources)	General principles for a graduation research project
Recommended books and references (scientific journals, reports...)	A collection of books in the field of graduation research project
Electronic References, Websites	Check out websites in this field

## Course Description Form

253. Course Name: Computer Application (2)

254. Course Code: Second academic year / Autumn semester

255. Semester / Year: Second academic year / Autumn semester

256. Description Preparation Date: 2024/2/14

257. Available Attendance Forms: Attend a lecture

258. Number of Credit Hours (Total) / Number of Units (Total): 3 hours / 3 units

259. Course administrator's name (mention all, if more than one name):

Name: MinaDalal Omran Hamza

Email: [Dala.hamza@atu.edu.iq](mailto:Dala.hamza@atu.edu.iq)

### 260. Course Objectives

#### Course Objectives

- Introducing the student to electronic computers, their importance, their working system and parts, preparing him to deal with the calculator, and training him to do or participate in applied programs in the field of specialization.

### 261. Teaching and Learning Strategies

#### Strategy

1- The student works on the calculator, enters data, and obtains the results

## 262. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
3-1	3	the Learn about concept of networks and their types, the Internet and how to operate it, the home screen, connecting to the World WideWeb , taking advantage of global search engines such asYahoo & Google ways to , .access information	The concept of networksand their types, the Internet and how to operate it, the home screen, connection to the World WideWeb , taking advantage of global search engines such as Yahoo & Google ways , to access .information	Calculator center	Written tests Quarterly exams final exams Daily evaluation
14-4	3	RecognitionExcel spreadsheet processor program , specifications, features, how to operate, the main screen and its components, drop-down lists, the cell and the types of data .entered	Excel spreadsheet processor program , specifications, features, how to operate, the main screen and its components, drop-down lists, the cell and the types .of data entered	Calculator center	Written tests Quarterly exams final exams Daily evaluation
	3	Learn how to save and retrievea worksheet , close the program, retrieve the file, enter data and perform simple calculations, and adjust and format .data within a cell	Saving and retrievingthe worksheet , closing the program, retrieving the file, entering data and performing simple calculations, adjusting and	Calculator center	Written tests Quarterly exams final exams Daily evaluation

			formatting data .within the cell		
	3	ways to Learn about collect and sort data, and use some mathematical functions such asMax, Min, Sum, Count, Sqrt.	Methods of collecting and sorting data, using some mathematical functions such asMax, Min, Sum, Count, Sqrt.	Calculator center	Written tests Quarterly exams final exams Daily evaluation
	3	Learn about performing redaction operations within cells, copying and moving data, copying calculations, the concept of relative cellsand absolute cells , using formatting tools to control cell operations, dealing withcharts , converting numerical and textual data into .charts	Performing revision operations within cells, copying and moving data, copying calculations, the concept of relative cells andabsolute cells using , formatting tools to control cell operations, dealing with charts , converting numerical and textual data .into charts	Calculator center	Written tests Quarterly exams final exams Daily evaluation
	3	Learn about adding and deleting rows and columns on a work page, printing digital .data and charts	Adding and deleting rows and columns on the work page, printing digital .data and charts	Calculator center	Written tests Quarterly exams final exams Daily evaluation
30-15	3	RecognitionSpss statistical program , operation, data analysis steps, main screen components, entering data, saving and retrieving it, sorting and altering data, defining the .statistical procedure	Spss statistical program , operation, data analysis steps, main screen components, entering data, saving and retrieving it, sorting and altering data, defining the	Calculator center	Written tests Quarterly exams final exams Daily evaluation

			statistical procedure		
	3	Learn about variable, inclusion case, analysis and descriptive statistics. data, reports for columns and rows	Inclusion of the variable, case analysis, and descriptive statistics. Statistical summary of data, reports for columns and rows	Calculator center	Written tests Quarterly exams final exams Daily evaluation
	3	Recognition Compare means comparison, between variables correlation, regression.	Compare means, comparison between variables correlation, regression.	Calculator center	Written tests Quarterly exams final exams Daily evaluation
	3	Getting to know Quality Control panel applications dealing with charts, and dealing with commands such as Summarize, Custom table, Anova models, and Non-parametric methods.	Quality Control panel applications, dealing with charts, dealing with commands such as Summarize, Custom table, Anova models, Non-parametric methods.	Calculator center	Written tests Quarterly exams final exams Daily evaluation

### 263. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

### 264. Learning and Teaching Resources

Required textbooks (curricular books, if any)	General principles of computer applications )2(
Main references (sources)	General principles of computer applications )2(
Recommended books and references (scientific journals, reports...)	Collection of books in the field of computer applications )2(
Electronic References, Websites	Check out websites in this field

## Course Description Form

265. Course Name: Tractors Repairing

266. Course Code: Second academic year / Second semester

267. Semester / Year: Second academic year / Second semester

268. Description Preparation Date: 2024/2/14

269. Available Attendance Forms: Attend a lecture

270. Number of Credit Hours (Total) / Number of Units (Total): 4 hours / 4 units

271. Course administrator's name (mention all, if more than one name):

Name: Abass F. Abd

Email: [Abbas.fadhil1983.ism@atu.edu.iq](mailto:Abbas.fadhil1983.ism@atu.edu.iq)

272. Course Objectives

**Course Objectives**

- Training on how to use tools and equipment for repair, and training the student on diagnosing faults and how to fix them.

273. Teaching and Learning Strategies

**Strategy**

- The student will be able to use repair tools and equipment.
- The student will be able to diagnose faults and how to fix them

274. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
The First	4	Know the definition of repair - the difference between repair and .maintenance	Definition of repair - the difference between repair .and maintenance	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation

The Second	4	Identifying the repair shop - types of repair shops - conditions that must be met in the repair shop - security and safety precautions .for the workshops	Repair workshop Types of repair - workshops - Conditions that must be met in the repair workshop - Security and safety precautions for .workshops	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Third	4	Engine faults - diagnosing them - learning how to detect them - the correct ways to use devices in the process of detecting .faults	Engine faults - their diagnosis - how to detect them - the correct ways to use devices in the process of .detecting faults	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Fourth	4	Knowing about opening the engine - Precautions that must be taken into account when opening the engine - Method of numbering for engine parts - Reasons for .numbering	Opening the engine - Precautions that must be taken into account when opening the engine - Method of numbering for engine parts - Reasons for .numbering	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Fifth	4	Identify valves, their rules, and the basics of .maintaining them	Valves, their rules, and the basics of .maintaining them	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Sixth	4	Learn about repairing valves and their accessories - valve guide - repairing the tactile shaft - adjusting valve clearance - checking and treating - the cylinder block Consumption detection valve clearance - .treatment	Repairing valves and their accessories - Valve guide - Repairing the tach shaft - Adjusting valve clearance - Inspecting and treating the - cylinder block Consumption detection - valve clearance .treatment	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation

Seventh	4	Learn about inspecting and repairing pistons with the required technical principles - shapes of pistons - method of limiting expansion - examining piston rings - how to .install them	Inspecting and repairing pistons according to the required technical principles - shapes of pistons method of - limiting expansion - examining piston rings - how to .install them	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Eighth	4	Identifying cylinder repair - cylinder shapes examining it - - cylinder turning - methods of smoothing it - replacing the cylinder and connecting rods - detecting bending and .torsion	Cylinder repair - cylinder shapes - inspection - cylinder turning - methods of smoothing it - replacing the cylinder and connecting rods - detecting .bending - torsion	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Ninth	4	Identifying the crankshaft, repairing it, and methods of inspecting its parts - detecting static balance examining the - crankshaft - turning it - checking the accuracy .of the turning	The crankshaft, its repair and methods for inspecting its parts - detecting static balance - examining the crankshaft - turning it - checking the accuracy of the .turning	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Tenth	4	Learn about camshaft repair, emphasizing the importance of its connection to the crankshaft and .connecting rod	Repairing the camshaft, emphasizing the importance of its connection to the crankshaft and .connecting rod	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Eleventh	4	Learn about a scientific visit to learn about the actual work of the basics of repair of .engine parts	A scientific visit to learn about the actual work of the basics of repair of engine .parts	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Twelfth	4	Learn about repairing the diesel fuel system,	Repairing the diesel fuel	The workshop lecture	Written tests Quarterly exams



		diagnosing faults, and .performing repairs	system - diagnosing faults performing - .repairs	Laboratory summer training	final exams Daily evaluation
Thirteenth	4	Learn about repairing the gasoline fuel system - diagnosing faults - steps for repair and calibration of the .carburetor	Repairing the gasoline fuel system - diagnosing faults steps for repair - and calibration .of the carburetor	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Fourteenth	4	Learn about repairing the cooling and .lubrication system	Repairing the cooling and lubrication .system	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Fifteenth	4	Identifying the repair of mechanical and hydraulic brakes - the mechanics of two types of brake operation - diagnosing faults for .each - repair steps	Repairing mechanical and hydraulic brakes Mechanical - operation of two types of brakes - Diagnosing faults for each - .Repair steps	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation

### 275. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

### 276. Learning and Teaching Resources

Required textbooks (curricular books, if any)	General principles for repairing agricultural tractors
Main references (sources)	General principles for repairing agricultural tractors
Recommended books and references (scientific journals, reports...)	A collection of books in the field of agricultural tractor repair
Electronic References, Websites	Check out websites in this field

## Course Description Form

1. Course Name: Harvesting Machine

2. Course Code: Second academic year / Second semester

3. Semester / Year: Second academic year / Second semester

4. Description Preparation Date: 2024/2/14

5. Available Attendance Forms: Attend a lecture

6. Number of Credit Hours (Total) / Number of Units (Total): 5 hours / 5 units

7. Course administrator's name (mention all, if more than one name):

Name: Dr. Mustafa H. Waryoosh

Email: [Wr.mustafa@atu.edu.iq](mailto:Wr.mustafa@atu.edu.iq)

8. Course Objectives

**Course Objectives**

- Familiarization and training with wheat and barley harvesters, sugar beet harvesters, tuber crop harvesters, green fodder threshing machines, cotton harvesters, bale balers, and other harvesters, knowing their parts and operating system and how to operate and maintain them.

9. Teaching and Learning Strategies

**Strategy**

- Introducing the student to how to operate and operate harvesting, and harvesting equipment

## 10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
The First	5	Getting to know mechanized harvesting and its benefits - comparison between mechanized and manual harvesting - dividing harvesting and .harvesting equipment	Automatic harvesting and its benefits - comparison between automatic and manual harvesting - division of harvesting and harvesting equipment	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Second	5	Harvester units and assemblies - their operation, operation, maintenance, and how to .transfer the movement	Harvester units and assemblies - their operation, operation, maintenance, and how to transfer the .movement	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Third	5	the set of Identifying parts, its parts, installation, calibration, grain losses, and .maintenance	A group of parts - their parts - their installation - their calibration - grain losses - their .maintenance	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Fourth	5	the Identifying transmission group - its parts - how it works - calibrating and .maintaining it	The transportation group - its parts - how it works - its calibration and .maintenance	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Fifth	5	the standard Identifying group, calibrating parts, studying losses, treating them, and how they .work	A group of machines calibrated parts - - studying losses - treating them - how .they work	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Sixth	5	the Getting to know separation and cleaning group - the parts - the crop route - how to calibrate and reduce .losses	Separation and cleaning group - parts - crop route - how to calibrate and .reduce losses	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Seventh	5	how to transfer Learn movement from the engine to the harvester's	How to transfer movement from the engine to the	The workshop lecture	Written tests Quarterly exams

		assemblies and parts - the theory of the work .of belts, belts and gears	assemblies and parts of the harvester - the theory of the operation of the .belts - belts - gears	Laboratory summer training	final exams Daily evaluation
Eighth	5	seasonal Learn about maintenance of wheat and barley harvesters - modifying the harvester .to harvest other crops	Seasonal maintenance of the wheat and barley harvester - modifying the harvester to harvest .other crops	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Ninth	5	the sugar Identifying beet harvesting machine types of cuttings - its - operation - its parts - adjusting and calibrating .the machine	Sugar beet harvesting machine - types of cuttings - its operation - its parts - adjusting and calibrating the .machine	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Tenth	5	the roots of Identifying tuber crops - the roots of potatoes - their types - the theory of their operation - their .evaluation	Rooting crops of tuber crops - cuttings of potatoes - their types - theory of operation of each .their measurement -	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Eleventh	5	feed cutting Identifying machines, their installation, working theory, types, .maintenance and storage	Feed cutting machines - their installation - working theory - types - maintenance .and storage	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Twelfth	5	feed Identifying pressing and transporting machines - their types - theory of .operation - maintenance	Feed pressing and transporting machines - their types - theory of operation - .maintenance	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Thirteenth	5	the feed Identifying pressing machine - the baler - how it works - .calibrating it - storing it	The feed pressing machine - the baler - how it works - calibrating it - .storing it	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Fourteenth	5	the cotton Identifying collecting machine - its working system - its .types - its installation	Cotton collecting machine - its working system - its types - its .installation	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation

Fifteenth	5	How the cotton windmill works with its systems - its .maintenance	How the cotton windmill works with its systems - its .maintenance	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
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### 11. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

### 12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	General principles Reaping and harvesting machines
Main references (sources)	General principles for reaping and harvesting machines
Recommended books and references (scientific journals, reports...)	A collection of books in the field of reaping and harvesting machines
Electronic References, Websites	Check out websites in this field

## Course Description Form

277. Course Name: Animal Production Machine

278. Course Code: Second academic year / Second semester

279. Semester / Year: Second academic year / Second semester

280. Description Preparation Date: 2024/2/14

281. Available Attendance Forms: Attend a lecture

282. Number of Credit Hours (Total) / Number of Units (Total): 4 hours / 4 units

283. Course administrator's name (mention all, if more than one name):

Name: Marwa K. Abd

Email: [Marwa.khalid@atu.edu.iq](mailto:Marwa.khalid@atu.edu.iq)

284. Course Objectives

**Course Objectives**

- Training and knowledge of the student about the mechanization .of animal production and how to operate, sustain and maintain it

285. Teaching and Learning Strategies

**Strategy**

- The student will be able to operate devices and equipment in poultry, cattle and sheep fields, feed mills, slaughterhouses, electric generators and water pumps, and perform maintenance . .and repair

## 286. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
The First	4	Get a general idea about the mechanization of animal production fields - hatcheries - slaughterhouses - fodder factories - fields for cows, sheep, and poultry, water refineries, and .electrical generators	A general idea about the mechanization of animal production fields - hatcheries, slaughterhouses, feed factories, cattle, sheep and poultry fields, water refineries and electrical .generators	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Second	4	Identifying the use of the blacksmithing and gas welding workshop - the tools, tools and devices present in it	Use of the blacksmithing and gas welding workshop - the tools, tools and .devices in it	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Third	4	Learn about the use of electric arc welding - the importance of electric welding and its .uses	The use of electric arc welding - the importance of electric welding .and its uses	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Fourth	4	Identifying electricity in animal production fields - single-phase and three-phase electricity - the electrical cycle - electrical terms and .symbols	Electricity in animal production fields - single-phase and three-phase electricity - the electrical cycle electrical terms - .and symbols	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Fifth	4	Learn about the mechanization of poultry hatcheries - the importance of hatcheries - the devices in them - egg incubation devices - egg preservation and inspection devices - .incubators	Mechanization of poultry hatcheries - the importance of hatcheries - devices in them - egg grading devices - devices for preserving and examining eggs - .incubators	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Sixth	4	Learn about the mechanization of broiler farms, electric	Mechanization of broiler fields, electric and gas	The workshop lecture	Written tests Quarterly exams final exams

		and gas incubators, air conditioning devices, feeders, manholes, laying hen cages, and .types of cages	incubators, air conditioning devices, feeders, manholes, laying hen cages, and .types of cages	Laboratory summer training	Daily evaluation
Seventh	4	Learn about the mechanization of concentrated feed processing - types of feed factories - parts of the feed factory - types of grinders and mixers maintenance and - .repair	Mechanization of concentrated feed processing - types of feed factories - parts of the feed factory - types of grinders and mixers - maintenance and .repair	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Eighth	4	Learn about the mechanization of cattle and sheep fields, tools and devices, feed cleaning devices, drinking water troughs, cooling and spraying devices, wool shearing .and dipping devices	Mechanization of cattle and sheep fields - tools and devices - feed cleaning devices, drinking water troughs - cooling and spraying devices - wool shearing and .dipping devices	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Ninth	4	Identifying the automatic milking machine's parts, the function of each part, types of milking machines, and milk .preservation devices	Automatic parlor parts - the function of each part - types of parlors - milk preservation .devices	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Tenth	4	Learn about the mechanization of green fodder processing - green fodder harvesters hay baling machines - - types, maintenance, .and repair	Mechanization of green fodder processing - green fodder harvesters - hay baling machine - types, maintenance, .repair	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Eleventh	4	Learn about the mechanization of poultry slaughterhouses - livestock slaughterhouses - slaughter methods -	Mechanization of poultry slaughterhouses - livestock slaughterhouses - slaughtering methods - devices	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation



		devices for cutting and .preserving meat	for cutting and .preserving meat		
Twelfth	4	Identify water pumps - their types - operation, maintenance, and .repair	Water pumps - types - operation, maintenance, and .repair	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Thirteenth	4	Identifying generators their types - parts - - operation - .maintenance	Generators - their types - parts - operation - .maintenance	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Fourteenth	4	Learn about calculating the project's need for generators - calculating the energy needed to operate the project - lighting - electrical .appliances	Calculating the project's need for generators - calculating the energy needed to operate the project lighting - - electrical .appliances	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Fifteenth	4	Learn about the mechanization of animal protein manufacturing from slaughterhouse waste feathers, blood, ) (internal organs	Mechanization of animal protein manufacturing from slaughterhouse waste (feathers, blood, internal organs	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation

### 287. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

### 288. Learning and Teaching Resources

Required textbooks (curricular books, if any)	General principles for mechanization of animal production
Main references (sources)	General principles for mechanization of animal production
Recommended books and references (scientific journals, reports...)	A collection of books in the field of mechanization of animal production
Electronic References, Websites	Check out websites in this field

## Course Description Form

13. Course Name: Agriculture Machine Economic

14. Course Code: Second academic year / Second semester

15. Semester / Year: Second academic year / Second semester

16. Description Preparation Date: 2024/2/14

17. Available Attendance Forms: Attend a lecture

18. Number of Credit Hours (Total) / Number of Units (Total): 3 hours / 3 units

19. Course administrator's name (mention all, if more than one name):

Name: Dr. Mustafa H. Waryoosh

Email: [Wr.mustafa@atu.edu.iq](mailto:Wr.mustafa@atu.edu.iq)

20. Course Objectives

**Course Objectives**

- Introducing the student to the concept of production and optimal use of agricultural mechanization and applying .economic evaluation criteria to it

21. Teaching and Learning Strategies

**Strategy**

- The student must be able to:
  - 1- Determine the costs of agricultural production in terms of knowing the elasticity curves of demand and supply for agricultural products.
  - 2- Determine the optimal use of machines and the level of cost adequacy.
  - 3- Selecting the appropriate agricultural machinery and determining its .number

#### 4- Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
The First	3	Learn about the introduction to production economics the concept of - economics - agricultural economics - departments and branches of agricultural .economics	Introduction to production economics - the concept of economics - agricultural economics - departments and branches of .agricultural economics	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Second	3	Identifying the concept of production types of production - factors - forms of agricultural production functions - stages of .production	The concept of production types of production - factors - forms of agricultural production functions - stages of .production	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Third	3	Identify the demand for agricultural products - the demand curve - the elasticity of demand, the supply the supply curve - - the elasticity of supply .the equilibrium price -	Demand for agricultural products - demand curve - elasticity of demand, supply - supply curve - elasticity of supply - .equilibrium price	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Fourth	3	Identifying the types of production costs - cost functions in the short and long terms - .ways to reduce costs	Types of production costs cost functions in the - short and long terms - .methods of reducing costs	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Fifth	3	Identifying agricultural labor productivity - methods for measuring labor productivity - factors .affecting it	Agricultural labor productivity - methods for measuring labor productivity - factors .affecting it	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Sixth	3	Learn about the main .economic principles	.Main economic principles	The workshop lecture Laboratory	Written tests Quarterly exams final exams

				summer training	Daily evaluation
Seventh	3	Learn about capacity economics for machines and calculate theoretical and real field capacity .and field efficiency	Capacity economics for machines, calculating theoretical and real field capacity, and field .efficiency	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Eighth	3	Learn about calculating agricultural work costs - their types - extinction, its causes, and methods of .calculating it	Calculating the costs of agricultural work - their types - extinction, its causes, and methods of .calculating it	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Ninth	3	Identifying the optimal use of machines - intensive horizontal use of machines - indicators of the level of adequacy of .densification	Optimal use of machines - intensive horizontal use of machines - indicators of the level of adequacy of .densification	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Tenth	3	Identifying agricultural marketing its importance - - basic marketing .functions in Iraq	Agricultural marketing - its importance - basic marketing functions in .Iraq	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Eleventh	3	Identifying the selection of agricultural machinery time analysis - - balancing the size of the machine and the .available time	Selection of agricultural machinery - time analysis - balancing the size of the machine and the available .time	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Twelfth	3	Identifying the power needs of agricultural machinery - forms of .power - power needs	Agricultural machine power needs - power .forms - power needs	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Thirteenth	3	Learn about linear programming - areas of its use - methods for solving linear programming .problems	Linear programming - areas of use - methods for solving linear .programming problems	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation

Fourteenth	3	Identifying the technological map to determine the number of machines - organizing the .technological map	Technological map to determine the number of machines - organizing the .technological map	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Fifteenth	3	Learn about the application of economic evaluation criteria in agricultural .mechanization	Applying economic evaluation criteria in .agricultural mechanization	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation

### 5- Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

### 6- Learning and Teaching Resources

Required textbooks (curricular books, if any)	General principles of the economics of agricultural mechanization
Main references (sources)	A collection of books in the field of agricultural mechanization economics
Recommended books and references (scientific journals, reports...)	Check out websites in this field
Electronic References, Websites	General principles of the economics of agricultural mechanization

## Course Description Form

22. Course Name: Reclamation Machine & Equipment

23. Course Code: Second academic year / Second semester

24. Semester / Year: Second academic year / Second semester

25. Description Preparation Date: 2024/2/14

26. Available Attendance Forms: Attend a lecture

27. Number of Credit Hours (Total) / Number of Units (Total): 5 hours / 5 units

28. Course administrator's name (mention all, if more than one name):

Name: Mina M. Alwan

Email: [mena.alwan@atu.edu.iq](mailto:mena.alwan@atu.edu.iq)

29. Course Objectives

**Course Objectives**

- Enable the student to use reclamation land equipment and its maintenance.

30. Teaching and Learning Strategies

**Strategy**

- Enable the student to use the machine with correct methods and How to repair it .

31. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
The First	5	Learn about Tractors – tractor uses – types of tractors – Gradability.	Tractors – tractor uses – types of tractors – Gradability.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation

The Second	5	Learn about Bull Dozers – uses – the difference between crawler and wheel Mounted bull dozers.	Bull Dozers – uses – the difference between crawler and wheel Mounted bull dozers.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Third	5	Types of equipment used – hydraulic system.	Types of equipment used – hydraulic system.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Fourth	5	Learn about the out put of bull dozer – repairs and maintenance.	The out put of bull dozer – repairs and maintenance.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Fifth	5	Learn about Front – end – loaders – uses – types and sizes – types of equipment.	Front – end – loaders – uses – types and sizes – types of equipment.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Sixth	5	Learn about The out put of front – end – loaders – problems – maintenance.	The out put of front – end – loaders – problems – maintenance.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Seventh	5	Learn about Scrapers – types and sizes – operating Scraper- cycle time for Scraper.	Scrapers – types and sizes – operating Scraper- cycle time for Scraper.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Eighth	5	Learn about Types of equipment – hydraulic system – maintenance – problems.	Types of equipment – hydraulic system – maintenance – problems.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Ninth	5	Learn about Grader – types of grader – types of equipments – uses.	Grader – types of grader – types of equipments – uses.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Tenth	5	Learn about The out put of grader – hydraulic system – maintenance.	The out put of grader – hydraulic system – maintenance.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Eleventh	5	Learn about Excavating equipment – types of	Excavating equipment – types	The workshop lecture	Written tests

		equipment – drag lines – the Output.	of equipment – drag lines – the Output.	Laboratory summer training	Quarterly exams final exams Daily evaluation
Twelfth	5	Learn about Hydraulic drag lines – the basic parts – hydraulic system – Maintenance.	Hydraulic drag lines – the basic parts – hydraulic system – Maintenance.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Thirteenth	5	Learn about A cable – controlled drag line – the basic parts – depth of cut – Maintenance.	A cable – controlled drag line – the basic parts – depth of cut – Maintenance.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Fourteenth	5	Learn about Trenching machines – the basic parts – types of trenching machines.	Trenching machines – the basic parts – types of trenching machines.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Fifteenth	5	Learn about Hydraulic system of trenching machines – the out put – maintenance.	Hydraulic system of trenching machines – the out put – maintenance.	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation

### 32. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

### 33. Learning and Teaching Resources

Required textbooks (curricular books, if any)	General principles for reclamation machines and equipment
Main references (sources)	General principles for reclamation machines and equipment
Recommended books and references (scientific journals, reports...)	A collection of books in the field of reclamation machines and equipment
Electronic References, Websites	Check out websites in this field



## Course Description Form

34. Course Name: Principle Machine Use

35. Course Code: Second academic year / Second semester

36. Semester / Year: Second academic year / Second semester

37. Description Preparation Date: 2024/2/14

38. Available Attendance Forms: Attend a lecture

39. Number of Credit Hours (Total) / Number of Units (Total): 5 hours / 5 units

40. Course administrator's name (mention all, if more than one name):

Name: Dr. Intisar M Khudair

Email: v [Intisar.mohammed@atu.edu.iq](mailto:Intisar.mohammed@atu.edu.iq)

### 41. Course Objectives

#### Course Objectives

- The student recognizes and learns the scientific and practical foundations on the basis of which machines are used in work fields and determines their numbers, sizes, capabilities, and the period required to complete the tasks he is assigned to perform .and operate

### 42. Teaching and Learning Strategies

#### Strategy

- 1- Understands all forms of power and the units used in them, - and how power is formed in the machine.
- 2- Understands the forms of exploiting power, knows the - external forces affecting the tug, and knows the situations In which the coup occurs.
- 3- Learn and understand how to calculate fuel and oil - consumption when operating and how to conduct an inspection On the tug.

### 43. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
The First	5	Identify the units of measurement for length, area, weight, and volume in the French and English systems	Units of measurement for length, area, weight and volume in the French and English systems	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Second	5	Knowing the definition of power - the law that governs power - how to calculate each form of it calculating the power - consisting of the movement of a specific body	The definition of power - the law that governs power how to calculate - each form of it - it calculates the power consisting of the movement of a specific body	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Third	5	Identify the definition of each form of ability - distinguish between the forms of ability - and the units used in them in both the French and English systems	Definition of each form of ability - distinguishing between the forms of ability - units used in them in both the French and English systems	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Fourth	5	Identifying the work done in the engine - the engine's power - using the graphic power - using the braking power	Work done in the engine - engine power - use of graphic power - use of braking power	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Fifth	5	Learn how to invest the engine's power on the tow shaft and on the rear drive shaft of the tow	How to invest the engine's power on the tow shaft and on the rear drive shaft of the tow	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Sixth	5	Identifying the tug as a simple lever - External forces affecting the tug - Identifying the forces and reactions	The tug is like a simple lever - the external forces affecting the tug - determining the forces and reactions	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation

Seventh	5	Identify the neutrality of the vertical forces acting on the tug and the reaction to each force - showing the algebraic sum of the moments in each axis of the tug	Determine the vertical forces acting on the tug and the reaction to each force. State the algebraic sum of the moments in each axis of the tug	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Eighth	5	Identifying methods for determining the center of gravity - by weight - by suspension - finding the distance of the center of gravity from the rear axle and from the middle of the tow - longitudinal and lateral balance - slippage and factors affecting towing efficiency	Methods of determining the center of gravity - by weight - by suspension - finding the distance of the center of gravity from the rear axle and from the middle of the tow - longitudinal and lateral balance - slippage and factors affecting towing efficiency	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Ninth	5	Identifying the relationship of the center of gravity to overturning in terms of its height - the relationship of the effective tug width to overturning	The relationship of the center of gravity to overturning in terms of its height the relationship - of the effective tug width to overturning	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
The Tenth	5	Identify the types of friction, normal pressure, coefficient of friction, determine the factors affecting friction, calculate the coefficient of friction	Types of friction - normal pressure - coefficient of friction - determining the factors affecting friction - calculating the coefficient of friction	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Eleventh	5	Identify the definition of distance, time, speed, acceleration and the relationship between them	Definition of distance, time, speed, acceleration and the relationship between them	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation

Twelfth	5	Identifying the applications of the tug - determining the distance and time of its parking starting from the moment the parking is .used	Applications related to the tug - determining the distance and time of its parking starting from the moment the .parking is used	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Thirteenth	5	Identify the definition of ground acceleration for freely falling objects - acceleration of deceleration - the relationship of acceleration to mass - acceleration of .acceleration	Definition of ground acceleration for freely falling objects - acceleration of deceleration - relationship of acceleration to mass - acceleration .of acceleration	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Fourteenth	5	Identify the use of fuel to produce power - fuel consumption - oil consumption in the .engine	Use of fuel to produce power - fuel consumption - oil consumption in .the engine	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation
Fifteenth	5	Identifying the most important international inspection centers - procedures and inspections on tug - writing inspection .reports	The most important international inspection centers procedures and - inspections on the tug - writing .inspection reports	The workshop lecture Laboratory summer training	Written tests Quarterly exams final exams Daily evaluation

#### 44. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

#### 45. Learning and Teaching Resources

Required textbooks (curricular books, if any)	General principles for using machines
Main references (sources)	General principles for using machines
Recommended books and references (scientific journals, reports...)	A collection of books in the field of basics of using machines
Electronic References, Websites	Check out websites in this field