

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	<p>The main objectives of the course are to:</p> <ul style="list-style-type: none"> • 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	<p>After completion of the course students are expected to:</p> <ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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 				

	<ul style="list-style-type: none"> • Panel layout design, fabrication, and testing (practical)
Teaching Methodology	Lectures, in-class examples, exercises, practical.
Bibliography	<p><u>Compulsory</u></p> <ul style="list-style-type: none"> • 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	<p>Homework: 10%</p> <p>Participation: 10%</p> <p>Laboratory: 20%</p> <p>Mid Term: 20%</p> <p>Final Exam: 40%</p>
Language	Greek