

Industrial Electronics

OEM: Rockwell Automation • Duration: 3 Days (24 hrs) • Code: ICS-100

COURSE MODULES & TOPICS

Objectives

- Discuss the characteristics and uses of semiconductor devices
- Discuss the characteristics and uses of bipolar transistors
- Describe the operation of diodes
- Describe the operation of transistors
- Describe the operation of operational amplifiers

Student Materials

- Student Manual includes the key concepts, definitions, examples, and activities presented in this course
- Lab Guide includes the hands-on exercises

Next Level Learning

- Basic Digital Circuits course (ICS-105)

Course Agenda

Day 1

- Explaining diode operations
- Using diodes in circuits
- Comparing diode types
- Differentiating rectifier types
- Filtering rectified waveforms using the following filters:
 - Capacitive
 - Choke
 - Multiple section
 - Pi
 - RC input filter

Day 2

- Dividing voltage using series and parallel voltage dividers

- Using current dividers
- Regulating voltage
- Multiplying voltage
- Applying SCRs to circuits
- Using Zener diodes as regulators
- Applying varistors
- Describing LED operation methods
- Differentiating NPN and PNP bipolar transistors
- Biasing transistors

Day 3

- Testing transistors
- Wiring transistor circuits for amplification
- Using opto-electronic devices
- Applying integrated circuits
- Review
- Final lab
- Written exam