

Faculty of Engineering & Technology

Special Topics in Mechatronics

Information :

Course Code : MKT 599

Level : Undergraduate

Course Hours : 2.00- Hours

Department : Specialization of Mechatronics Engineering

Instructor Information :

Title	Name	Office hours
Lecturer	AMR MOHAMED METWALLY ISMAIEL	2
Assistant Lecturer	Rana Mohamed Abdel Rahman Saleh	

Area Of Study :

1. Describe, analyze and operate the mechatronics training Amatrol.
2. Define the specification for sensors in each module.
3. Define the specification for actuators in each module
4. Understanding the PLC control program for each module and interaction.
5. Operation of the robot arm, SCADA interfaces and teach pendant.

Description :

Selected topics that meet student interests and reflects recent trends in one of the fields of mechatronics engineering.

This offering uses the Amatrol training system. Using system approach to let the student get familiar and have hands on with real mechatronics process. The process have 7 modules each of different task. Student will be able to operate and troubleshoot the system.

Course outcomes :

a. Knowledge and Understanding: :

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| 1 - | a1. Define the amatrol stations. |
| 2 - | a2. State the process in all steps. |

b. Intellectual Skills: :

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| 1 - | b1. Understands the control of process and sensors and actuators. |
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c. Professional and Practical Skills: :

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| 1 - | c1. Operate the different stations. |
| 2 - | c2. Operate the robot arm. |
| 3 - | c3. Understand how to troubleshoot problems. |
| 4 - | c4. Understand the process of replacing defective item. |

d. General and Transferable Skills: :

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| 1 - | d1. Manage tasks, time, and resources. |
| 2 - | d2. Search for information and engage in life-long self-learning discipline |

3 - d3. Collaborate effectively within multidisciplinary team.

Course Topic And Contents :

Topic	No. of hours	Lecture	Tutorial / Practical
Introduction		2	2
Stations and overview		2	2
Interfacing		2	2
Sensors and identification		2	2
Operation of modules and safety		2	2
PLC control of stations		2	2
Identifying the ladder control of stations		2	2
Robot arm and its control		2	2
Robot arm structure and sensors		2	2
Torqueing and storage stations		4	4
Indexing station		2	2
Project discussion		4	4
Project Presentation		2	2

Course Assessment :

Methods of assessment	Relative weight %	Week No	Assess What
1st Midterm	15.00	6	
2nd Midterm	15.00	11	
Assignments, Participation, & Quizzes	10.00		
Final Exam	40.00		
Project.	20.00	13	

Course Notes :

Notes and Amatrol catalogue