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

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|---|---|---|---|---|---|
| **Sub Code** | **:** | **10ES32** | **IA Marks** | **:** | **25** |
| **Hrs/ Week** | **:** | **04** | **Exam Hours** | **:** | **03** |
| **Total Hrs.** | **:** | **52** | **Exam Marks** | **:** | **100** |

### 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. **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. **6 Hours**

**UNIT 3:**

**Transistor at Low Frequencies:** BJT transistor modeling, CE Fixed bias configuration, Voltage divider bias, Emitter follower, CB configuration, Collector feedback configuration, Analysis of circuits $r_e$ model; analysis of CE configuration using h- parameter model; Relationship between h-parameter model of CE,CC and CE configuration. **7 Hours**

**UNIT 4:**

**Transistor Frequency Response**: General frequency considerations, low frequency response, Miller effect capacitance, High frequency response, multistage frequency effects. **7 Hours**

### PART – B

**UNIT 5:**

**(a) General Amplifiers**: Cascade connections, Cascode connections, Darlington connections. **3 Hours**

**(b) Feedback Amplifier:** Feedback concept, Feedback connections type, Practical feedback circuits. Design procedures for the feedback amplifiers. **4 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. Designing of Power amplifiers. **7 Hours**

**UNIT 7:**

**Oscillators:** Oscillator operation, Phase shift Oscillator, Wienbridge Oscillator, Tuned Oscillator circuits, Crystal Oscillator. (BJT Version Only) Simple design methods of Oscillators. **6 Hours**

**UNIT 8:**

**FET Amplifiers:** FET small signal model, Biasing of FET, Common drain common gate configurations, MOSFETs, FET amplifier networks.

**6 Hours**

**TEXT BOOK:**

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

**REFERENCE BOOKS:**

1. **'Integrated Electronics',** Jacob Millman & Christos C. Halkias, Tata - McGraw Hill, 2nd Edition, 2010
2. **"Electronic Devices and Circuits",** David A. Bell, PHI, 4th Edition, 2004
3. "**Analog Electronics Circuits: A Simplified Approach"**, U.B. Mahadevaswamy, Pearson/Saguine, 2007.

## LOGIC DESIGN
## (Common to EC/TC/EE/IT/BM/ML)

| | | | | | |
|---|---|---|---|---|---|
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| **Total Hrs.** | **:** | **52** | **Exam Marks** | **:** | **100** |

**PART – A**

**UNIT 1:**

**Principles of combinational logic-1:** Definition of combinational logic, Canonical forms, Generation of switching equations from truth tables,