C.U.SHAH UNIVERSITY – WADHWANCITY

FACULTY OF TECHNOLOGY AND ENGINEERING
DEPARTMENT OF COMPUTER ENGINEERING
B. TECH. SEMESTER: - III

SUBJECT NAME: Linear Electronics (LNE) **SUBJECT CODE: 4TE03LNE1**

Teaching & Evaluation Scheme:-

Subject Code	Subject Name	Teaching Scheme (Hours)				Credits	Evaluation Scheme							
							Theory				Practical (Marks)			Total
							Sessional Exam		University Exam		Internal		University	
		Th	Tu	Pr	Total		Marks	Hours	Marks	Hours	Pr/Viva	TW	Pr	
4TE03LNE1	Linear Electronics	2	0	2	4	3	30	1.5	70	3.0	30	20	-	**150**

Objectives:

- To provide detailed knowledge for the working of Transistor at Low Frequencies, different Amplifier, Power Circuits and Oscillators in electronics devices.

Prerequisites:

- The fundamental knowledge of electronics.

Course outline:

Sr. No.	Course Contents	Total Hours
1	**Transistor at Low Frequencies:** Two-Port Devices and the Hybrid Model, Operating Point & stability, Biasing technique use in Transistor, Transistor Hybrid Model, h-Parameters, Analysis of a Transistor Amplifier Circuit Using h Parameters, Emitter Follower, Comparison of Transistor Amplifier Configurations, Simplified CE Hybrid Model.	07
2	**Power Circuits and Systems:** Operating Point & Different types of amplifier, Class A Amplifier, Efficiency, Class B Amplifier, class B Push-Pull Amplifier, Class AB Amplifier, class C Amplifier.	05
3	**Operational Amplifiers:** Basic Operational Amplifier, Inverting and non-inverting amplifier, integrator and differentiator, summing amplifier, V to I and I to V converting amplifier.	05
4	**Feedback Amplifiers:** Classification of Amplifiers, Feedback Concept, Transfer Gain with Feedback, General Characteristics of Negative Feedback Amplifiers, Input Resistance, Output Resistance, Voltage Series Feedback, Current Series Feedback, Current Shunt Feedback, Voltage Shunt Feedback.	07

5	**Oscillators:** Positive feedback and Barkhausen Criterion , Phase-Shift Oscillator, A General Form of Oscillator Circuit: Colpitts , Hartley's Oscillator, Crystal Oscillators.	06

Text Books:

1) Integrated Electronics, **Jacob Millman and Christos C. Halkias**, Tata McGraw Hill Publication, 1991.

2) Principles of Electronics, **Mehta V. K. & Mehta Rohit**, S. Chand & Co. Ltd, 11th edition, 2009.

Reference Books:

1) Basic of Electronics, **De Debashis**, Pearson Education, 2010.

2) Electronic Devices & Circuit Theory, **Boylestad Robert L. &Nashlesky Louis**, PHI Publication, 10th edition, 2009 .

3) Electronics Devices, **Thomas L. Floyd**, Pearson Education, 9th Edition, 2008.

4) Electronics Circuits- Discrete and Integrated, **Schilling Donald L. and Belove E**, McGraw-Hillbb, 9th edition,2002.