

ELECTRONICS AND COMMUNICATION ENGINEERING 2022 Scheme	
Course Code	22BBEE103/203- Basic Electronics
CO1	Develop the basic knowledge on construction, operation and characteristics of semiconductor devices
CO2	Apply the acquired knowledge to construct small scale circuits consisting of semiconductor devices
CO3	Develop competence knowledge to construct basic digital circuit by make use of basic gate and its function
CO4	Construct the conceptual blocks for basic communication system
CO5	Apply the knowledge of various transducers principle in sensor system
Course Code	22BMATEC301 - AV Mathematics-III for EC Engineering
CO1	Demonstrate the Fourier series to study the behavior of periodic functions and their applications in system communications, digital signal processing, and field theory
CO2	To use Fourier transforms to analyze problems involving continuous-time signals
CO3	To apply Z-Transform techniques to solve difference equations
CO4	Understand that physical systems can be described by differential equations and solve such equations
CO5	Make use of correlation and regression analysis to fit a suitable mathematical model for statistical data
Course Code	22BEC302 - Digital System Design using Verilog
CO1	Simplify Boolean functions using K-map and Quine-McCluskey minimization technique
CO2	Analyze and design for combinational logic circuits.
CO3	Analyze the concepts of Flip Flops(SR, D,T and JK) and to design the synchronous sequential circuits using Flip Flops
CO4	Model Combinational circuits (adders, subtractors, multiplexers) and sequential circuits using Verilog descriptions.
Course Code	22BEC303 - Electronic Principles and Circuits
CO1	Understand the characteristics of BJTs and FETs for switching and amplifier circuits
CO2	Design and analyze amplifiers and oscillators with different circuit configurations and biasing conditions
CO3	Understand the feedback topologies and approximations in the design of amplifiers and oscillators
CO4	Design of circuits using linear ICs for wide range applications such as ADC, DAC, filters and timers.
CO5	Understand the power electronic device components and its functions for basic power electronic circuits
Course Code	22BEC304 - Network Analysis
CO1	Determine currents and voltages using source transformation/ source shifting/ mesh/nodal analysis and reduce given network using star delta transformation
CO2	Solve problems by applying Network Theorems and electrical laws to reduce circuit complexities and to arrive at feasible solutions.
CO3	Analyse the circuit parameters during switching transients and apply Laplace transform to solve the given network

CO4	Evaluate the frequency response for resonant circuits and the network parameters for two port networks
Course Code	22BECL305 - Analog and Digital Systems Design Laboratory
CO1	Design and analyze the BJT/FET amplifier and oscillator circuits
CO2	Design and test Opamp circuits to realize the mathematical computations, DAC and precision rectifiers
CO3	Design and test the combinational logic circuits for the given specifications
CO4	Test the sequential logic circuits for the given functionality
CO5	Demonstrate the basic circuit experiments using 555 timer
Course Code	22BEC306C - Computer Organization and Architecture
CO1	Explain the basic organization of a computer system
CO2	Describe the addressing modes, instruction formats and program control statement
CO3	Explain different ways of accessing an input/ output device including interrupts
CO4	Illustrate the organization of different types of semiconductor and other secondary storage memories
CO5	Illustrate simple processor organization based on hard wired control and microprogrammed control.
Course Code	22BEC358C - C++ Basics
CO1	Write C++ program to solve simple and complex problems
CO2	Apply and implement major object-oriented concepts like message passing, function overloading, operator overloading and inheritance to solve real-world problems.
CO3	Use major C++ features such as Templates for data type independent designs and File I/O to deal with large data set
CO4	Analyze, design and develop solutions to real-world problems applying OOP concepts of C++
Course Code	22BEC401 - Engineering Electromagnetics
CO1	Evaluate problems on electrostatic force, electric field due to point, linear, volume charges by applying conventional methods and charge in a volume.
CO2	Apply Gauss law to evaluate Electric fields due to different charge distributions and Volume Charge distribution by using Divergence Theorem.
CO3	Determine potential and energy with respect to point charge and capacitance using Laplace equation and Apply Biot-Savart's and Ampere's laws for evaluating Magnetic field for different current configurations
CO4	Calculate magnetic force, potential energy and Magnetization with respect to magnetic materials and voltage induced in electric circuits.
CO5	Apply Maxwell's equations for time varying fields, EM waves in free space and conductors and Evaluate power associated with EM waves using Poynting theorem
Course Code	22BEC402 - Basic Signal Processing
CO1	Understand the basics of Linear Algebra
CO2	Analyze different types of signals and systems
CO3	Analyze the properties of discrete-time signals & systems
CO4	Analyze discrete time signals & systems using Z transforms
Course Code	22BEC403- PRINCIPLES OF COMMUNICATION SYSTEMS
CO1	Understand the amplitude and frequency modulation techniques and perform time and frequency domain transformations
CO2	Identify the schemes for amplitude and frequency modulation and demodulation of analog signals

	and compare the performance
CO3	Characterize the influence of channel noise on analog modulated signals.
CO4	Define the schemes for sampling, pulse amplitude modulation and pulse code modulation systems
CO5	Design of circuits used in different stages of communication transmitters and receivers
Course Code	22BECL404 - Communication Laboratory
CO1	Understand the basic concepts of RF transmitters and Receivers
CO2	Illustrate the AM and FM modulation generation and detection using suitable electronic circuits
CO3	Design and test the sampling, Multiplexing and pulse modulation techniques using electronic hardware
CO4	Design and Demonstrate the electronic circuits used for RF transmitters and receivers
Course Code	22BEC405A - 8051 MICROCONTROLLER
CO1	Explain the difference between Microprocessors & Microcontrollers, Architecture of 8051 Microcontroller, Interfacing of 8051 to external memory and Instruction set of 8051.
CO2	Write 8051 Assembly level programs using 8051 instruction 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 & receive serial data using 8051 serial port and to generate an external interrupt using a switch
CO5	Write 8051 C programs to generate square wave on 8051 I/O port pin using interrupt and to send & receive serial data using 8051 serial port. Interface simple switches, simple LEDs, ADC 0804, LCD and Stepper Motor to 8051 using 8051 I/O ports
Course Code	22BEC456A - Embedded C Basics
CO1	Write C programs in 8051 for solving simple problems that manipulate input data using different instructions.
CO2	Develop testing and experimental procedures on 8051 Microcontroller, analyze their operation under different cases.
CO3	Develop programs for 8051 Microcontroller to implement real world problems
CO4	Develop microcontroller applications using external hardware interface