

2005-2006

Syllabus

SSP-S-113/117

P.104: Electronic Devices & Circuits

1. SEMI-CONDUCTOR & MICROWAVE DEVICES:

15 Hrs.

Tunnel diode, photo diode, solar cell, LED, varactor diode, Silicon controlled Rectifier, phototransistor, Uni Junction Transistor, Field Effect Transistor, JFET; MOSFET, Klystron, Magnetron, Traveling wave tube, Gunn Diode, IMPATT diode, TRAPATT diode, PIN Diode, Schottky Barrier Diode, APD.

1hr 2

2. FEEDBACK IN AMPLIFIERS :

6 Hrs.

Feedback concept, transfer gain with feedback, general characteristics of negative feedback in amplifiers, voltage series feedback, current series feedback, current shunt feedback, voltage shunt feedback.

3hr 4 2

3. TUNED AMPLIFIERS :

4 Hrs.

Classification of tuned amplifiers, single - tuned capacitor-coupled amplifier; Single - tuned inductor - coupled amplifier, double - tuned amplifier.

4. POWER AMPLIFIERS :

4 Hrs.

Class A large signal amplifier transformer - coupled amplifier, push - pull amplifier, class B amplifier, class AB amplifier.

5hr 2

5. OSCILLATORS AND MULTI-VIBRATORS :

8 Hrs.

Classification of oscillators, colpitts oscillator, Hartely oscillator, Wien -bridge Oscillator, Crystal oscillator, Astable, Bi-stable and Monostable Multi-vibrators.

6. OPERATIONAL AMPLIFIERS (OP AMP):

8 Hrs.

The ideal Op Amp - Practical inverting and Non inverting Op-Amp stages. Op Amp; Architecture - differential stage, gain stage, DC level shifting, output stage, offset voltages and currents; Operational Amplifier parameters input offset voltage ( $V_{io}$ ), Input Bias current ( $I_b$ ) - Common Mode Rejection Ratio (CMRR), Slew Rate, Open loop voltage gain. Operational Amplifier Applications: Summing amplifier (adder), Integrator; Differentiator, Voltage - Current converter Current - Voltage converter.

7hr 2

Text & Reference Books:

1. "Integrated Electronics" - Millman and Halkies.
2. "Electronic Devices and Circuits" - G.K. Mithal
3. "Transistor Circuits Analysis and Design" - F.C. Fitcher.
4. "Electronic Communication Systems" - G.Kennedy.
5. "Microelectronics" by Jacob Millman & Arvin Grabel,
6. "Op.Amps and Linear Integrated Circuits" - Ramakant A.Gayakwad

\* PLEASE SET TWO DIFFERENT  
QUESTIONS  
\* SET 1  
\* SET 2