



Jordan University of Science and Technology
Faculty of Engineering
Mechanical Engineering Department

ME784 Introduction To Robots - JNQF Level: 9

Second Semester 2023-2024

Course Catalog

3 Credit Hours. 3 Credit hours (3 h lectures). Overview of the field of robotics and their applications; Types, locomotion, kinematics (forward and inverse), dynamics (forward and inverse), planning, control and design of manipulators and mobile robots; Robotics perception (sensors) and actuators; Multi-robotics systems.

Teaching Method: On Campus

Text Book

Title	Introduction to Robotics: Mechanics and Control
Author(s)	John J. Craig
Edition	3rd Edition
Short Name	TextBook
Other Information	Pearson Prentice Hall, ISBN: 0-201-54361-3

Instructor

Name	Dr. Khaled Hatamleh
Office Location	N1_L2
Office Hours	
Email	kshh@just.edu.jo

Class Schedule & Room

Section 3:
Lecture Time: Thu : 14:30 - 17:30
Room: LAB

Tentative List of Topics Covered

Weeks	Topic	References
Weeks 1, 2	Spatial descriptions and transformations. (CH. 1 and 2)	
Weeks 3, 4	Manipulator Kinematics. (CH. 3)	
Weeks 5, 6	Inverse manipulator kinematics. (CH. 4)	
Weeks 7, 8	Jacobians: velocities and static forces. (CH. 5)	
Weeks 9, 10	Manipulator dynamics. (CH. 6)	
Weeks 12, 13	Trajectory generation. (CH. 7)	

Mapping of Course Outcomes to Program Outcomes and NQF Outcomes	Course Outcome Weight (Out of 100%)	Assessment method
Analyze the kinematic and dynamic models of robotic manipulators to determine operational performance and identify potential limitations. [1L9S3]	25%	
Evaluate the effectiveness of various trajectory generation techniques for achieving precise motion control in robotic systems. [1L9K2]	25%	
Assess the impact of Jacobians on the performance of robotic manipulators, particularly in terms of velocities and static forces under real-world conditions. [1L9C6]	25%	
Design and simulate robotic manipulator trajectories using MATLAB to achieve optimized motion for complex tasks. [1L9C4]	25%	

Relationship to NQF Outcomes (Out of 100%)			
L9K2	L9C4	L9S3	L9C6
25	25	25	25

Policy	
Policies	<p>1- Please turn off your cell phones at all times during the class; if your cell phone causes any disturbance during the class, backup your belongings and leave calmly. If you do not leave, your participation grade may reduce severely.</p> <p>2- Please turn back your HW on time, Late HW is acceptable with a 20% penalty for every late calendar day (including weekends).</p> <p>3- Never be ashamed to ask.</p> <p>4- If the office hours are not suitable for you, we can arrange a meeting time through e-mail.</p> <p>5- For any reason, and when you cannot contact me physically, you can use the e-mail.</p> <p>6- Make up exams will not be held without an official excuse.</p>

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