

Course Title	Design of Electrical Panel Automation				
Course Code	ETECH 240				
Course Type	Compulsory				
Level	First Cycle				
Year / Semester	Second Year / Spring				
Teacher's Name	Iraklis Irakleous				
ECTS	6	Lectures / week	1 ½	Laboratories / week	1 ½
Course Purpose and Objectives	The main objectives of the course are to: • Review basic features and operation of AC/DC motors and generators • Introduce digital logic commonly used in motor or generator control • Explain different types of motor starters and drives • Describe circuits that control the operation of motors (accelerating, decelerating) • Introduce students to different types of control and sensor devices • Overview of programmable controllers • Introduce design techniques for motor control panels • Introduce students to wiring of panels, testing, and troubleshooting				
Learning Outcomes	After completion of the course students are expected to: • Have a good understanding of the principle operation of AC and DC motors/generators • Use digital logic and sensor devices to design control circuits for motor control • Know the most appropriate type of motor drive or starter for each application • Use programmable controllers to control motor operation • Design and wire motor control panels • Test and troubleshoot motor control panels				
Prerequisites	None		Required	None	
Course Content	• Review of AC/DC motors/generators and solenoids • Control logic • Characteristics and operation of contactors and magnetic motor starters • AC and DC motor drives • Control devices • Reversing motor circuits • Timing and counting functions • Relays and solid state starters • Sensing devices and controls • Programmable controllers				

	• Reduced voltage starting • Accelerating and decelerating methods • Troubleshooting • Panel layout design, fabrication, and testing (practical)
Teaching Methodology	Lectures, in-class examples, exercises, practical.
Bibliography	<u>Compulsory</u> • Electrical motor controls for integrated systems (2009), Gary Rockis, Glenn A. Mazur, Amer Technical Pub, ISBN: 0826912176 • Electric Motor Control (2010), Stephen L. Herman, Delmar, ISBN: 1-4354-8575-0 • Lecturers notes.
Assessment	Homework: 10% Participation: 10% Laboratory: 20% Mid Term: 20% Final Exam: 40%
Language	Greek