Subject Code : P8IE8

PULSE TECHNIQUES

UNIT – I : Pulse Fundamentals:

Types of waveforms – Characteristics of pulse waveforms – pulse width, rise time, fall time, tilt - Duty Cycle – Transistor switching times – Harmonic contents of the waveforms – Frequency Spectrum of Rectangular waveform – Distortion and Frequency response – Rise time and uppercut – off frequency - tilt and Lower cut – off frequency.

UNIT – II : Linear Wave Shaping:

High pass RC circuit – response of high pass RC to step, square – rectangular, ramp and exponential inputs – high pass RC as a differentiator – Steady state solution.

Low – Pass RC circuits – response of low pass RC to step, square, rectangular, ramp and exponential inputs – Low pass RC as an integrator – Steady state solution.

Non-Linear wave shaping:

Diode clipping circuits – series and shunt diode clippers – Transistor clipping – clipping at two independent levels – emitter coupled clippers – Diode comparators – Applications of voltage comparators.

Clamping circuits – Clamping operations – Negative and positive clamping circuits – Clamping circuit theorem – Biased Clamping – Zener diode clamper – voltage multiplying circuits.

UNIT – III : Multi Vibrator Circuits:

Collector coupled and emitter coupled astable multivibrators – Collector coupled and emitter coupled monostable multivibrator circuits – Collector coupled bistable multivibrators – Fixed and self bias – Triggering of bistable multivibrator – Speed up capacitors – Asymmetrical and Symmetrical triggering.
Schmitt Trigger Circuit – Designing for the UTP and LTP - Schmitt Trigger as squarer, flip-flop and voltage comparator.

UNIT – VI : Voltage and Current Time Base Generators:

General features of a time base signal – Sweep speed error – displacement error – exponential sweep circuit – UJT circuit – Miller and Bootstrap time base generators – General consideration – Transistor Miller time base generators – Bootstrap time base generators – Basic Principles – Transistor Bootstrap time base generators.
Constant – Current Ramp generators – Basic television sweep circuits.

UNIT – V : Blocking Oscillator Circuits:

Basic ideas of pulse transformers and delay lines Triggered Transistor blocking oscillator – base and emitter timing – Astable transistor blocking oscillator - diode and RC control – Elementary ideas of pulse modulation and time division multiplexing.

Books for Reference:

1. Solid state pulse circuits by David A.Bell, Prentice Hall of India.
2. Pulse Digital Circuits and Computer fundamentals by R.Venkatraman, Dhanpat and Son's Delhi.