



INSTITUTE OF AERONAUTICAL ENGINEERING

Dundigal, Hyderabad -500 043

ELECTRONICS AND COMMUNICATION AND ENGINEERING

COURSE DESCRIPTION

Course Title	:	ELECTRONIC DEVICES AND CIRCUITS LAB			
Course Code	:	A30482			
Regulation	:	R13 – JNTUH			
Course Structure	:	Lectures	Tutorials	Practical's	Credits
		-	-	3	2
Course Coordinator	:	Mr. Kalandhar Basha, Associate Professor			
Team of Instructors	:	Ms. G.Mary swarna latha, Associate Professor			

I. COURSE OVERVIEW:

This lab complements the electronic devices circuits course. Students will gain practical experience with designing and implementing concepts of electronic devices and circuits such as diodes, transistor configurations, rectifiers, biasing circuits and amplifiers.

II. PREREQUISITE(S):

Level	Credits	Periods/ Week	Prerequisites
UG	2	3	Electronic devices and circuits

III. MARKS DISTRIBUTION:

Sessional Marks	End Semester Exam	Total Marks
There shall be a continuous evaluation during the semester for 25 marks. Day-to-day work in the laboratory shall be evaluated for 15 marks and internal practical examination conducted by the concerned teacher shall be evaluated for 10 marks.	50	75

IV. EVALUATION SCHEME:

S. No	Component	Duration	Marks
1.	Day-to-day Evaluation	-	15
2.	Internal Practical Examination	2.5 hours	10
5.	End Semester Examination	2.5 hours	50

V. COURSE OBJECTIVES:

1. To identify the basic electronic devices.
2. To observe the characteristics of diodes like PN, Zener diode.
3. Be familiar with rectifiers and filters.
4. To observe the characteristics of transistors ,SCR & UJT.
5. To analyze transistor amplifiers and their frequency responses.

VI. COURSE OUTCOMES

At the end of the laboratory course the students are able to:

1. **Analyze** the diode and transistor characteristics.
2. **Understand** the principles of rectifier circuits using diodes and implement them using hardware.
3. **Design** the biasing circuits like self biasing.
4. **Design** various amplifiers like CE, CC, common source FET amplifiers and implement them using hardware and also observe their frequency responses.
5. **Understand** the concepts of SCR and observe its characteristics.
6. **Understand** the concepts of unipolar junction transistor and observe its characteristics.

VII. COURSE PLAN

Wee k	Division of Experiments	List of Experiments
1.	Electronic workshop practice	Identification, Specifications, Testing of R, L, C Components (Color Codes), Potentiometers, Switches (SPDT, DPDT, and DIP), Coils, Gang Condensers, Relays, Bread Boards. PCBs
2.		Identification, Specifications and Testing of Active Devices, Diodes, BJTs, Low power JFETs, MOSFETs, Power Transistors, LEDs, LCDs, Optoelectronic Devices, SCR, UJT, DIACs
3.		Study and operation of a.Multimeters (Analog and Digital) b.Function Generator c.Regulated Power Supplies d. Study and Operation of CRO
4.	Diode characteristics	PN Junction diode characteristics A. Forward bias B. Reverse bias.
5.		Zener diode characteristics
6.	Transistor characteristics	Transistor CB characteristics (Input and Output) & h-parameter calculation
7.		Transistor CE characteristics (Input and Output) & h-parameter calculation
8.	Rectifiers	Rectifier without filters (Full wave & Half wave)

9.		Rectifier with filters (Full wave & Half wave)
10.	frequency response of Amplifiers	frequency response of CE Amplifier
11.		frequency response of CC Amplifier (Emitter Follower).
12.	Characteristics of special devices	SCR characteristics
13.		UJT characteristics.

Prepared By: Ms. G. Mary swarna latha, Mr. Kalandhar Basha, Associate Professor

HOD, ECE

