

	PVKN Govt. College (Autonomous) Chittoor	Program II B.Sc. Physics Hons.			
Course Code 24-PHY-3C7	TITLE OF THE LABORATORY COURSE ELECTRONIC DEVICES AND CIRCUITS	Semester-III			
Teaching	Hours Allocated: 60 Hrs (Practical) (3 Hrs./wk.)	L	T	P	C

Syllabus:

UNIT I: PN JUNCTION DIODES

P-N junction Diode, Formation of depletion region, Forward and Reverse bias Ideal Diode, **V-I characteristics of P-N junction diode**, Reverse saturation current – Tunnel Diode- Construction, working, V-I characteristics and Applications, Zener diode – V I characteristics, Applications

UNIT –II: BIPOLAR JUNCTION TRANSISTOR AND ITS BIASING: (D.C)

BJT, Transistor construction, working of PNP and NPN Transistors, Active, Cutoff and Saturation conditions, **Transistor currents**, Configurations of Transistor - CB, CE, and CC, Input and Output Characteristics of CB and CE configurations. Hybrid parameters of a Transistor and equivalent circuit, BJT Transistor Biasing methods - Voltage-Divider Bias.

UNIT-III: FIELD EFFECT TRANSISTORS & POWER ELECTRONIC DEVICES –

Introduction to FET, Difference between JFET and BJT, Construction and working of JFET, Drain and Transfer Characteristics, MOSFET - Depletion-type, and Enhancement-Type MOSFETs. FET Biasing: ~~Voltage-Divider Bias~~, UJT- Construction, working, V-I characteristics. SCR Construction, Working and Characteristics.

UNIT IV: PHOTO ELECTRIC DEVICES:

Light-Emitting Diodes (LEDs) - Construction, working, characteristics and Applications, IR Emitters, Photodiode - Construction, working characteristics and Applications, Phototransistors - Construction, working and characteristics, Applications, Structure and operation of LDR, Applications

UNIT-V: POWER SUPPLIES:

Rectifiers: Half wave, Full wave and bridge rectifiers - Efficiency (with derivations), ripple factor- Zener diode as Voltage Regulator, Filters- choke input (inductor), L-section, π -section filters. Three terminal fixed voltage IC-regulators (78XX and 79XX).