朝陽科技大學 094學年度第1學期教學大綱
Industrial Robotics 工業機器人

當期課號	1590	Course Number	1590
授課教師	鄭宗明	Instructor	CHENG,TZONG MING
中文課名	工業機器人	Course Name	Industrial Robotics
開課單位	工業工程與管理系(四日)三A	Department	
修習別	選修	Required/Elective	Elective
學分數	3	Credits	3
課程目標	本課程目的乃提供工業工程與管理系大學部學生，對工業機器人之重要項目作較深入之介紹。主要內容包括工業機器人的類型、運動方程式和動作之控制，電腦視覺簡介，智慧型機器人，機器人在工業界之運用，機器人組裝站之設計和成本評估。實驗與學期專題將配合上課內容實施。	Objectives	The purpose of this course is to provide IEM undergraduate students with background and knowledge about industrial robots. The main topics been discussed are the types of robots, the kinetic and dynamic equations and control of robot motions, introduction ot machine vision, intelligent robots, the application of robots to production systems, design and analysis of robot-based assembly workstation, and economic evaluation of robot-based workstation. Lab work and term projects are required in this course.
教材	1. Computer Graphics and Geometric Modeling for Engineers, by V. B. Anand, Wiley（新月圖書代理） 2. Computational Geometry in C, by Joseph O'Rourke, Cambridge Press 3. Introduction to Robotics, by John J. Craig, Pearson Prentice Hall（新月圖書代理） 4. Digital Image Processing, by Rafael C. Gonzalez and Richard E. Woods, Second Edition, Prentice-Hall, Inc.（開發圖書代理）	Teaching Materials	
成績評量方式	Midterm 20% Final 20 % Term Project 40% Homework 20%	Grading	Midterm 20% Final 20 % Term Project 40% Homework 20%
教師網頁	qclab.iem.cyut.edu.tw		
教學內容	A robot is a programmable articulate structure, capable of transporting its manipulator to designated positions. An industrial robot will assist productions by adapting its configurations to the characteristics of the tasks. This course will focus on the motion planning and application of the robots. TOPICS AND SCHEDULE: Vector and Matrix Computations Computational Geometry Spatial Transformations Manipulator Kinematics Inverse Manipulator Kinematics Collision Detections Low-level Machine Vision High-level Machine Vision Robot Applications in Manufacturing	Syllabus	A robot is a programmable articulate structure, capable of transporting its manipulator to designated positions. An industrial robot will assist productions by adapting its configurations to the characteristics of the tasks. This course will focus on the motion planning and application of the robots. TOPICS AND SCHEDULE: Vector and Matrix Computations Computational Geometry Spatial Transformations Manipulator Kinematics Inverse Manipulator Kinematics Collision Detections Low-level Machine Vision High-level Machine Vision Robot Applications in Manufacturing

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