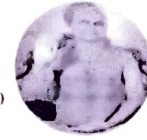




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**CO STATEMENT FOR THE SCHEME 2022 (BATCH 2022-2026)**

SL.NO	SUB NAME	COs	CO Statement
III SEM			
1	AV Mathematics-III for EC Engineering	BMATEC301.1	Demonstrate the Fourier series to study the behavior of periodic functions and their applications in system communications, digital signal processing, and field theory.
		BMATEC301.2	To use Fourier transforms to analyze problems involving continuous-time signals and to apply Z-Transform techniques to solve difference equations.
		BMATEC301.3	Apply discrete and continuous probability distributions in analyzing the probability
		BMATEC301.4	Understand that physical systems can be described by differential equations and solve such equations.
		BMATEC301.5	Make use of correlation and regression analysis to fit a suitable mathematical model for statistical data.
2	Digital System Design using Verilog	BEC302.1	Simplify Boolean functions using K-map and Quine-McCluskey minimization techniques.
		BEC302.2	Analyze and design for combinational logic circuits.
		BEC302.3	Analyze the concepts of Flip Flops(SR, D,T and JK) and to design the synchronous sequential circuits using Flip Flops.
		BEC302.4	Model Combinational circuits (adders, subtractors, multiplexers) and sequential circuits using Verilog

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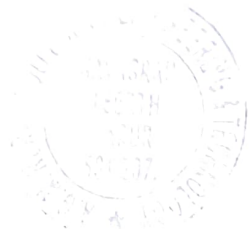
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			descriptions.
3	Electronic Principles and Circuits	BEC303.1	Understand the characteristics of BJTs and FETs for switching and amplifier circuits.
		BEC303.2	Design and analyze amplifiers and oscillators with different circuit configurations and biasing conditions.
		BEC303.3	Understand the feedback topologies and approximations in the design of amplifiers and oscillators
		BEC303.4	Design of circuits using linear ICs for wide range applications such as ADC, DAC, filters and timers.
		BEC303.5	Understand the power electronic device components and its functions for basic power electronic circuits.
4	Network Analysis	BEC304.1	Determine currents and voltages using source transformation/ source shifting/ mesh/ nodal analysis and reduce given network using star-delta transformation.
		BEC304.2	Solve problems by applying Network Theorems and electrical laws to reduce circuit complexities and to arrive at feasible solutions.
		BEC304.3	Analyse the circuit parameters during switching transients and apply Laplace transform to solve the given network
		BEC304.4	Evaluate the frequency response for resonant circuits and the network parameters for two port networks
5	Analog and Digital Systems Design Laboratory	BECL305.1	Design and analyze the BJT/FET amplifier and oscillator circuits.
		BECL305.2	Design and test Opamp circuits to realize the

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			mathematical computations, DAC and precision rectifiers.
		<b>BECL305.3</b>	Design and test the combinational logic circuits for the given specifications.
		<b>BECL305.4</b>	Test the sequential logic circuits for the given functionality.
		<b>BECL305.5</b>	Demonstrate the basic circuit experiments using 555 timer.
6	<b>Computer Organisation And Architecture</b>	<b>BEC306C.1</b>	Explain the basic organization of a computer system.
		<b>BEC306C.2</b>	Describe the addressing modes, instruction formats and program control statement
		<b>BEC306C.3</b>	Explain different ways of accessing an input/output device including interrupts
		<b>BEC306C.4</b>	Illustrate the organization of different types of semiconductor and other secondary storage memories.
		<b>BEC306C.5</b>	Illustrate simple processor organization based on hard wired control and microprogrammed control
7	<b>Social Connect &amp; Responsibility</b>	<b>BSCK307.1</b>	Communicate and connect to the surrounding.
		<b>BSCK307.2</b>	Create a responsible connection with the society.
		<b>BSCK307.3</b>	Involve in the community in general in which they work.
		<b>BSCK307.4</b>	Notice the needs and problems of the community and involve them in problem

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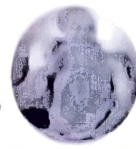




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			solving.
		<b>BSCK307.5</b>	Develop among themselves a sense of social & civic responsibility & utilize their knowledge in finding practical solutions to individual and community problems.
		<b>BSCK307.6</b>	Develop competence required for group-living and sharing of responsibilities & gain skills in mobilizing community participation to acquire leadership qualities and democratic attitudes.
<b>8</b>	<b>MATLAB Programming</b>	<b>BEC358B.1</b>	Understand the syntax of MATLAB for arithmetic computations, arrays, matrices
		<b>BEC358B.2</b>	Understand the built in function, saving and loading data, and create plot
		<b>BEC358B.3</b>	Create program using symbolic computations, Importing and exporting data and files
		<b>BEC358B.4</b>	Create program using character strings, Command line functions and Built-in functions.
<b>IV SEM</b>			
<b>9</b>	<b>Engineering Electromagnetic</b>	<b>BEC401.1</b>	Evaluate problems on electrostatic force, electric field due to point, linear, volume charges by applying conventional methods and charge in a volume.
		<b>BEC401.2</b>	Apply Gauss law to evaluate Electric fields due to different charge distributions and Volume Charge distribution by using Divergence Theorem
		<b>BEC401.3</b>	determine potential and energy with respect to point charge and capacitance using Laplace equation and Apply Biot-Savart's and

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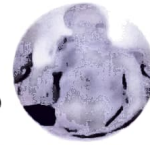




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			Ampere's laws for evaluating Magnetic field for different current configurations
		<b>BEC401.4</b>	Calculate magnetic force, potential energy and Magnetization with respect to magnetic materials and voltage induced in electric circuits.
		<b>BEC401.5</b>	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.
<b>10</b>	<b>PRINCIPLES OF COMMUNICATION SYSTEMS</b>	<b>BEC402.1</b>	Understand the amplitude and frequency modulation techniques and perform time and frequency domain transformations.
		<b>BEC402.2</b>	Identify the schemes for amplitude and frequency modulation and demodulation of analog signals and compare the performance.
		<b>BEC402.3</b>	Characterize the influence of channel noise on analog modulated signals.
		<b>BEC402.4</b>	Define the schemes for sampling, pulse amplitude modulation and pulse code modulation systems.
		<b>BEC402.5</b>	Design of circuits used in different stages of communication transmitters and receivers.
<b>11</b>	<b>Control Systems</b>	<b>BEC403.1</b>	Deduce transfer function of a given physical system, from differential equation representation or Block Diagram representation and SFG representation.
		<b>BEC403.2</b>	Calculate time response specifications and analyse the stability of the system

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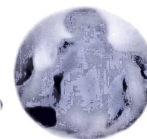




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		<b>BEC403.3</b>	Draw and analyse the effect of gain on system behaviour using root loci.
		<b>BEC403.4</b>	Perform frequency response Analysis and find the stability of the system.
		<b>BEC403.5</b>	Represent State model of the system and find the time response of the system.
12	<b>Communication Laboratory</b>	<b>BECL404 .1</b>	Understand the basic concepts of RF transmitters and Receivers.
		<b>BECL404 .2</b>	Illustrate the AM and FM modulation generation and detection using suitable electronic circuits.
		<b>BECL404 .3</b>	Design and test the sampling, Multiplexing and pulse modulation techniques using electronic hardware.
		<b>BECL404 .4</b>	Design and Demonstrate the electronic circuits used for RF transmitters and receivers.
13	<b>8051 MICROCONTROLLER</b>	<b>BEC405A.1</b>	Explain the difference between Microprocessors & Microcontrollers, Architecture of 8051 Microcontroller, Interfacing of 8051 to external memory and Instruction set of 8051.
		<b>BEC405A.1</b>	Write 8051 Assembly level programs using 8051 instruction set.
		<b>BEC405A.2</b>	Explain the Interrupt system, operation of Timers/Counters and Serial port of 8051.
		<b>BEC405A.3</b>	Write 8051 Assembly language program to generate timings and waveforms using 8051 timers, to send & receive serial data using

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			8051 serial port and to generate an external interrupt using a switch
		<b>BEC405A.4</b>	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.
14	Microcontrollers Lab	<b>BECL456A .1</b>	Write a Assembly Language C programs in 8051 for solving simple problems that manipulate input data using different instructions.
		<b>BECL456A .2</b>	Develop Testing and experimental procedures on 8051 Microcontroller, Analyze their operation under different cases.
		<b>BECL456A .3</b>	Develop programs for 8051 Microcontroller to implement real world problems.
		<b>BECL456A .4</b>	Develop Microcontroller applications using external hardware interface
15	BIOLOGY FOR ENGINEERS	<b>BBOK407 .1</b>	Elucidate the basic biological concepts via relevant industrial applications and case studies.
		<b>BBOK407 .2</b>	Evaluate the principles of design and development, for exploring novel bioengineering projects
		<b>BBOK407 .3</b>	Corroborate the concepts of biomimetics for specific requirements.
		<b>BBOK407 .4</b>	Think critically towards exploring innovative biobased solutions for socially relevant problems.

