

**SREENIVASA INSTITUTE of TECHNOLOGY and MANAGEMENT STUDIES
(AUTONOMOUS): CHITTOOR
DEPARTMENT of ELECTRONICS and COMMUNICATION ENGINEERING**

II Year B.Tech. II semester

L	T	P	C
3	1	0	3

16ECE227 ANALOG ELECTRONIC CIRCUITS

Course Educational Objectives:

- The course intends to provide an overview of the principles, operation and application of the analog building blocks like diodes, BJT, FET etc for performing various functions.
- The course relies on elementary treatment and qualitative analysis and makes use of simple models and equation to illustrate the concepts involved.
- To provide an overview of amplifiers, feedback amplifiers and oscillators.

Unit-1:

SMALL SIGNAL BJT AMPLIFIERS

Review of CB, CE & CC amplifiers-Classification of amplifiers, approximate analysis, CE, CB, CC amplifiers comparison, Low frequency analysis, response of BJT amplifiers-Miller effect capacitance, high frequency response.

Unit-2:

SMALL SIGNAL FET AMPLIFIERS

Classification of amplifiers, approximate analysis OF CS amplifiers ,Low frequency analysis, response of FET amplifiers-Miller effect capacitance, high frequency response of FET amplifiers, Square wave testing.

Unit-III

FEEDBACK AMPLIFIERS

Concept & Classification of Feedback amplifiers, general characteristics negative feedback amplifiers, Voltage series, Voltage shunt, Current series, Current shunt configurations.

Unit-IV

OSCILLATORS

Conditions & Frequency of oscillations for RC, LC type, Crystal, Quartz, and Hartley. Colpitts, RC phase shift & Wien bridge Oscillators and frequency & amplitude stability of oscillators.

Unit-V

LARGE SIGNAL AMPLIFIERS

Class-A, Class-B power amplifiers and its Efficiency, transformer coupled, push- pull, complementary symmetry circuits, transistor power dissipation, Thermal runaway, Heat sinks.

Course Outcomes:

- ✓ Acquire knowledge on design and testing of analog circuits, its characteristics like gain, bandwidth, and gain bandwidth product.
- ✓ To understand the concept of multistage amplifiers, analysis of multistage amplifier and its frequency response.
- ✓ Can acquire the sound knowledge of tuned amplifiers, such as single tuned, double tuned and power amplifiers.
- ✓ Can acquire the knowledge on positive and negative feedback amplifiers.

Text Books:

1. Electronic Devices and Circuits Theory, Robert L. Boylestad, Louis Nasheisky, 9th edition 2007.
2. Electronic Devices and Circuits by S.Salivahanan, N.Suresh Kumar 2nd Edition 2008.

References

1. Pulse, Digital & switching waveforms by Jacob Milliman, Harbert Taub 2nd Edition, 2008.
2. Solid State Pulse Circuits by David A. Bell 4th Edition.