ELECTRONICS AND COMMUNICATION ENGINEERING

Course Code	18ELN14/24 - BASIC ELECTRONICS
CO1	Appreciate the significance of electronics in different applications
CO2	Understand the applications of diode in rectifiers filter circuits and wave shaping
CO3	Apply the concept of diode in rectifiers, filters circuits
CO4	Design simple circuits like amplifiers (inverting and non inverting), comparators, adders, integrator and differentiator using OPAMPS
CO5	Compile the different building blocks in digital electronics using logic gates and implement simple logic function using basic universal gates
CO6	Understand the functioning of a communication system, and different modulation technologies
CO7	Understand the basic principles of different types of Transducers

Course Code	18EC32 - NETWORK THEORY
CO1	Determine currents and voltages using source transformation/ source shifting/ mesh/ nodal analysis and reduce given network using star-delta transformation/ source transformation/ source shifting.
CO2	Solve network problems by applying Superposition/ Reciprocity/ Thevenin's/ Norton's/ Maximum Power Transfer/ Millman's Network Theorems and electrical laws to reduce circuit complexities and to arrive at feasible solutions.
CO3	Calculate current and voltages for the given circuit under transient conditions.
CO4	Apply Laplace transform to solve the given network.
CO5	Solve the given network using specified two port network parameter like Z or Y or T or h.
CO6	Understand the concept of resonance

Course Code	18EC33 - ELECTRONIC DEVICES
CO1	Understand the principles of semiconductor Physics
CO2	Understand the principles and characteristics of different types of semiconductor devices
CO3	Understand the fabrication process of semiconductor devices
CO4	Utilize the mathematical models of semiconductor junctions and MOS transistors for circuits and systems

Course Code	18EC34 - DIGITAL SYSTEM DESIGN
CO1	Explain the concept of combinational and sequential logic circuits
CO2	Design the combinational logic circuits
CO3	Design the sequential circuits using SR, JK, D, T flip-flops and Mealy & Moore machines
CO4	Design applications of combinational & Sequential circuits

Course Code	**18EC35 - COMPUTER ORGANIZATION AND ARCHITECTURE**
CO1	Explain the basic organization of a computer system
CO2	Explain different ways of accessing an input / output device including interrupts
CO3	Illustrate the organization of different types of semiconductor and other secondary storage memories
CO4	illustrate simple processor organization based on hardwired control and micro programmed control

Course Code	**18EC36 - POWER ELECTRONICS AND INSTRUMENTATION**
CO1	Build and test circuits using power electronic devices
CO2	Analyze and design controlled rectifier, DC to DC converters, DC to AC inverters and SMPS
CO3	Define instrument errors
CO4	Develop circuits for multirange ammeters, voltmeters and bridges to measure passive component values and frequency
CO5	Describe the principle of operation of digital instruments and PLCs
CO6	Use instrumentation amplifier for measuring physical parameters

Course Code	**18ECL37 - ELECTRONIC DEVICES AND INSTRUMENTATION LABORATORY**
CO1	Understand the characteristics of various electronic devices and measurement of parameters
CO2	Design and test simple electronic circuits
CO3	Use of circuit simulation software are for the implementation and characterization of electronic circuits and devices

Course Code	**18ECL38 - DIGITAL SYSTEM DESIGN LABORATORY**
CO1	Demonstrate the truth table of various expressions and combinational circuits using logic gates.
CO2	Design various combinational circuits such as adders, subtractors, comparators, multiplexers and demultiplexers
CO3	Construct and test flips-flops, counters and shift registers.
CO4	Construct serial adder and binary multiplier

Course Code	**18EC42 - ANALOG CIRCUITS**
CO1	Understand the characteristics of BJTs and FETs
CO2	Design and analyze BJT and FET amplifier circuits
CO3	Design sinusoidal and non sinusoidal oscillators
CO4	Understand the functioning of linear Ics
CO5	Design of linear IC based circuits

Course Code	**18EC43- CONTROL SYSTEMS**
CO1	Develop the mathematical model of mechanical and electrical systems
CO2	Develp transfer function for a given control system using block diagram reduction techniques and signal flow graph method

CO3	Determine time domain specifications for first and second order systems
CO4	Determine the stability of a system in the time domain using Route Harvitz criteria and root locus technique
CO5	Determine the stability of a system in the frequency domain using Nyquist and bode plots
Course Code	**18EC44 - ENGINEERING STATISTICS and LINEAR ALGEBRA**
CO1	Identify and associate random variables and random processes in communication events
CO2	Analyze and model the random events in typical communication events to extract quantitative statistical parameters
CO3	Analyze and model typical signal sets in terms of a basis function set of amplitude, phase and frequency
CO4	Demonstrate by way of simulation or emulation the ease of analysis employing basis functions, statistical representation and eigen values
Course Code	**18EC45 - SIGNALS AND SYSTEMS**
CO1	Analyze the different types of signals and systems
CO2	Determine the linearity, causality, time-invariance and stability properties of continuous and discrete time systems.
CO3	Represent continuous and discrete systems in time and frequency domain using different transforms test whether the system is stable
Course Code	**18EC46- MICROCONTROLLER**
CO1	Explain the difference between Microprocessor & Microcontrollers, architectures of 8051 microcontroller, interfacing of 8051 to external memory and instruction set of 8051
CO2	Write 8051 assembly level programs using 8051instruction set
CO3	Explain the interrupt system, operation of timers/counters and serial port of 8051
CO4	Write 8051 assembly language program to generate timings and waveforms using 8051 timers to send and receive serial data using 8051 serial port and to generate an external interrupt using a switch
CO5	Write 8051 assembly languate programs to generate square wave on 8051 i/o port pin using interrupt and c programme to send and receive serial data using 8051 serial port
CO6	Interface simple switches, simple LEDs, ADC 0804, LCD and stepper motor to 8051 using 8051 i/o ports
Course Code	**18ECL47 - MICROCONTROLLER LABORATORY**
CO1	Write assembly language programs in 8051 for solving simple problems that manipulate input data using different instructions of 8051
CO2	Interface different input and output devices to 8051 and control them using assembly language programs
CO3	Interface the serial devices to 8051 and to the serial transfer using C Programming

Course Code	18ECL48 - ANALOG CIRCUITS LABORATORY
CO1	Design analog ciruits using BJT/FETs and evaluate their performance characteristics
CO2	Design analog circuits using OPAMPs for different applications
CO3	Simulate and analyze analog circuits that uses IC s for different electronic appliations