IE 337 Automatic Control Systems 3(3,1,1)

Catalog Data	Indentify Linear and digital control systems and fundamentals of manufacturing automations. Ability to use and design process automation using Programmable of logic controller using relay ladder logic. Indentify different types of process automation problems and develop Relay ladder logic for different control problems. Experimental Automation Using PLC			
Prerequisite	MATH 204			
Co-requisites				
Level	8			
Textbook	1. Manufacturing Automation Using PLC, Ali M Alsamhan, Saied M Darwish, Grant 16/424 of Research center College of Engineering, King Saud University.			
Reference	Modern Control Systems, R.C. Dorf, Addison Wesley. Logical Design of Automation System, Sunder B. Friedman, Prentice Hall			
Learning Objectives	• Indentify Linear and digital control systems and fundamentals of manufacturing automations. [c] • Ability to use and design process automation using Programmable of logic controller using relay ladder logic.[c] • Indentify different types of process automation problems and develop Relay ladder logic for different control problems. [c] Experimental Automation Using PLC.[d]			
Topics (classes)		**Topic**	**Week**	**Contact, hr**
	1.	**Introduction to factory automation**	**(1)**	**[5]**
	2.	**Programmable logic controller and relay ladder logic**	**(1)**	**[5]**
	3.	**Numbering systems**	**(1)**	**[5]**
	4.	**Fundamental of computer logics.**	**(1.5)**	**[7.5]**
	5.	**Logic sensors and actuators**	**(2)**	**[10]**
	6.	**Pneumatic, sensors, actuators and control methods**	**(1.5)**	**(7.5)**
	7.	**Relay ladder logic design of common machine sequence**	**(2.5)**	**(12.5)**
Laboratory Topics		Reverse engineering process and procedures		
Project work	Independent group projects for design and manufacturing of a product following the principle of systematic design procedures and covering the course topic			
Computer Usage	Computer use covers course topics			
Learning outcomes	• Indentify Linear and digital control systems and fundamentals of manufacturing automations. [c] • Ability to use and design process automation using Programmable of logic controller using relay ladder logic.[c] • Indentify different types of process automation problems and develop Relay ladder logic for different control problems. [c] Experimental Automation Using PLC.[d]			
Estimated Category Content	Engineering Design: 3 credit hour or 100%.			
Prepared by	*Prof Dr. Ali M Alsmhan*			
Preparation Date	revision 19 may 2012			