Course Description Form

1. Course Name:
Animal Production Mechanization
2. Course Code:
ANPM224
3. Semester / Year:
First Semester Autumn 2023-2024
4. Description Preparation Date:
1/2/2024
5. Available Attendance Forms:
Physical
6. Number of Credit Hours (Total) / Number of Units (Total)
2 hours of theory and 3 hours of practical, for 15 weeks, making a total of 75 hours / 3.5 units
7. Course administrator's name (mention all, if more than one name)
Name of Lecturer for Theory part: Dr. Rafea Abdulsattar Mohammed Email: rafea-machine@uomosul.edu.iq Name of Lecturer for practical part: Mr. Othman Muayyad Muhammad Tawfiq
8. Course Objectives
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Theoretical - The student understands the importance of livestock and their mechanization. - The student must be familiar with the concept of the operation of all equipment and machines used in animal shelters. - The student should be able to invest agricultural machinery and equipment in promoting animal products - The student must be able to manage and supervise the farm.
Practical - The student should be familiar with the methods of operating and maintaining equipment and machinery in animal pens. - The student should be aware of the risks to which he is exposed when using machines in barns. - The student must be able to carry out all experiments and special work on equipment and machines in animal pens. - The student must be fully aware of the responsibility of maintaining the farm and the processes necessary for that. - The student must have practical experience in managing animal pens and investing in the farm in the best possible way.
9. Teaching and Learning Strategies
Strategy

Strategy theory part	- Effective lectures - Brainstorming - Dialogue and discussion - Assigning tasks and reporting

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Strategy	
Strategy theory part	- Effective lectures - Brainstorming - Dialogue and discussion - Assigning tasks and reporting - Displaying real models of orchard mechanization equipment and machines
Strategy practical part	- Assigning group work to reveal leadership skills - Assigning individual tasks to reveal personal skills - Assigning reports on practical experiments and field tasks

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2 Theoretical	a1: Identify the types of animal pens according to the type of animal or type of breeding	Animal barns and breeding systems	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Assigned a task
	3 practic	b1: Examination of the soil in which the farm or animal pens will be constructed b3: Check the water available on site	Site selection requirements	Interactive lecture, brainstorming, dialogue and discussion, field training, and self-learning	Assign an assignment and a short test
2	2 Theoretical	a2: Identify harmful gases in the barn a3: Identify the mechanisms of expelling gases and humidity and ventilating the barn	Controlling environmental conditions in barns (ventilation)	Interactive lecture, brainstorming, dialogue and discussion, self-learning	quiz
	3 practical	b2: Practice operating and maintaining the ventilation fan c1: Fan discharge calculation	Determine and calculate ventilation	Interactive lecture, brainstorming, dialogue and discussion, field training, and self-learning	Assign an assignment and a short test
3	2 Theoretical	a4: Identify the idea of the cooling system a5: Identify the mechanisms for cooling the barn atmosphere	Controlling environmental conditions in barns (cooling)	Interactive lecture, brainstorming, dialogue and discussion, self-learning	quiz
	3 practical	b3: Training in operating and maintaining cooling systems c2: Calculating the cooling efficiency of cooling systems	Operating and maintaining cooling systems	Interactive lecture, brainstorming, dialogue and discussion, field training, and self-learning	Assign an assignment and a short test
4	2 Theoretical	a6: Identify the concept of heating	Controlling environmental	Interactive lecture,	quiz

		a7: Identifying the mechanisms for heating the atmosphere or floor of the barn	conditions in barns (heating)	brainstorming, dialogue and discussion, self-learning	
	3 practical	b4: Training in operating and maintaining heating systems b5: Regulating temperatures in the barn	Operating and maintaining heating systems	Interactive lecture, brainstorming, dialogue and discussion, field training, and self-learning	Assign an assignment and a short test
5	2 Theoretical	a6: Identify water sources and pumps and Identify tanks, transportation pipes, drinking water nozzles, and drippers	Mechanization of water supply	Interactive lecture, brainstorming, dialogue and discussion, self-learning	quiz
	3 practical	b6: Practice operating the water pumping station on the farm b7: Maintenance of the water pumping station	Problems and maintenance of the water pumping station to the farm	Interactive lecture, brainstorming, dialogue and discussion, field training, and self-learning	Assign an assignment and a short test
6	2 Theoretical	a7: Calculate the amount of water needed for the farm	Calculating the water need on the farm	Interactive lecture, brainstorming, dialogue and discussion, self-learning	quiz
	3 practical	c3: Applying the calculation of water needs on the farm	Calculating the water need on the farm	Interactive lecture, brainstorming, dialogue and discussion, field training, and self-learning	Assign an assignment and a short test
7	2 Theoretical	a8: Identifying the types of feeders according to the types of breeding systems or animal pens and Identify the idea of how mechanisms for providing dry and withered fodder work	Feeders and feed presenting equipment	Interactive lecture, brainstorming, dialogue and discussion, self-learning	quiz
	3 practical	b8: Training to operate feed presenting equipment b9: Maintenance of feed serving equipment	Operating and maintaining feed serving equipment	Interactive lecture, brainstorming, dialogue and discussion, field training, and self-learning	Assign an assignment and a short test
8	2 Theoretical	a9: Identify the idea of working waste disposal mechanisms inside barns and Identify means and mechanisms for storing and treating waste and deploying them in the field	Removal equipment of Animal manure	Interactive lecture, brainstorming, dialogue and discussion, self-learning	quiz
	3 practical	b10: Practice operating	Operating and	Interactive	Assign an

		waste disposal equipment c4: Apply waste abatement calculations and practice equipment maintenance	maintaining manure disposal equipment	lecture, brainstorming, dialogue and discussion, field training, and self-learning	assignment and a short test
9	2 Theoretical	a10: Identify the concept of shearing wool and Identify the types of wool shearing machines	Mechanization of wool shearing	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Semester test And a short test
	3 practical	b11: Training in operating and maintaining wool shearing equipment	Operating and maintaining wool shearing equipment	Interactive lecture, brainstorming, dialogue and discussion, field training, and self-learning	Semester test And a short test
10	2 Theoretical	a11: Identify the concept of extracting milk from the udder and Identify the stages of milking a cow	Automated milking and cow milking	Interactive lecture, brainstorming, dialogue and discussion, self-learning	quiz
	3 practical	b12: Practice operating and maintaining the milking machine	Operating and maintaining the milking machine	Interactive lecture, brainstorming, dialogue and discussion, field training, and self-learning	Assign an assignment and a short test
11	2 Theoretical	a12: Identify the types of milking systems and milking halls	Milking systems and milking halls	Interactive lecture, brainstorming, dialogue and discussion, self-learning	quiz
	3 practical	b13: Training in operating and maintaining milking halls	Operation and maintenance of milking halls	Interactive lecture, brainstorming, dialogue and discussion, field training, and self-learning	Assign an assignment and a short test
12	2 Theoretical	a13: Identifying the conditions for preparing eggs for hatching and the types of hatcheries and incubators	Egg hatchery equipment	Interactive lecture, brainstorming, dialogue and discussion, self-learning	quiz
	3 practical	b14: Training on operating and maintaining hatcheries and chick incubators	Operating and maintaining hatcheries	Interactive lecture, brainstorming, dialogue and discussion, field training, and self-learning	Assign an assignment and a short test
13	2 Theoretical	a14: Identify the mechanisms of collecting and detecting	Egg handling and transportation	Interactive lecture, brainstorming,	Assignment of a report discussions

		table eggs and packaging equipment		dialogue and discussion, self-learning	assignment and a short test
	3 practical	b15: Training in operating and maintaining egg transport and handling equipment	Operating and maintaining table egg transport and handling equipment	Interactive lecture, brainstorming, dialogue and discussion, field training, and self-learning	Assignment of a report discussions assignment and a short test
14	2 Theoretical	a15: Identifying the mechanisms and stages of poultry reflux and Identifying the mechanisms and stages of livestock slaughter	Slaughtering and handling of meat	Interactive lecture, brainstorming, dialogue and discussion, self-learning	quiz
	3 practical	b16: Practice operating animal island equipment b17: Training in operating meat handling and processing equipment	A visit to the typical Mosul massacre	Interactive lecture, brainstorming, dialogue and discussion, field training, and self-learning	Assign an assignment and a short test
15	2 Theoretical	a16: Mechanisms and equipment for cooling and preserving animal products	Cooling and preserving animal products	Interactive lecture, brainstorming, dialogue and discussion, self-learning	quiz
	3 practical	b18: Training in operating and maintaining equipment for cooling and preserving animal products	Operating and maintaining equipment for cooling and preserving animal products	Interactive lecture, brainstorming, dialogue and discussion, field training, and self-learning	Discussions and a short test

11. Course Evaluation		
Theoretical evaluation method	evaluation date	evaluation degree
Monthly test	Week 9	10 %
Quiz	Weeks 1-15	10 %
Report	Week 13	5 %
total	25 %	
Practical evaluation method	evaluation date	evaluation degree
Monthly test	Week 9	5 %
Quiz and assignment	Weeks 1-15	2 + 3 = 5 %
Report	Week 13	5 %
total	15 %	
Theoretical + practical semester endeavor (25+15)	After 15 week	40 %
Final practical exam	20 %	20%
Final Theoretical exam	40 %	40%
Final degree	100 %	100 %

12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Al-Naama, Muhammad Jassim (1990) Mechanization of Animal Production, Mosul University Press. Iraq
Main references (sources)	Azza, Abdul Salam and Tawfiq Fahmi (1900) Animal production mechanization equipment, Baghdad University Press. Iraq Stout, Bill A. (1990) CIGR Handbook of Agricultural Engineering, Volume III, *ASAE*, USA.
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	Food and Agriculture Organization FAO

Teacher of Theoretical part
Dr. Rafea Abdulsattar Mohammed-nori

Teacher of practical part
Mr. Othman Muayyad Muhammad Tawfiq

Chairman of the Scientific Committee
Prof. Dr. Anton M.A

Head of agricultural machines and Equipment