

GOPAL KRISHNA COLLEGE OF ENGINEERING AND TECHNOLOGY

GOURAHARI VIHAR, PO: RANIPUT, JEYPORE – 764 005

LESSON PLAN

Name of the Subject: BASIC ELECTRONICS

Name of the Faculty: Subrat Prasad Rath

Semester: 1st Semester

Branch: ETC

Semester From: July to December

No. of Weeks: 15 Weeks

Week	Day	Theory/ Practical Topics	Classes
		Unit 1 – Semiconductor Physics, Bipolar junction Transistor (BJT)	7
1	1.	Properties of semiconductor	1
	2.	current flow in semiconductors	1
	3.	voltage -current characteristic of a p-n junctions, Rectifiers	1
	4.	Device structure, types and modes of operation	1
2	5.	static characteristic, BJT as a switch	1
	6.	BJT as an amplifier	1
	7.	concept of biasing of BJT	1
		Unit 2 – JFET, MOSFET, Integrated Circuits	7
3	8.	Physical structure, operation and static characteristics	1
	9.	Physical structure	1
	10.	operation and characteristics of D- and E- type MOSFET	1
	11.	Introduction to Integrated circuits	1
4	12.	Fabrication of monolithic IC	1
	13.	Integration of circuit components	1
	14.	Limitations of VLSI	1
	15.	Unit 3 - Feedback Amplifiers, Operational Amplifier (OP-AMP)	6
	16.	General feedback structure	1
5	17.	properties of negative feedback	1
	18.	four basic types of feedback topologies (Block diagram only)	1
	19.	Ideal OP-AMP, inverting configuration	1
	20.	non-inverting configuration	1
6	21.	OP-AMP Applications (Adder, Subtractor only)	1
		Unit 4- Digital Electronics fundamentals	5
	22.	Number system (Decimal, Binary, Octal and Hexadecimal)	1
	23.	conversion among number systems, signed-binary numbers	1
	24.	binary addition, subtraction, multiplication and division	1

7	25.	logic gates, laws of Boolean Algebra	1
	26.	simplification of expressions	1
		Unit 5- Electronic Instruments, Principles of Communication Systems	5
	27.	Overview of CRO, DSO	1
	28.	principles of operation, waveform reconstruction	1
8	29.	Comparison between CRO & DSO	1
	30.	applications of oscilloscope	1
	31.	Fundamentals of AM & FM, (Waveforms and general expressions only)	1
	32.		
	33.		

ESSENTIAL READING:

1. Electronics Fundamentals and Applications, D. Chattopadhyay and P.C. Rakshit, New Age International Publications. (Selected portions from chapters)
2. Electronic Devices & Circuit Theory, R.L. Boylestad and L.Nashelsky, Pearson Education.

Books Recommended:

3. Microelectronics Circuits, A.S Sedra, K.C. Smith, Oxford University Press.
4. VLSI Design, Debaprasad Das, Oxford University Press.
5. Electrical & Electronics Measurement and Instrumentation, A.K. Sawhney, Dhanpat Rai & Co(Pvt.) Ltd