Basic Electronics (3110016)

2. AC Analysis of BJT circuits and small signal

Coupling and bypass capacitors, Transistor as a switch.

5. Field effect transistors (FET) and its biasing

FET, Biasing in ohmic region and active region, Transconductance, amplification and switching, MOSFETs (D-type and E-type MOSFET), CMOS introduction, E-MOSFET amplifier. MOSFET testing, Reading datasheet for FET and MOSFET.

6. Digital Circuits

Building AND, OR Gate with diodes, Digital logic families RTL, DTL, TTL, CMOS, Comparison of logic families.

Mathematics – 1 (3110014)

5. Fourier Series

Fourier series of 2π periodic function

- Fourier series of a function of period 2L
- Fourier series of even and odd functions
- Half range cosine series, Half range sine series

6. Indefinite Integrals

- Volume using cross section, length of plane curves
- Area of revolution by disk method
- Area of revolution by washer method
- Area of surface of revolution by cylindrical shell method

7. Improper Integrals

Engineering Graphics & Design (3110013)

1. Engineering Curves
2. Projections of Lines
3. Orthographic Projections
4. Isometric Projections

Physics (3110018)

2. Semiconductor

Metal semiconductor junction (Ohmic and Schottky), Semiconductor materials of interest for optoelectronic devices.

3. Light Semiconductor Interaction

- Optical transitions in bulk semiconductors: absorption, Spontaneous emission and stimulated emission.
- Density of states for photons
- Transition rates (Fermi's golden rule)
- Optical loss and gain; Photovoltaic effect, excitation
- Drude Model

Basic Electrical Engineering (3110005)

2. AC Analysis

Analysis of single-phase ac circuits consisting of R, L, C, RL, RC, RLC combinations (parallel). Series and parallel resonance

3. Transformers

Construction and working principle of single phase and three phase transformers. Ideal and practical transformers. Auto transformer and its applications.