# ANALOG ELECTRONIC CIRCUITS (Common to EC/TC/EE/IT/BM/ML)

## PART – A

### UNIT 1:

**Diode Circuits:** Diode Resistance, Diode equivalent circuits, Transition and diffusion capacitance, Reverse recovery time, Load line analysis, Rectifiers, Clippers and clampers. (Chapter 1.6 to 1.14, 2.1 to 2.9)

**6 Hours**

### UNIT 2:

**Transistor Biasing**: Operating point, Fixed bias circuits, Emitter stabilized biased circuits, Voltage divider biased, DC bias with voltage feedback, Miscellaneous bias configurations, Design operations, Transistor switching networks, PNP transistors, Bias stabilization. (Chapter 4.1 to 4.12)

**7 Hours**

### UNIT 3:

**Transistor at Low Frequencies:** BJT transistor modeling, Hybrid equivalent model, CE Fixed bias configuration, Voltage divider bias, Emitter follower, CB configuration, Collector feedback configuration, Hybrid equivalent model. **(**Chapter 5.1 to 5.3, 5.5 to 5.17)

**7 Hours**

### UNIT 4:

**Transistor Frequency Response**: General frequency considerations, low frequency response, Miller effect capacitance, High frequency response, multistage frequency effects. (Chapter 9.1 to 9.5, 9.6, 9.8, 9.9)

**6 Hours**

## PART – B

### UNIT 5:

**(a) General Amplifiers**: Cascade connections, Cascode connections, Darlington connections. (Chapter 5.19 to 5.27)

**3 Hours**

**(b) Feedback Amplifier:** Feedback concept, Feedback connections type, Practical feedback circuits. (Chapter 14.1 to 14.4)

**3 Hours**

## UNIT 6:

**Power Amplifiers**: Definitions and amplifier types, series fed class A amplifier, Transformer coupled Class A amplifiers, Class B amplifier operations, Class B amplifier circuits, Amplifier distortions. (Chapter 12.1 to 12.9)

**7 Hours**

## UNIT 7:

**Oscillators:** Oscillator operation, Phase shift Oscillator, Wienbridge Oscillator, Tuned Oscillator circuits, Crystal Oscillator. (Chapter 14.5 to 14.11) (BJT version only)

**6 Hours**

## UNIT 8:

**FET Amplifiers:** FET small signal model, Biasing of FET, Common drain common gate configurations, MOSFETs, FET amplifier networks. (Chapter 8.1 to 8.13)

**7 Hours**

## TEXT BOOK:

**"Electronic Devices and Circuit Theory",** Robert L. Boylestad and Louis Nashelsky, PHI/Pearson Eduication. 9$^{TH}$ Edition.

## REFERENCE BOOKS:


1. **'Integrated Electronics',** Jacob Millman & Christos C. Halkias, Tata - McGraw Hill, 1991 Edition
2. **"Electronic Devices and Circuits",** David A. Bell, PHI, 4$^{th}$ Edition, 2004


**Question Paper Pattern:** Student should answer FIVE full questions out of 8 questions to be set each carrying 20 marks, **selecting at least TWO questions from each part.**