

**Ministry of Higher Education and Scientific Research
Scientific Supervision and Scientific Evaluation Apparatus
Directorate of Quality Assurance and Academic Accreditation
Accreditation Department**



Academic Program and Course Description Guide

2025

Academic Program Description Form

University Name: Tikrit University

Faculty/Institute: Faculty of Agriculture

Scientific Department: Agricultural Machinery and Equipment Department

Academic or Professional Program Name: Science of Agricultural Machinery and Equipment

Final Certificate Name: Bachelor's of Agricultural Machinery and Equipment

Academic System: Courses

Description Preparation Date:

File Completion Date:

Signature:

Head of Department Name: Montaz Isaak

Signature:

Scientific Associate Name:

Date: 16/01/2025



Date: 21-1-2025

The file is checked by: Dr. Aslam Saad Alwan

Department of Quality Assurance and University Performance

Director of the Quality Assurance and University Performance Department:

Date: 21/1/2025

Signature:



Approval of the Dean

Handwritten signature and stamp of the Dean

Teaching staff in the Department of Agricultural Machinery and Equipment

No	Names teaching staff	Academic title	Degree	General Specialization	Subspecialization	Email	Notes
1	Momtaz Isaak Hommood	Professor	PhD	Agricultural Mechanization	Agricultural Machinery and Equipment	momtaz.isaak@tu.edu.iq	Head of Department
2	Thaer Turki Abdul Karim	Assist. Professor	PhD	Agricultural Machinery and Equipment	Agricultural Machinery and Power	thaerturky@tu.edu.iq	Department Rapporteur
3	Ahmed Abdul Ali Abtan	Lecturer	PhD	Agricultural Mechanization	Agricultural Machinery and Equipment	ahmedabtan@tu.edu.iq	
4	Ahmed Imad Saleh	Lecturer	PhD	Food Science	Food Science	a.emad004@tu.edu.iq	
5	Ahmed Dawood Salman	Lecturer	PhD	Soil Science	Soil Physics	a.dawood006@tu.edu.iq	
6	Abdullah Azawi Issa	Lecturer	Master's	Agricultural Mechanization	Agricultural Machinery and Equipment	abdullah.azawi@tu.edu.iq	PhD Student, University of Baghdad
7	Abdul Qader Ghaleb Nasser	Lecturer	Master's	Agricultural Mechanization	Agricultural Machinery and Equipment	abdalkader.ghalib@tu.edu.iq	PhD Student, UPM, Malaysia
8	Sara Namas Ahmed	Assist. Lecturer	Master's	Soil Science	Soil Physics	sara.namis@tu.edu.iq	PhD Student, Tikrit University

<p>1. Program Vision</p>
<p>Advancing and excelling in agricultural engineering and biosystems engineering and their applications to prepare specialized and qualified personnel to meet the needs of the labor market, so that the department becomes a leader among agricultural college departments locally and regionally.</p>
<p>2. Program Mission</p>
<p>Preparing distinguished personnel capable of meeting labor market needs and conducting scientific research to keep pace with global developments, transferring knowledge, and localizing technology, with a focus on providing exceptional services for environmental development and community service. This includes the advancement of agricultural engineering, mechanized agriculture, and the use of agricultural machinery through graduates holding bachelor's, master's, and doctoral degrees.</p>
<p>3. Program Objectives</p>
<ol style="list-style-type: none"> 1. Preparing students both theoretically and practically through specialized curricula and courses. 2. The department awards a Bachelor of Science degree in Agricultural Sciences, specializing in Agricultural Machinery and Equipment, to supply the labor market with specialists in agricultural machinery engineering, agricultural power engineering, irrigation and drainage systems, water management, food processing engineering, agricultural structures, environmental control, and energy engineering. 3. The department aims to equip and train students theoretically and practically in the operation of agricultural machinery and equipment in both plant and animal production and food processing technologies, ensuring scientific and technical accuracy. This includes maintenance and repair of all agricultural machinery, optimal management and utilization of agricultural equipment, and training in service operations such as welding, grinding, and turning, while promoting respect for manual labor in the field, workshop, and laboratory. 4. Collaborating with other scientific departments in the college and university to prepare agricultural professionals, researchers, and planners across various fields and specialties by providing them with knowledge development related to agricultural engineering technology (agricultural machinery and equipment) relevant to their specialization. 5. Enhancing the curriculum of the Agricultural Machinery and Equipment department to align with modern advancements in the use of contemporary technologies and the application of quality standards and accreditation to improve students' performance in perception, learning, interaction, planning, and addressing development challenges in the community.

4. Program Accreditation
The department seeks program accreditation.
5. Other external influences
Ministry of Higher Education and Scientific Research – Republic of Iraq

6 Program Structure				
Program Structure	Number of Courses	Credit hours	Percentage	Reviews•
Institution Requirements	12	18	12.41 %	
College Requirements	18	49	33.79 %	
Department Requirements	30	78	53.79 %	
Summer Training				
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 Stage / First Semester	AGRFC01	Field crop production technology	2	3
	AGRSS01	Principles of Soil Science	2	3
	AGRAM04	General Physics	2	3
	MATH105	Mathematics 1	3	-
	AGRAM01	Engineering Drawing	-	3
	UOT004	Democracy and Human rights	2	-
	UOT002	English language /1	2	-
First Stage / Second Semester	AGRAM05	Surveying and Land leveling	2	3
	AGRAM03	Agricultural Tractors	2	3
	AGRHL01	Horticulture & Landscaping Engineering	2	3
	UOT003	Computer Applications 1	-	3
	AGREG01	Transfer of agricultural technologies	2	-
	AGRAM02	Workshop 1	-	3
	UOT001	Arabic Language 1	2	-

Second Stage / First Semester	Static Mechanics	2	3
	Mineralogy	2	3
	Principles of Plant Protection	2	3
	Agricultural Equipment and Machinery	2	3
	Principles of Agricultural Economics	2	3
	Land Leveling and Grading	2	3
	Industrial Drawing	-	3
	English Language 2	1	-
Second Stage / Second Semester	Workshop 2	-	3
	Dynamic Mechanics	2	3
	Soil Physics	2	3
	Pesticides	2	3
	Principles of Food Industries	2	3
	Principles of Animal Production	2	3
	Statistics	2	3
	Computer Applications 2	-	3
Third Stage / First Semester	Freedom and Democracy	1	-
	Thermodynamics	2	3
	Soil Preparation Equipment	2	3
	Mechanization of Animal Production	2	3
	Seeding and Fertilization Equipment	2	3
	Fluid Mechanics	2	3
	Irrigation and Drainage	2	3
Third Stage / Second Semester	Computer Applications 3	3	-
	Tractors Performance Mechanics	2	3
	Horticulture equipment and crop	2	3
	Irrigation and Drainage Equipment	2	3
	Design of Agricultural Equipment and Machinery	2	3
	Internal Combustion Engines	2	3
	Design and Analysis of Experiments	2	3
Fourth Stage / First Semester	English Language 3	1	-
	Maintenance and Repair of Agricultural Machinery and Equipment	2	3
	Heavy Machinery and Equipment	2	3
	Hydraulic Equipment and Systems	2	3
	Food Processing Equipment	1	3
	Electrical Systems of Agricultural Machinery	2	3
	Plant Protection Equipment	2	3
Fourth Stage / Second Semester	Graduation Project 1	1	2
	Harvesting and Threshing Equipment	2	3
	Post-Harvest Equipment	2	3
	Management and Economics of Agricultural Machinery	2	3
	Agricultural Buildings	2	3
Forages Equipment	1	3	

	Graduation Project 2	-	2
	English Language 4	1	-
	Seminars	1	-

8. Expected learning outcomes of the program

Knowledge

1. Clarifying the fundamentals and basic principles of engineering sciences and their applications in various agricultural fields.
2. Acquiring knowledge in maintenance, repair, and preservation of agricultural machinery and equipment.
3. Developing the ability to follow agricultural development and expansion plans, including land cultivation and the adoption of modern agricultural practices.
4. Gaining knowledge in optimizing resource use, such as water resources, and utilizing available supplies through advanced irrigation methods that have proven effective in practice.
5. Achieving knowledge in improving post-harvest processes and food production to reduce losses in the agricultural sector and opening markets for national agricultural products that meet global production and quality standards.

Skills

1. Acquiring the ability to maintain, repair, and preserve agricultural machinery and equipment.
2. Developing skills in land cultivation and the adoption of modern agricultural practices.
3. Enhancing skills in the use of advanced irrigation methods.
4. Developing the ability to improve post-harvest processes and food product manufacturing.
5. Enhancing skills in improving modern agricultural production systems in line with market trends and the requirements for qualified human resources to manage those systems.

Ethics

- Explanation and clarification through lectures.
- Presentation of scientific materials using projection devices: data show, smart boards.
- Self-directed learning through conducting mini-discussion sessions within lectures.
- Implementing some lessons in the workshop, which includes models of agricultural machinery and equipment.
- Conducting field visits to agricultural fields to observe the problems facing the agricultural sector.

9. Teaching and Learning Strategies

1. Interest and active participation in the study environment (classroom, laboratory, agricultural field) as a reflection of the student's commitment and sense of responsibility.
 2. Adherence to deadlines for submitting reports, assignments, and required research from the student.
 3. Midterm and final exams that reflect the student's interest in knowledge and skill acquisition.
 4. Seminars and mini-discussions and their role in solidifying scientific knowledge for the student on the subject matter.
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10. Evaluation methods

- Homework assignments.
- Assigning grades based on participation and interaction during lectures.
- Writing reports after the practical application period to assess students' ability to diagnose problems and find solutions.
- Seminars and reports presented and discussed by students.
- Adhering to deadlines for submitting assignments and required research.
- Daily, midterm, and final exams that reflect the student's interest in knowledge and skill acquisition.
- Extracurricular activities (creativity, skills in the field of specialization).

11. Faculty						
Faculty Members						
Academic Rank	Specialization		Special Requirements/Skills (if applicable)		Number of the teaching staff	
	General	Special			Staff	Lecturer
Professor	Agricultural Mechanization	Agricultural Machinery and Equipment	PhD		√	
Assistant Professor	Agricultural Machinery and Equipment	Agricultural Machinery and Power	PhD		√	
Lecturer	Soil Science	Soil Physics	PhD		√	
Lecturer	Food Science	Food Science	PhD		√	
Lecturer	Food Science	Food Science	PhD		√	
Lecturer	Agricultural Mechanization	Agricultural Machinery and Equipment	PhD		√	
Lecturer	Agricultural Mechanization	Agricultural Machinery and Equipment	Master's		√	
Lecturer	Agricultural Mechanization	Agricultural Machinery and Equipment	Master's		√	
Assist. Lecturer	Soil Science	Soil Physics	Master's		√	

Professional Development
Mentoring new faculty members
<ol style="list-style-type: none"> 1. Identifying University and Department Needs: The needs of the university and department are identified in terms of required teaching staff and preferred specialties. 2. Developing Orientation Programs: Customized orientation programs are designed for new members, visitors, and full-time and part-time faculty based on their needs and specialties. 3. Introducing the University Environment: A comprehensive introduction to the university and the mathematics department is provided, including its history, vision, goals, and available services. 4. Providing Support Resources: Necessary resources and support are provided to new members, including training courses, practical workshops, and technical assistance. 5. Academic Guidance: New members are guided regarding the curricula, research areas, and teaching methods used in the department. 6. Administrative Guidance: New members are directed on administrative procedures, responsibilities, university policies, and codes of conduct. 7. Ongoing Support: Continuous support is provided for new faculty members, visitors, and both full-time and part-time staff through consultation sessions, workshops, and regular evaluations.

Professional development of faculty members

1. Identifying Needs and Setting Goals: The needs of faculty members are identified through surveys and performance evaluations, followed by the establishment of specific goals to be achieved within the framework of the program.
2. Designing the Development Program: Based on the identified needs and goals, a comprehensive development program is designed, including a range of activities, training courses, workshops, and educational resources.
3. Implementing the Program: The development program is implemented regularly and systematically, which includes organizing workshops, conducting training sessions, and providing appropriate educational resources.
4. Using Effective Teaching Strategies: Faculty members learn to utilize and apply modern and effective teaching strategies, such as cooperative learning, active learning, and educational technology.
5. Evaluating Learning Outcomes: The effectiveness of the development program is assessed by evaluating the learning outcomes of faculty members, such as the increase in knowledge levels, teaching skills, and interactions with students.
6. Continuous Development: Ongoing feedback and support are provided to faculty members to enhance their continuous professional and academic development.

12. Acceptance Criterion

Central Admission for Daytime Studies: However, the ministry is provided annually with the number of available seats in the scientific department based on the department's capacity, the number of faculty members, and the availability of educational resources.

13. The most important sources of information about the program

- Curricular and supplementary books
- Websites of local and foreign universities, as well as local and foreign university libraries
- Workshops organized by the Ministry of Higher Education, in addition to the ministry's standards

14. Program Development Plan

1) Continuous monitoring and evaluation:

Conducting periodic assessments of the program to measure goal attainment and identify areas needing improvement, including curriculum and instructional material analysis, teaching and assessment methods, as well as infrastructure and facilities.

2) Industry and Job Market Needs Survey:

Conducting interviews and surveys with employers and professionals in the agriculture industry to identify skills and knowledge that need to be enhanced in students. Evaluating technological advancements and innovations in the field of agricultural machinery and incorporating them into the curriculum.

3) Curriculum and Material Updates:

Developing and updating curricula to incorporate the latest developments in agricultural engineering and technology fields. Adding new study materials covering topics such as artificial intelligence, sustainability, and robotics control techniques in agriculture.

4) Enhancing Practical Experiences:

Expanding opportunities for training and practical learning through partnerships with local industries and farms. Establishing advanced laboratories equipped with the latest technologies to enable students to experience and apply theoretical concepts.

5) Promoting Research and Innovation:

Enhancing scientific research in various areas of agricultural machinery and equipment by providing support to students and faculty. Establishing platforms for knowledge exchange and collaboration among students, researchers, and industry to promote innovation and develop new solutions.

6) Strengthening Teaching Skills:

Providing training programs and workshops for faculty members to enhance teaching skills and utilize best educational practices. Encouraging faculty members to participate in academic and industrial research and development activities.

