



*Electrical Engineering and Computers
Engineering BSc. Program*



Course Specification

1- Basic Information

Code	Course Title			Bylaw	
EEP 202	Practical Training (4) تدريب عملي (٤)			2011	
Program	Electrical Engineering and Computers Engineering BSc.		Category	Elective course (Technology)	
Delivered by	Electrical Engineering and Computers Engineering Dept.		Prerequisite	-	
Course Units	Lectures	1	hr.	Stage	B. Sc. Stage
	Tutorials	-	hr.	Level	03 Elec.
	Practical	1	hr.	Semester	1 st . Semester
	Total Units	1	Cr.h.	Academic Year	2022/2023
Approval Date	Program	Academic council		No. (46) 19/9/2022	
		Dept. council		5/9/2022	
	Course	Academic council		No. (46) 19/9/2022	
		Dept. council		5/9/2022	

2- Course Aims

- 2.1. To study the motor control systems used in industry.
 2.2. To study ladder diagrams, sequence control, and relay logic as a basic reference for the application of programmable controllers (PCs) and stability of the control system.
 2.3. To realize power rectification, inverted methods and SCR motor.

3- Course Subject Area

A	B	C	D	E	F	G	Total
Humanities and Social Sciences	Mathematics and Basic Sciences	Basic Engineering Sciences	Applied Engineering and Design	Computer Applications and ICT	Projects and Practice	Discretionary Subjects	
-	-	-	-	-	100 %	-	100 %

4- Competencies of Learning Outcomes from the Course

Program (Competencies) that the course contributes in achieving it		Course (Competencies) in detail	
A2	Develop and conduct appropriate experimentation and/or simulation, analyze and interpret data, assess and evaluate findings, and use statistical analyses and objective engineering judgment to draw conclusions in the EECE discipline.	a2.1	Distinguish motor control systems used in industry and stability of the control system.
A3	Apply engineering design processes to produce cost-effective solutions that meet specified needs with consideration for global, cultural, social, economic, environmental, ethical and other aspects as appropriate to the EECE discipline and within the principles and contexts of sustainable design and development.	a3.1	Explain principles of ladder diagrams, sequence control and relay logic design.
A10	Acquire and apply new knowledge; and practice self, lifelong and other learning strategies.	a10.1	Assess creative and innovative thinking based on computer controlled system in solving problems.
B2	Design, model and analyze an electrical/electronic/digital system or component for a specific application; and identify the tools required to optimize this design.	b2.1	Utilize appropriate computer programming for design a ladder diagrams, sequence control and relay logic.

B3	Design and implement: elements, modules, sub-systems or systems in electrical/electronic/digital engineering using technological and professional tools.	b3.1	Create the required computer programs pertaining to the application of programmable controllers.
C2	Integrate electrical, electronic and mechanical components and equipment with transducers, actuators and controllers in creatively computer controlled systems using new information technologies.	c2.1	Design and implement industrial control systems.

5- Course Content

A study of motor control systems used in industry. A study of ladder diagrams, sequence control, and relay logic as a basic reference for the application of programmable controllers (PCs) and stability of the control system. Power rectification, inverted methods and SCR motor control will also be studied.

6- Course Topics/Timeline

Topic		No. of Weeks
Topic (1)	Study of motor control systems used in industry.	Week 1-2
Topic (2)	Study of ladder diagrams, sequence control, and relay logic as a basic reference for the application of programmable controllers (PCs) and stability of the control system.	Week 3-6
Topic (3)	Study Power rectification, inverted methods and SCR motor control.	Week 7-8
Topic (4)	Apply different automatic control system applications based on PC and PLC technology.	Week 9-12

7- Course Topics/Competencies

Competences	Course Topics			
	Topic (1)	Topic (2)	Topic (3)	Topic (4)
a2.1	X		X	
a3.1		X		
a10.1				X
b2.1		X		
b3.1		X		X
c2.1				X

8- Teaching and Learning Methods

Competencies	Teaching and Learning Methods												
	Lecture	Presentations	Discussions	Tutorials	Lab experiments	Problem solving	Brain storming	Projects	Site visits and scientific trips	Reporting	Group working	Self-reading	Distance Learning
a2.1	X						X			X	X		
a3.1	X	X	X		X		X			X	X		
a10.1	X	X				X	X	X		X	X	X	
b2.1	X	X			X	X		X		X			
b3.1	X	X			X	X		X		X			
c2.1	X		X		X	X		X		X	X	X	

9- Assessment Methods

Competencies	Assessment Methods									
	Written Exams	Oral Exam	Projects	Report	Quiz	Presentation	Practical Test	Observations	Dissertation	Online quiz
a2.1	X				X		X	X		
a3.1							X	X		
a10.1	X						X	X		
b2.1	X									
b3.1	X				X					
c2.1							X	X		

10- Assessment Methods Weight

Assessment Method	Percentage	
Final Exam (Lab Test + Theoretical Written Exam)	40%	
Mid-term Exam	30%	
Semester Work	Tutorial	10%
	Quiz	10%
	Oral Exam	10%

11- List of References

Course Notes	Lecture presentations used for data show and explanation to students during lecture sessions.
Essential Books	<p>1- "Electric motors and control systems", Frank D. Petruzella, 3th edition, 2020. Published by: McGraw-Hill Education</p> <p>2- "Programmable logic controllers", William Bolton, 6th edition, 2015. Published by: Elsevier Ltd.</p>
Recommended Books	Automatic Control Systems, by Benjamin C. Kuo, Farid Golnaraghi John, 9 th edition, January 2010. Published by: Wiley & Sons
Periodicals, Websites, etc.	<ul style="list-style-type: none"> - IEEE.xplore.ieee.org - IEEE Journals and IEE Journals - TEXAS Instruments "http://www.ti.com/"

We certify that all of the information required to deliver this course is contained in the above specification and will be implemented.

Course Coordinator

Name: Dr. Mohammed Morad Salama

Signature: *Dr. Mohammed Morad Salama*

Date: 5/9/2022

Head of Electrical Engineering and Computers Engineering Department

Name: Dr. Omar Makram Kamel

Signature: *O.M. Kamel*

Date: 5/9/2022