COURSE OUTCOMES - 2022 SCHEME

3rd SEMESTER

Subject:	AV Mathematics-III for EC Engineering		
Subject Code:	BMATEC301 A	NBA Code:	E201
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		

Subject:	Digital System Design using Verilog		
Subject Code:	BEC302	NBA Code:	E202
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.		

Subject:	Electronic Principles and Circuits		
Subject Code:	BEC303	NBA Code:	E203
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		

Subject:	Network Analysis		
Subject Code:	**BEC304**	**NBA Code:**	**E204**
CO1	Determine currents and voltages using source transformation/ source shifting/ mesh/ nodal analysis and reduce given network using star- delta transformation. 2.. 3. 4.		
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		

Subject:	Analog and Digital Systems Design Lab		
Subject Code:	**BECL305**	**NBA Code:**	**E205**
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.		

Subject:	Computer Organization and Architecture		
Subject Code:	**BEC306C**	**NBA Code:**	**E206**
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.		

Subject:	Social Connect and Responsibility		
Subject Code:	**BSCK307**	**NBA Code:**	**E207**
CO1	Communicate and connect to the surrounding.		
CO2	Create a responsible connection with the society.		
CO3	Involve in the community in general in which they work		
CO4	Notice the needs and problems of the community and involve them in problem solving		
CO5	Develop among themselves a sense of social & civic responsibility & utilize their knowledge in finding practical solutions to individual and community problems.		
CO6	Develop competence required for group-living and sharing of responsibilities & gain skills in mobilizing community participation to acquire leadership qualities and democratic attitudes.		

Subject:	C++ Basics		
Subject Code:	BEC358C	NBA Code:	E208
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++		
CO5	Apply the concept of an exception handling		

COURSE OUTCOMES - 2022 SCHEME

4th SEMESTER

Subject:	Electromagnetics Theory		
Subject Code:	BEC401	NBA Code:	E209
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		

Subject:	Principles of Communication Systems		
Subject Code:	BEC402	NBA Code:	E210
CO1	Understand the principles of analog communication systems and noise modelling.		
CO2	Identify the schemes for analog modulation and demodulation and compare their performance		
CO3	Design of PCM systems through the processes sampling, quantization and encoding		
CO4	Describe the ideal condition, practical considerations of the signal representation for baseband transmission of digital signals		
CO5	Identify and associate the random variables and random process in Communication system design		

Subject:	Control Systems		
Subject Code:	BEC403	NBA Code:	E211
CO1	Deduce transfer function of a given physical system, from differential equation representation or Block Diagram representation and SFG representation.		
CO2	Calculate time response specifications and analyse the stability of the system		
CO3	Draw and analyse the effect of gain on system behaviour using root loc		
CO4	Perform frequency response Analysis and find the stability of the system		
CO5	Represent State model of the system and find the time response of the system		

Subject:	Communication Lab		
Subject Code:	BECL404	NBA Code:	E212
CO1	Illustrate the AM generation and detection using suitable electronic circuits.		
CO2	Design of FM circuits for modulation, demodulation and noise suppression		
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.		

Subject:	Microcontrollers		
Subject Code:	BEC405A	NBA Code:	E213
CO1	Describe the difference between Microprocessor and Microcontroller, Types of Processor Architectures and Architecture of 8051Microcontroller		
CO2	Discuss the types of 8051 Microcontroller Addressing modes & Instructions with Assembly Language Programs.		
CO3	Explain the programming operation of Timers/Counters and Serial port of 8051 Microcontroller		
CO4	Illustrate the Interrupt Structure of 8051 Microcontroller & its programming.		
CO5	Develop C programs to interface I/O devices with 8051 Microcontroller.		

Subject:	Microcontroller Lab		
Subject Code:	BEC456A	NBA Code:	E214
CO1	Write a Assembly Language/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 8051Microcontroller to implement real world problems.		
CO4	DevelopMicrocontrollerapplicationsusingexternalhardwareinterface.		

Subject:	Biology For Engineers		
Subject Code:	BBOK407	NBA Code:	E215
CO1	Elucidate the basic biological concepts via relevant industrial applications and case studies		
CO2	Evaluate the principles of design and development, for exploring novel bioengineering projects		
CO3	Corroborate the concepts of biomimetics for specific requirements		
CO4	Think critically towards exploring innovative biobased solutions for socially relevant problems		

Subject:	Universal human values		
Subject Code:	**BUHK408**	**NBA Code:**	**E216**
CO1	They would become more responsible in life, and in handling problems with sustainable solutions, while keeping human relationships and human nature in mind.		
CO2	They would have better critical ability.		
CO3	They would also become sensitive to their commitment towards what they have understood (human values, human relationship and human society).		
CO4	It is hoped that they would be able to apply what they have learnt to their own self in different day-to-day settings in real life, at least a beginning would be made in this direction.		