



# FUNDAMENTALS OF ELECTRONICS

ELN 106

## COURSE OUTLINE

### BLOCK I: Electrical

- Series Circuits
- Parallel Circuit
- Series-Parallel Circuits
- Inductance
- Capacitance
- Alternating Current and Fundamentals
- AC Circuits

### BLOCK II: Semiconductor Diodes

- Introduction to Current Flow
- Review of Basic Theorems
- Semiconductor Theory
- Energy Levels
- Doping
- PN Diode Formation
- Diode Biasing Methods
- Diode Circuit Analysis

### BLOCK III: DC Power Supplies

- Block Diagram
- Sine Wave Analysis
- Power Transformers
- Rectifier Circuits and Characteristics
- Filter Networks
- Diode Ratings
- Voltage Multipliers
- Zener Diode Characteristics
- Zener Voltage Regulator

### BLOCK IV: Transistor (BJT) Amplifier

- NPN/PNP Transistor Characteristics
- Regions of Operation
- Transistor Biasing Methods
- Transistor Amplifier Configurations and DC Circuit Analysis
- Transistor Ratings and Specifications
- CE Amplifier AC Analysis
- Amplifier Troubleshooting
- Cascaded Amplifiers
- Input and Output Impedance
- Amplifier Voltage Gain
- CC and CB Amplifier Analysis