



Module (Course Syllabus) Catalogue

2022-2023

College/ Institute	Erbil Technology College	
Department	Department of Mechanics and Renewable Energy	
Module Name	Control Systems	
Module Code	COS204	
Degree	Technical Diploma <input type="checkbox"/>	Bachelor <input type="checkbox"/>
	High Diploma <input type="checkbox"/>	Master <input type="checkbox"/> PhD <input type="checkbox"/>
Semester	4 TH .	
Qualification	Msc.	
Scientific Title	Assistant Lecturer	
ECTS (Credits)	7	
Module type	Prerequisite <input type="checkbox"/>	Core <input type="checkbox"/> Assist. <input type="checkbox"/>
Weekly hours	4	
Weekly hours (Theory)	(2)hr Class	(168)Total hrs Workload
Weekly hours (Practical)	(2)hr Class	(168)Total hrs Workload
Number of Weeks	12	
Lecturer (Theory)	Fadi Riyadh Shamoon	
E-Mail & Mobile NO.	fadi.shamoon@epu.edu.iq	
Lecturer (Practical)	Fadi Riyadh Shamoon	
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Websites		

Course Book

<p>Course Description</p>	<p>This course is prepared to provide a comprehensive understanding about the main principles of control systems of refrigeration cycles engineering in such a way that the tutees will gain theoretical and practical experience for HVAC control systems, General electrical control components and related issues in real world application.</p>				
<p>Course objectives</p>	<p>The lectures are divided on four weekly hours. Mainly, the first two hours will be dedicated for the topic backgrounds and the main principles. Notes and hand-outs are given to the students containing the detail of the topics. This will be assisted by presentations using word and/or power point slides during the lecture time. Discussion time is provided for the students for questions. The second part of the week is practical time in which scientific experiments are done in the laboratory.</p>				
<p>Student's obligation</p>	<p>Missed classes will not be compensated including the quizzes and the scheduled assignments. The students will lose marks on unattended classes with quizzes unless a legal document or authorized leave is presented which should explain the excuse of the absence. However, the absent student should take the responsibility for making up the missed lecture.</p>				
<p>Required Learning Materials</p>	<p>All lectures prepared in soft and exhibit on data show. Also they are given to students in hard copy. Make about 10 quizzes and one intermediate exam during annual course. In addition to seminars and reports.</p>				
<p>Evaluation</p>	<p>Task</p>		<p>Weight (Marks)</p>	<p>Due Week</p>	<p>Relevant Learning Outcome</p>
	<p>Paper Review</p>				
	<p>Assignmen</p>	<p>Homework</p>	<p>10</p>		
		<p>Class Activity</p>	<p>2</p>		
		<p>Report</p>			
<p>Seminar</p>					

	Essay	14		
	Project			
	Quiz	4		
	Lab.	14		
	Midterm Exam	16		
	Final Exam	40		
	Total			
Specific learning outcome:	This course is prepared to provide a comprehensive understanding about the main principles of air conditioning in such a way that the tutees will gain theoretical and practical experience for fundamentals, processes, control terminology , basic parameters to be controlled , wiring and connecting control components of HVAC systems			
Course References:	Lecture notes 1. - CONTROL SYSTEMS FOR HEATING, VENTILATING, AND AIR CONDITIONING SIXTH EDITION Roger W. Haines 2. Refrigeration and air conditioning G.F Hundy , A.R Trott ,T.C. welch			
Course topics (Theory)		Week	Learning Outcome	
Control, control definition in general, basic definitions		Week 1	1	
Types of control and access to control systems for cooling machines in a simple way		Week 2	1 , 2 and 8	
To measure, define, the relationship of measurement to control, the variables that are subject to measurement and then control		Week 3	3 and 8	
Some basic measuring and control equipment used in refrigeration machines and how to work principle		Week 4	3	
Electrical control equipment		Week 5	1,2, 4 and 8	
Controlling the work of the icing system through the work of expansion valves and their types		Week 6	2, 3 , 4 and 5	
Midterm Examination		Week 7		
Midterm Examination		Week 8		

How to control the cooling capacity	Week 9	4, 5 and 6
Types of humidity control equipment	Week 10	5, 6 and 8
Types of temperature control equipment	Week 11	4, 8
Electrical load circuit breakers	Week 12	4, 5 and 6
Relay , contactor	Week 13	4, 5 and 6
High pressure regulators, their types, indications for use and how to work	Week 14	2, 7 and 8
Practical Topics	Week	Learning Outcome
Relay , contactor	1	
Timers	2	
On- Off Starter	3	
Two way controls	4	
Temperature Control	5	
Solenoid valves	6	
Expansion valves	7	

19. Examinations:

Ministry of Higher Education &
Scientific Research



Erbil Polytechnic University

Second Year

Subject: Control Systems

Time: 2 Hours

Academic year: 2018 – 2019

Q1/ What is meant by “flow switch “? What it is importance? At which cases it start working? , draw a diagram to showing its internal structure

(20 Mark)

Q2/Define each of the following

1-Control

4-Thermistor

2-Resistance thermometer

5-Photocell humidistat

3-Contactor

(20 Mark)

Q3/List the main components of “Control system “, explain each of these components, draw a diagram which contains these components

(20 Mark)

Q4/ Draw a diagram of “Automatic expansion valve “, what are the main advantages a

disadvantages of using this type

Q5/ What are the types of timer? Explain each kind in detail, what is the importance using the timer in refrigeration cycle?

(20 Mark)

Fady R. Shamoon

Extra notes:

Nothing

External Evaluator: