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

Semester- I	Subject Code: BS11507	Lectures: 40

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)

St. Mira's College For Girls ★Poona-411001★

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:

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)

St. Mira's College For Girls ★ Poona-411001 ★

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

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)

St. Mira's College For Girls ★ Poona-411001 ★