

2nd Year Odd Semester

ETE 200: Electronic Circuit Design Lab

Credit: 1.50 Contact Hours: 3 Hours/Week

Filters, Amplifier, Oscillator, Audio Transformer, Power Supply from both Mains and Batteries and other Electronic Circuit Design and Analysis using Electronic Work Bench and SPICE. Digital Circuit Design, Electronic Circuit Design using Operational Amplifiers and Programmable Timers.

ETE 201: Digital Electronics

Credits: 3.00 Contact Hours: 3 Hours/Week

Number systems, Boolean algebra and reduction techniques, logic gates, combinational logic design, multiplexers, decoders, encoders, code converters, flip-flops, synchronous sequential logic, counters, registers and buses. Design of data handling and arithmetic circuits. Semiconductor memories: RAM, ROM, PROM, EPROM, EEPROM etc. Digital to Analog (D/A), Analog to Digital (A/D) Converters and their Applications.

ETE 202: Sessional Based on ETE 201

Credit: 1.50 Contact Hours: 3.00 Hours/Week

Laboratory based on Digital Electronics (ETE 201)

ETE 203: Analog Electronics-II

Credits: 3.00 Contact Hours: 3 Hours/Week

Linear and non-linear wave shaping. Diode Wave Shaping Techniques, Clipping and Clamping circuits. Non-linear function circuits. Negative resistance switching circuits. Timing Circuits: Bi-stable, monostable and astable multivibrators, sweep and staircase generator, IC 555 and its application. Application of Op-Amp in timing circuits. Comparators, Schmitt's trigger. Pulse generator, VCO, PLL, blocking oscillators. Active filters.

ETE 204: Sessional Based on ETE 203

Credit: 0.75 Contact Hours: 1.50 Hours/Week

Laboratory based on Analog Electronics-II (ETE 203)

CSE 241: Data Structure and Algorithm

Credits: 3.00 Contact Hours: 3 Hours/Week

Concepts and examples of Elementary Data objects, Elementary Data Structures, Arrays, Stacks, Queues, Lists, Trees, Graphs, Memory Management, Sorting and Searching, Hash techniques.

CSE 242: Sessional Based on CSE 241

Credit: 0.75 Contact Hours: 1.50 Hours/Week

Laboratory based on Data Structure and Algorithm (CSE 241)

EEE 223: Electrical Machines

Credits: 3.00 Contact Hours: 3 Hours/Week

DC Machines: Construction, classification, elementary concept of armature reaction and commutation. DC Generators: Principle of operation, Emf equation. Motors: Principle of operation, Back EMF, Torque, speed and speed regulation. Losses and efficiency calculation of dc machines.

AC Synchronous Machines: Construction, stator single layer, double layer and concentric windings, damping windings. Coil span factor, distribution factor, leakage and armature reaction, synchronous impedance. Alternators: emf equation, speed and frequency, alternator on load and voltage regulation. Synchronous Motors: principle of working, Vector diagram on load and its analysis for stator current, power factor, torque and mechanical output, Effect of Variation and excitation. Losses and efficiency of Synchronous machines.

Transformers: Single Phase Transformers: Construction, principle of working, Emf equation, No load working and vector diagram, Vector diagram on load, Equivalent circuit, Open circuit and short circuit tests, losses, efficiency and all day efficiency, Voltage regulation. Three phase operation of single phase transformers.

AC Induction Machines: Three Induction Motors: Construction, Types, Rotating field theory, principle of working, slip and its effect on motor current quantities. Losses, efficiency and performance curves. Starting, full load and maximum torque relations, torque slip characteristics. Introduction to single phase induction motors.

Math 251: Engg. Mathematics-III

Credits: 3.00 Contact Hours: 3 Hours/Week

Vector Analysis: Review of vector algebra: Addition and subtraction of vectors, Scalar and vector product of two vectors and their geometrical interpretation, Triple products and multiple products, Linear dependents and independents of vectors. Vector Calculus: Differentiation and Integration of Vectors together with elementary applications, Definition of line, Surface and volume Integrals, Gradient, Divergence and curl of point functions, various formulae, Gauss's theorem, Stoke's theorem, Green's theorem.

Fourier Analysis: Real and complex form of Fourier series, Finite transform, Fourier Integral, Fourier transforms and their uses in solving boundary value problems of wave equations.

Laplace Transforms: Definition Laplace transforms of some elementary functions, Sufficient conditions for existence of Laplace Transforms, Inverse Laplace Transforms, Laplace Transforms of derivatives. The unit step function,

Periodic function, Some special theorems on Laplace Transforms, Partial fractions, Solutions of differential equations by Laplace Transforms, Evaluation of improper integrals.