1. sinusoidal, step, pulse, square wave, exponential and ramp inputs, High pass RC circuit Linear Wave Shaping: High pass RC circuit and its response to as a differentiator, Double differentiation, Low pass RC circuit and its response to sinusoidal, step, pulse, square wave, exponential and ramp inputs, Low pass RC circuit as an integrator Attenuators.
2. Clipping and Comparator Circuit: Diode clippers, Transistor clipper, Clipping at two independent level, Emitter-coupled clipper, Compensation for temperature changes in diode, Comparators, Applications of voltage comparators.
3. Clamping & Switching Circuits: Clamping operation, Clamping circuit, Clamping circuit theorem, Practical clamping circuits, Effect of diode characteristics, Clamping in base, Synchronous clamping circuit, Transistor as a switch, Two stage overdriven amplifier, Damper diodes, Switch with inductive and capacitive load, Collector catching diode, Nonsaturating switches, Emitter follower with capacitive load.
4. Bistable Multivibrators: Fixed biased transistor binary, Self biased transistor binary, Commutating capacitors, Methods of improving resolution, Methods of triggering, Schmitt trigger.
5. Monostable & Astable Multivibrators, Collector-coupled monostable multivibrator, Emitter-coupled monostable multivibrator, Gate width calculation & waveforms, Influence of VB on waveforms in Emitter-coupled monostable, Triggering of monoshot, Astable collector coupled & emitter-coupled multivibrator.
6. Synchronization and frequency division: General features of a Time, Base signal, Exponential sweep circuit, Pulse synchronization of relaxation devices, Frequency division in sweep circuit, Astable & Monostable multivibrators as frequency dividers.

Practical work shall be based upon the theory course.

References:

1. Millman & Taub: Pulse, Digital and Switching waveforms, McGraw Hill, IS Edition, 1994.
2. Mitchell B.B.: Semiconductor pulse circuits with experiments, Holt, Rhinehart & Winston,1990.

3. Bell David A : Solid State Pulse Crcuits, Reston Publishing Company, 4th Edition , PHI EEE 1993.
4. Strauss L : Waveform generation and shaping, McGraw Hill,2/e.1990.