Course Description Form

1. Course Name:
Food Technology Equipment
2. Course Code:
FOTE478
3. Semester / Year:
First semester / 2024-2025
4. Description Preparation Date:
1/2/2025
5. Available Attendance Forms:
Attendance + Online
6. Number of Credit Hours (Total) / Number of Units (Total)
2 Credit Hours (Theoretical approach), 3 Credit Hours (Practi approach)(75 Credit Hours)/ 2 units (Theoretical approach), 1.5 un (Practical approach) (3.5 Units)
7. Course administrator's name (mention all, if more than one name)
Name: Dr. Adnan A. A. Luhaib Email: adnan.luhaib@uomosul.edu.iq Name: Asst. Lecturer. Ammar Wael Saleh Email: ammarwael1800@uomosul.edu.iq
8. Course Objectives
• Understanding the most important units and technical aspects in food processing facilities and teaching them how to distinguish between them. **• Acquiring comprehensive knowledge of all the manufacturing processes that take place in food processing facilities.** **• Enhancing students' knowledge of all the physical changes that occur in food processing facilitie and how to measure them.** **• Achieving a comprehensive understanding among students of all the thermal processes that occ in food processing facilities, methods of measurement, and how to operate their devices.** **• Identifying steam boilers and how to maintain and preserve them as heating units.** **• Understanding all thermal processes such as pasteurization and sterilization, how to operate different devices, and how to deal with occurring variables.**

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• Knowing the most important components of refrigeration and freezing units used in food processing facilities, including their types.

• Having the ability to choose the appropriate environment for establishing a food processing plan

• Identifying the most important transportation units in food processing facilities, including pumps their types, and how they work.

• Achieving the ability to work on all devices within a food processing plant.

• Achieving the ability to design a suitable layout for a food processing plant, including planni execution, and monitoring by the end of the academic program.

9. Teaching and Learning Strategies

- Interactive Lecture
- Brainstorming
- Dialogue and Discussion
- Hands-on Training
- Field project

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2 (Theoretica approach)	a1 The student should be familiar with the most important manufacturing equipment used in food production lines.	Introduction of food processing equipment	Auditory methods Writing style Direct dialogue style	Midterm exam 1 Final exam
	3 (Practical approach)	a8 Understanding the dimensions and units of measurement used in in food processing industry.	Units and Dimensions	Auditory methods Writing style Assignments	Quiz 1
2	2 (Theoretical approach)	a2 The student should understand the mechanics of material and energy balance.	Material and Energy Balance	Auditory methods Writing style Direct dialogue style	Midterm exam 1 Final exam
	3 (Practical approach)	a9 The student should be able to perform calculations related to material and energy balance.		Auditory methods Writing style Assignments	Quiz 2

3	2 (Theoretical approach)	a3 The student will be familiar with the operating mechanism of measuring devices used in food processing industry.	Measuring devices	Auditory methods Writing style Direct dialogue style	Midterm exam 1 Final exam
	3 (Practical approach)	b9 The student should be able to calibrate measurement devices.		Assignments, Reports	Report 1
4	2 (Theoretical approach)	a4 The student should be able to recognize heat, its transfer methods, and methods of controlling it.	Heat and its transfer methods	Auditory methods Writing style Direct dialogue style	Midterm exam 1 Final exam
	3 (Practical approach)	b10 The student learns about heating systems in food processing industry.	Heating systems	Auditory methods Writing style Assignments	Report 2
5	2 (Theoretical approach)	b1 The student should be able to estimate the mathematical operations related to heat measurement methods and control.	Heat, its measurement methods, and control	Auditory methods Writing style Direct dialogue style	Midterm exam 1 Final exam
	3 (Practical approach)	b11 The student will be familiar with the operating mechanism of steam boilers and its types.	Steam boilers	Auditory methods Writing style Direct dialogue style	Quiz 3
6	2 (Theoretical approach)	a5 The student learns about the principle of operation of heat exchangers and the calculation methods associated with it.	Heat exchangers	Auditory methods Writing style Direct dialogue style	Midterm exam 1 Final exam
	3 (Practical approach)	a10 The student becomes familiar with the types of pasteurization and sterilization equipment.	Pasteurization and sterilization equipment	Assignments, Reports	Quiz 1
7	2 (Theoretical approach)	b2 The student becomes acquainted with the operation mechanism of refrigeration and	Refrigeration and freezing	Auditory methods Writing style Direct dialogue	Midterm exam 2 Final exam

		freezing equipment.		style	
	3 (Practical approach)	b12 The student learns about the types of refrigeration and freezing equipment in food processing industry, as well as the associated calculations.	Refrigeration and freezing equipment	Assignments, Reports	Homework
8	2 (Theoretical approach)	a6 The student is able to understand the mechanism of evaporators in food processing industry, as well as the associated calculations.	Evaporation	Auditory methods Writing style Direct dialogue style	Midterm exam 2 Final exam Report 1
	3 (Practical approach)	b13 The student becomes familiar with the types of evaporators used in food processing industry.	Evaporators	Assignments, Reports	Homework
9	2 (Theoretical approach)	b3 The student is able to understand the mechanism and methods of food dehydration, as well as associated calculations in food processing industry.	Food dehydration	Auditory methods Writing style Direct dialogue style	Midterm exam 2 Final exam Report 2
	3 (Practical approach)	a11 The student learns about the types of food dryers.	Dryers in the food processing industry	Assignments, Reports	Homework
10	2 (Theoretical approach)	b4 The student is able to understand the mechanism of size reduction and sieving the solid materials	Size reduction and sieving the solid materials	Auditory methods Writing style Direct dialogue style	Midterm exam 2 Final exam Report 3
	3 (Practical approach)	a12 The student learns about the types of food size reduction and sieving the solid materials equipment.	size reduction and sieving the solid materials equipment	Assignments, Reports	Homework
11	2 (Theoretical approach)	b5 The student is able to understand the	Materials handling	Auditory methods	Midterm exam 2

		mechanism of materials handling.		Writing style Direct dialogue style	Final exam
	3 (Practical approach)	b14 The student learns about the types of material handling equipment.	Material handling equipment	Assignments, Reports	Homework
12	2 (Theoretical approach)	b6 The student is able to understand the mechanism of grains cleaning and grading	Grains cleaning and grading	Auditory methods Writing style Direct dialogue style	Midterm exam 2 Final exam
	3 (Practical approach)	a13 The student learns about the types of grains cleaning and grading equipment.	Grains cleaning an grading equipment	Assignments, Reports	Homework
13	2 (Theoretical approach)	a7 The student is able to understand the mechanism of food separation processes.	Food separation	Auditory methods Writing style Direct dialogue style	Midterm exam 2 Final exam
	3 (Practical approach)	a14 Instructional trip	Instructional trip	Assignments, Reports	Quiz 1
14	2 (Theoretical approach)	b7 The student becomes acquainted with the pumping process and the types of pumps which are used in food processing industry.	Pumping and its use in food processing industry	Auditory methods Writing style Direct dialogue style	Midterm exam 2 Final exam Quiz 2
	3 (Practical approach)	a15 The student is capable of estimating the efficiency of the pumping process, pump efficiency, and maintenance methods of it.		Assignments, Reports	Homework
15	2 (Theoretical approach)	b8 The student is able to understand the mechanism of food packaging in a food processing industry.	Food packaging	Auditory methods Writing style Direct dialogue style	Midterm exam 2 Final exam Quiz 3
	3 (Practical approach)	a16 The student becomes familiar		Assignments,	Industrial report

		with the packaging devices used in a food processing industry.		Reports	

11. Course Evaluation

	Evaluation method	Evaluation time (week)	Score	Relative weight
1	Practical report 1	Third week	2	2
2	Practical report 2	Fourth week	2	2
3	Practical report 3	Sixth week	2	2
4	Quiz 1	Sixth week	1	1
5	Quiz 2	Thirteenth week	1	1
6	Quiz 3	Fifteenth week	1	1
7	Midterm exam 1	Sixth week	8	8
8	Midterm exam 2	eleventh week	8	8
9	Report 1	Eighth week	2	2
10	Report 2	Ninth week	2	2
11	Report 3	Tenth week	2	2
12	Practical Quiz 1	First week	1	1
13	Practical Quiz 2	Second week	1	1
14	Practical Quiz 3	Fifth week	1	1
15	Industrial report	Fifteenth week	6	6
16	Homework	Weeks 6, 8, 9, 10, 11, 12, and 14	7	7
17	Practical final exams	Practical final exam	20	20
18	Theoretical final exams	Theoretical final exam	40	40
	Sum		100	100

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	Food Processing Engineering / Dr. Amer Hameed Al-Dahan
Recommended books and references (scientific journals, reports...)	Food Process Engineering and Technology Second Edition
Electronic References, Websites	

مدرس المادة النظري

م.د. عدنان عبد احمد

مدرس المادة العملي

م.م. عمار وائل صالح

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قسم

رئيس قسم المكائن والآلات الزراعية

أ.م. نوفل عيسى محيميد

رئيس اللجنة العلمية

أ.د. عادل احمد عبد الله