3rd Year Odd Semester

EEE 301: Control System
Credits: 3.00 Contact Hours: 3 Hours/Week
Introductory Concepts: Open loop versus closed loop feed system. Input output relationship. Transfer function. DC machine dynamics, performance criteria, sensitivity and accuracy. Analysis of control systems, time and frequency domain error constants.
Stability of Control System: Routh-Harwith criterion, bode plot. Nyquist method. Root locus techniques. Frequency response analysis. Nicholes chart, compensation. Introduction to non-linear control system. State variable characterization of systems, transition matrix, canonical forms. Controllability and observability.

EEE 302: Sessional Based on EEE 301
Credit: 0.75 Contact Hours: 1.50 Hours/Week
Laboratory based on Control System (EEE 301)

ETE 303: VLSI Design
Credits: 3.00 Contact Hours: 3 Hours/Week
Introduction to Microelectronics and MOS Technology, Basic Electrical Properties and Circuit Design Processes of MOS and Bi CMOS Circuits, Inverter Circuits, Sub-System Design Processes and Layout, Scaling of MOS Circuits: Scaling Models and Scaling Factors, Limitation of Scaling. Computational Elements: Design of an ALU Sub-System, Adder, Multipliers, Memory Registers, Dynamic & Static Flip-Flops, Bus Arbitration and Aspects of System Timing. CMOS Fabrication, Practical Aspects of Design Tools and Test-Ability CMOS Design, Behavioral Description, Structural Description, Physical Description and Design Verification. Introduction to Ga-As Technology: Ultra-Fast Circuits and Systems.

ETE 304: Sessional Based on ETE 303
Credit: 0.75 Contact Hours: 1.50 Hours/Week
Laboratory based on VLSI Design (ETE 303)

EEE 313: Industrial Electronics
Credits: 3.00 Contact Hours: 3 Hours/Week
Introduction to power switching devices and their terminal characteristics. Snubber circuits. Single and three phase line frequency diode rectifiers and line frequency phase controlled rectifiers. Thyristor circuits and its control with commutation techniques. Cycloconverters, dc-dc switch mode converters, UPS,

DC choppers: classification. Step up, step down choppers. Single phase PWM inverters. Introduction to three phase inverters. Voltage controlled inverters. Advanced modulation techniques. Introduction to induction, dielectric and microwave heating.

EEE 314: Sessional Based on EEE 313
Credit: 0.75 Contact Hours: 1.50 Hours/Week
Laboratory based on Industrial Electronics (EEE 313)

ETE 321: Microwave Engineering
Credits: 3.00 Contact Hours: 3 Hours/Week
UHF Transmission Lines: Voltage and current in ideal transmission lines, reflection, transmission, standing wave, impedance transformation, Smith chart, impedance matching and lossy transmission lines.
Waveguides: general formulation, modes of propagation in parallel, rectangular and cylindrical waveguides.
Microstrips: Structures and characteristics.
Resonant Cavities: Energy storage, losses and Q. Filters, hybrids. Isolators etc. Detection and measurements of microwave signals.

ETE 322: Sessional Based on ETE 321
Credit: 0.75 Contact Hours: 1.50 Hours/Week
Laboratory based on Microwave Engineering (ETE 321)

ETE 333: Numerical Methods in Engineering
Credits: 3.00 Contact Hours: 3 Hours/Week
Computer algorithm. Mathematical modeling of physical system. Solution of equation in one variable, Solution of simultaneous equations, Interpolation, Curve fitting, Differentiation and Integration, Solution of ordinary and partial differential equations. Application of the above techniques in Electronics & Telecommunication Engineering through computer programming.

ETE 334: Sessional Based on ETE 333
Credit: 1.50 Contact Hours: 3.00 Hours/Week
Laboratory based on Numerical Methods in Engineering (ETE 333)