

**Syllabus for F.Y. B.Sc. (Electronics for Computer Science)
Paper I
Principles of Analog Electronics-I**

Semester- I	Subject Code: BS11507	Lectures: 40
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Objectives:

The syllabus aims in equipping students with,

- Basic circuit elements and passive components
- Understanding different circuit theorems and their use in the DC circuit analysis
- Characteristic features of semiconductor devices
- Elementary electronic circuits and applications
- Knowledge of different types of power supply



Unit 1: Basic Electrical Circuits and Circuit Theorems	No. of Lect.=14
• Introduction to components : Resistor, Capacitor, Inductor, series and parallel circuits of resistors, capacitors and inductors	2
• Concept of Ideal Voltage and Current source, dc sources(voltage/current), Ohms law	1
• Polarity of IR drops, voltage and current dividers, Kirchhoff's Laws (KCL, KVL)	3
• Superposition theorem, concept of black box, Thevenin's theorem, Norton's theorem, Maximum power transfer theorem (Numerical problems with maximum two meshes)	6
• Charging-discharging of capacitor, AC applied to R, C and LCR circuit (No derivation), concept of impedance	2

BOS Members:

Ms. Nanda Ranade, (Subject Expert)



Mr. Manoj Kukade, (Subject Expert)



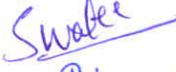
Mr. Prafulla Wadaskar, (Industry Expert)



Ms. Divya Jagannathan, (Alumni)



Ms. Swatee Sarwate, (Chairman)



Ms. Anitha Menon, (Internal Faculty)



Unit 2: Semiconductor Diodes and Circuits	No. of Lect.=12
• Introduction to semiconductor : Intrinsic and extrinsic semiconductor	1
• Study of semiconductor devices with reference to symbol, working principle, I-V characteristics, parameters, specifications. Rectifier diode, zener diode	4
• light emitting diode, photo diode, opto coupler, solar cell	4
• clipper and clamper circuits	3

BOS Members:

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Unit 3: Power Supply	No. of Lect.=14
• Half wave rectifier, Full wave rectifier and Bridge rectifier with RC filter and comparison of all rectifiers	5
• Block diagram of power supply, Voltage Regulation: Load and Line Regulation, Application of Zener as a voltage regulator	5
• Concept of Switching mode Power supply, three pin regulators: 78xx, 79xx, concept of rechargeable batteries and mobile chargers.	4

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