EEE.3.3 Electronics II

EE.3.3 Electronics II

The module is divided into four sections:

Section 1: Transfer Function. STC Networks. Spectral analysis. Classes of Amplifiers with respect to their frequency response. Linear Amplifier models. High Frequency amplifier modeling. Two port network modeling. High frequency amplifier modeling for BJT and FET amplifiers. Wideband Amplifier circuit/frequency analysis. Multistage amplifiers. AC and DC coupling of amplifiers.

Section 2: Differential Amplifiers. Ideal Operational Amplifiers (OpAmp). IC OpAmps. OpAMP models and simple examples – inverting, non-inverting, and other simple application. Active Filters of 1st order. Instrumental Amplifier. Advanced OpAmp applications.

Section 3: Power Amplifiers. Power consumption and power efficiency. Amplifier performance. Thermal analysis and behavior of power amplifiers. Amplifier Classes. Push-Pull Amplifiers. Amplifier-Load coupling, AC load line analysis. Distortion and Noise,

Section 4: Feedback: Feedback topology ideal modeling. Impact of the negative feedback on the performance / stability / characteristics of amplifier circuits. Feedback models (Voltage, Current, Trans-conductance and Trans-impedance amplifiers). Negative feedback circuit analysis. Oscillation criteria. Multistage amplifiers feedback analysis. OpAmp feedback circuits.