LNCT University
Diploma EX, III Semester Syllabus

BASIC ELECTRONICS ENGINEERING (DEX-305)

COURSE OUTCOMES:

After Completing the course student should be able to:

CO-1	Acquire basic knowledge of semiconductor physics
CO-2	Student will be able to Compare different bipolar junction transistors and different type of field effect transistors (FET)
CO-3	Student will be able to Compare different Rectifiers and Filters.
CO-4	Student will be able to Compare different Amplifiers.
CO-5	Applications Modulation and Demodulation

COURSE CONTENTS:

UNIT I: **SEMICONDUCTOR DEVICES** Concept of electronic emission - Different methods of electronic emission and their applications. Diodes - Formation of PN Junction, forward biasing and revere biasing of PN junction, construction, characteristics and application of different types of diodes and Zener diode.

UNIT II: TRANSISTOR PNP/ NPN Junction Transistors, different configurations: CB, CE, CC. Transistors Characteristics, and applications. Special Semiconductor devices - Construction, symbol and application of Tunnel diode, photo diode, varactor, FET, MOSFET and UJT.

UNIT III: RECTIFIERS Single phase, half wave, full wave and bridge types of rectifiers. Calculation of output voltage, average and RMS values, ripple factor and rectification efficiency. Filter and types of filters.

.

UNIT IV:

AMPLIFIERS Principle of amplification, types of transistor amplifiers, biasing techniques, RC coupled, transformer coupled, and direct coupled amplifiers, push pull Amplifier, advantages and disadvantages, detailed study of circuit diagram.

UNIT V: MODULATION AND DEMODULATION Amplitude, phase and frequency modulation, principle, methods and applications of above modulations, A.M. and F.M. detection.

Reference Books: -

1. Electronic Devices & CKTs Mottershead.
2. Basic Electronics – V K Mehta.
3. Electronic Devices & CKTs Robert Boylestad.
4. Basic Electronics B. L. Thareja.

List of suggestive core experiments: -

1. To plot the V-I characteristics of a Silicon Diode
2. To plot the V-I characteristics of a Germanium Diode
3. To verify the V-I characteristics of Zener Diode.
4. To setup the circuit and verify the waveforms of Half Wave rectifier.
5. To setup the circuit and verify the waveforms of Full Wave rectifiers.
6. To setup the circuit and verify the waveforms of Bridge rectifier
7. To obtain the input and output Transistor Characteristics for CE configuration.
8. To obtain the input and output Transistor Characteristics for CB configuration.
9. To obtain the input and output Transistor Characteristics for CC configuration.
10. To verify the V-I Characteristics of FET.
11. To verify the V-I Characteristics of UJT.
12. To verify the V-I Characteristics of MOSFET.