Subject Code : P8EL10

PULSE TECHNIQUES

Unit I: PULSE FUNDAMENTALS

Types of wave forms- characteristics of pulse waveforms-transistor switching times.

LINEAR WAVESHAPING CIRCUITS

High pass and low pass RC circuits-response to step, square, rectangular, ramp and exponential inputs-high pass RC as a differentiator and low pass RC as an integrator-steady state solutions.

Unit II: CLIPPING AND CLAMPING CIRCUITS

Diode clipping circuits-series and shunt diode clippers- transistor clipping-clipping at the 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: MULTIVIBRATOR CIRCUITS

Collector coupled and emitter coupled astable, monostable multivibrator-collector coupled bistable multivibrator-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 a squarer, flip-flop and voltage comparator.

Unit IV: VOLTAGE AND CURRENT TIME BASE GENERATORS

Generator features of time base signals-sweep speed error-displacement error-exponential sweep circuit-UJT circuit –Miller and Bootstrap time base generators-general considerations-transistor Miller time base generator-Bootstrap time base generator-basic Principles –transistor Bootstrap time base generator.
Constant current ramp generator-basic television sweep circuits.

Unit V: BLOCKING OSCILLATOR CIRCUITS

Triggered transistor blocking oscillator-base and emitter timing -astable transistor blocking oscillator-diode and RC control applications of blocking oscillators-elementary ideas of pulse modulation and time division multiplexing – basic ideas of pulse transformers-unidirectional and bi-directional sampling gates.

BOOKS FOR STUDY.

1. Solid state Pulse circuits-A. Bell-TMH
2. Pulse Digital and Switching waveforms-Millman and Taub-Mcgraw Hill National Book company

REFERENCES:

Pulse Digital circuits and Computer Fundamentals - R. Venkataraman-Dhanpat Rai and Sons.