PULSE AND DIGITAL CIRCUITS
(Common to ECE, EEE)

Course Code: 13EC1106

Pre requisites:
Engineering Physics, Electronic devices Circuits, Basics of Mathematics

Course Educational Objectives:
✤ To understand the concepts of wave shaping.
✤ Study of multivibrators
✤ Understand the applications of analog and digital waveform generation.

Course Outcomes:
✤ Capability to design linear and non-linear wave shaping circuits.
✤ Capability to design square wave and time base generators and their applications.

UNIT-I
LINEAR AND NON-LINEAR WAVESHAPING:
Lowpass & Highpass RC circuits, Response for sinusoidal, step, pulse, square and ramp inputs, RC network as differentiator and integrator, Ringing circuit. Diode clippers, Transistor clippers, Emitter coupled clipper, clamping circuits, clamping circuit theorem.

UNIT-II
MULTIVIBRATORS:
UNIT-III

TIMEBASE GENERATORS:
General features of a timebase signal, methods of generating time base wave form, Miller and Boots trap time base generators basic principles, Transistor miller time base generator, transistor Boots trap time base generator, Current time base generators.

UNIT-IV

SYNCHRONIZATION AND FREQUENCY DIVISION:
Principle of Synchronization, Frequency division in sweep circuit, Astable relaxation circuits, Monostable relaxation circuits, Synchronization of a sweep circuit with symmetrical signal, Sine wave frequency division with a sweep circuit.

UNIT-V

SAMPLING GATES:
Basic operating principles of sampling gates, Unidirectional and Bi-directional sampling gates, Reduction of pedestal ingate circuits, Applications of sampling gates.

Logic Gates: Logic gates using Diodes, resistors and transistor- RTL, DTL.

TEXT BOOKS:

REFERENCES: