Course Number and Name

BEE042 & Electronic Integrated Circuits

Credits and Contact Hours

3 & 45

Course Coordinator's Name

Mrs.Sherine

Text Books and References

Text Books:

1. Albert Paul Malvino, "Electronic Principles", Sixth Edition, Tata McGraw Hill Edition, 1998
2. R.S Sedha, "Applied Electronics", Third edition, S Chand Publishing, 2008

References:

1. David A. Bell, "Electronic Devices and Circuits", Prentice Hall of India, 1998
2. Donald L. Schilling Chartes Beloue, "Electronic Circuits", Third Edition, 1989
3. Online courses on electronic circuits-http://electronicsforu.com/newelectronics/default.asp

Course Description

To master the various biasing techniques, small and large signal analysis and design, wave shaping, regulating and rectification using electronics devices. This will help you to gain knowledge in the electronic integrated circuits

Prerequisites	Co-requisites
Linear Integrated Circuits	Nil

required, elective, or selected elective (as per Table 5-1)

Required

Course Outcomes (COs)

CO1: To understand the biasing techniques of various electronics devices.
CO2: To learn the small signal low frequency analysis and design of various electronic devices.
CO3: To analyze various large signal amplifier and to study their design
CO4: To understand the principle of various wave shaping, triggering and oscillating circuits
CO5: To learn the fundamentals of rectification, filter design and regulating power supplies

Student Outcomes (SOs) from Criterion 3 covered by this Course

COs/SOs	a	b	c	d	e	f	g	h	i	j	k	l
CO1	M	M	M	H	M	M	M	H		H	L	M
CO2	H	M	M	H	H		M	H	H	H	L	M
CO3	L	H		H	H	M	L	H	H	H	L	H
CO4	L	H	M	H	H	M	L	M	H	L	H	H
CO5	H	M	M	H	H		M			L	L	L

List of Topics Covered

UNIT I BASIC STABILITY AND DEVICES STABILIZATION 9

Biasing Circuits for BJT, DC and AC load lines-Stability factor analysis-Temperature compensation methods-Biasing circuits for FET's and MOSFETs

UNIT II SMALL SIGNAL LOW FREQUENCY ANALYSIS AND DESIGN 9

Transistor, FET and MOSFET Amplifier, Equivalent circuit, input and output characteristics, calculation of Mid band gain input and output impedance of various amplifier, cascade amplifier, Darlington bootstrapping, differential amplifier, CMRR measurement, use of current source in emitter.

UNIT III LARGE SIGNAL AMPLIFIER 9

Class A, AB, B, C and D type of Operation, Efficiency of class A amplifier with resistive and transformer coupled load, Efficiency of class B amplifier, Complementary symmetry amplifiers, MOSFET power amplifier, Thermal stability of power amplifiers heat sink design.

UNIT IV PULSE CIRCUITS 9

RC wave shaping circuits – Diode clampers and clippers – multi vibrators – Schmitt trigger – UJT triggering circuits – Saw tooth oscillators.

UNIT V RECTIFIERS AND POWER SUPPLIES 9

Half and full wave rectifiers ripples factor calculation for C, L, L-C and "Pi" symbol filters- Switch mode power supplies- Linear electronic voltage regulators - Power control using SCR.