PEI307: INDUSTRIAL ELECTRONICS

L	T	P	Cr
3	1	0	3.5

Course Objectives: To understand the concepts of industrial electronics, to enable selection an design of industrial electronic appliances

Introduction: Review of solid state devices, Switch characteristics and their comparison, Semi−conductor materials.

Industrial Electronic converters: Phase controllers, Dual converters, Choppers, Cyclo−converters, Inverters, Power Supplies, Multi-vibrators, Switching Transistors and Timers.

Design of Industrial Electronic Devices: Design and analysis of electromagnetic control of electric drives, Their characteristics, Operating modes, Motor Control, Heating and Welding Control, Opto-electronics and Optical Fibres, Servomotors and their applications.

Industrial application of Industrial Electronic Devices: Control of electric drives used in manufacturing and process industries, Protection of electric drives using solid state devices and controllers, Analysis of drive systems.

Testing for drive controllers: Design and testing of microprocessor based drive controllers, Analysis of solid state control of industrial drives, Design and testing of thyristor based controllers for electric drives.

A C Power Conditioner: Introduction and applications

Course learning outcome (CLO): After the completion of the course the students will be able to

1. Handle knowledge about solid state devices
2. Design industrial electronic converters and devices
3. Handle industrial application of industrial electronic devices and their control
4. Test drive controllers, microprocessor based drive controllers and their analysis
5. Implement power conditioner and applications

Recommended Books:

1. *Biswanath, P., Industrial Electronics and Control, Prentice Hall of India (2003).*
2. *Biswas, S.N., Industrial Electronics, Dhanpat Rai and Co. (P) Ltd. (2004).*

Evaluation Scheme:

Evaluation Elements	Weightage (%)
MST	30
EST	45
Sessionals (May include Assignments/ Projects/ Tutorials/ Quizes/ Lab Evaluations)	25