

Course Description Form

1. Course Name:	
Maintenance of Air Conditioning systems/ 3rd	
2. Course Code:	
MPAC307	
3. Semester / Year:	
(Annual System) (2024–2025)	
4. Description Preparation Date:	
The beginning of the university calendar for the year (2023-2024)	
5. Available Attendance Forms:	
Weekly /Theoretical and Practical Classes	
6. Number of Credit Hours (Total) / Number of Units (Total)	
30 hrs. (theoretical) + 120 hrs. (practical) /10 units	
7. Course administrator's name (mention all, if more than one name)	
Name: Asst. Lect. Salma Mahmood Mezhar Email: Salma.mahmood@uowa.edu.iq	
8. Course Objectives	
Course Objectives	<ul style="list-style-type: none"> • study the maintenance of all types of refrigeration system. • Introducing students to all the basic topics of this course, the theoretical side and the practical side. • Introduces theories and operations of heating and air conditioning system. Includes service, testing and repair of air conditioning, ventilation, and heater and engine cooling systems
9. Teaching and Learning Strategies	
Strategy	Assessment is based on hand-in assignments, written exams, Quizzes, reports, Practical testing ,and Online testing.
10. Course Structure	

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1st week	1 Theoretical + 3 practical.	The student understands the subject	General Safety Practices, Tools and equipment, Refrigeration and air conditioning systems strategies.Refrigeration and air conditioning equipment classification	Theoretical + practical	quiz
2nd week	1 Theoretical + 3 practical.	The student understands the subject	Refrigeration and air conditioning equipment installation, tubing, welding, leak	Theoretical + practical	quiz
3rd week	1 Theoretical + 3 practical.	The student understands the subject	types of installation, mechanical and electrical connections, piping	Theoretical + practical	quiz
4th week	1 Theoretical + 3 practical.	The student understands the subject	Mollier's charts (drawing, point's determination, troubleshooting for central air conditioning systems	Theoretical + practical	quiz
5th week	1 Theoretical + 3 practical.	The student understands the subject	Mechanical troubleshooting study of Refrigeration and air conditioning system and water chillers.	Theoretical + practical	quiz
6th week	1 Theoretical + 3 practical.	The student understands the subject	Electrical troubleshooting study of Refrigeration and air conditioning system and water chillers.	Theoretical + practical	quiz
7th week	1 Theoretical + 3 practical.	The student understands the subject	Conventional air condition system (mechanical and electrical components, features, installation, connection, commissioning, maintenance, and control.	Theoretical + practical	quiz
8th week	1 Theoretical + 3 practical.	The student understands the subject	Compressors (types, applications, maintenance, assembly and dis assembly, test and commissioning).	Theoretical + practical	quiz
9th week	1 Theoretical + 3 practical.	The student understands the subject	Evaporators and air washer (types, applications, maintenance, assembly and dis assembly, test and commissioning).	Theoretical + practical	quiz

10th week	1 Theoretical + 3 practical.	The student understands the subject	Condensers (types, applications, maintenance, assembly and dis assembly, test and commissioning).	Theoretical + practical	quiz
11th week	1 Theoretical + 3 practical.	The student understands the subject	Cooling tower (types, applications, maintenance, assembly and dis assembly, test and commissioning).	Theoretical + practical	quiz
12th week	1 Theoretical + 3 practical.	The student understands the subject	Expansion devices (types, applications, maintenance, assembly and dis assembly, test and commissioning).	Theoretical + practical	quiz
13th week	1 Theoretical + 3 practical.	The student understands the subject	Fans (types, applications, maintenance, assembly and dis assembly, test and commissioning).	Theoretical + practical	quiz
14th week	1 Theoretical + 3 practical.	The student understands the subject	Pumps (types, applications, maintenance, assembly and dis assembly, test and commissioning).	Theoretical + practical	quiz
15th week	1 Theoretical + 3 practical.	The student understands the subject	Refrigeration and air conditioning components cleaning by using chemical materials.	Theoretical + practical	quiz
16th week	1 Theoretical + 3 practical.	The student understands the subject	Dismantling the commercial system knew the basic parts and accessories and isolate each part of it for other parts.	Theoretical + practical	quiz
17th week	1 Theoretical + 3 practical.	The student understands the subject	Repair compressor through the dismantling of reciprocating compressor semi – hermetic of commercial system	Theoretical + practical	quiz
18th week	1 Theoretical + 3 practical.	The student understands the subject	identify the parts and functions and the method of examination and then gathered and examined parts of the compressor and take all measures in order to examine the operation and performance.	Theoretical + practical	quiz
19th week	1 Theoretical + 3 practical.	The student understands the subject	Maintenance of air cooled condenser system for commercial and examination of the leak and treatment. Cleaning of the inside and outside.	Theoretical + practical	quiz

20th week	1 Theoretical + 3 practical.	The student understands the subject	Maintenance - evaporator system for commercial and leakage of examination and treatment. Cleaning of the inside and outside and sweep the fins also work includes everything related to the fans for the evaporator	Theoretical + practical	quiz
21st week	1 Theoretical + 3 practical.	The student understands the subject	Dismantling expansion valve (used for different types of commercial systems) and checked and calibrated and cleaned.	Theoretical + practical	quiz
22nd week	1 Theoretical + 3 practical.	The student understands the subject	Maintenance of electrical accessories for commercial and test it (power and control circuit. Connect the electrical connections of the power and control circuits and test the connections.	Theoretical + practical	quiz
23rd week	1 Theoretical + 3 practical.	The student understands the subject	Conduct a process of checking the leak and add oil and make the process of charging and discharging of the gas by using modern equipment not impact on the environment.	Theoretical + practical	quiz
24th week	1 Theoretical + 3 practical.	The student understands the subject	Maintenance of mechanical and electrical axial fans and Accessories.	Theoretical + practical	quiz
25th week	1 Theoretical + 3 practical.	The student understands the subject	Maintenance of water pumps (the dismantling of the pump and the maintenance of internal parts and then assembled) adjust the straightness of the pump and the electric motor.	Theoretical + practical	quiz

26th week	1 Theoretical + 3 practical.	The student understands the subject	Maintenance of all extensions of piping system (disassembly of the different types of valves to get to know their parts and re- assembled and tested) and examined and operated.	Theoretical + practical	quiz
27th week	1 Theoretical + 3 practical.	The student understands the subject	Maintenance of air handling unit through the dismantling of parts and inspection and lubrication and then re- connect and straighter transmission belt and pulleys.	Theoretical + practical	quiz
28th week	1 Theoretical + 3 practical.	The student understands the subject	Maintenance of cooling tower (fans –ball bearing- tank-nozzles- piping-pill and straighter transmission belt and pulleys).	Theoretical + practical	quiz
29th week	1 Theoretical + 3 practical.	The student understands the subject	Maintenance of an air vehicle air conditioner and includes cleaning - Maintenance – components vacuum and churcing with modern equipment that do not adversely affect the environment.	Theoretical + practical	quiz
30th week	1 Theoretical + 3 practical.	The student understands the subject	operating and inspection the vehicle air conditioner system.	Theoretical + practical	quiz

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)	Refrigeration and air conditioning Technology
Main references (sources)	Modren refrigeration and airconditioning maintenanc
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	