



Course Outcomes (COs) For 2022 Scheme

CO Statement's tables are created with respect to each course, and it describe what students are expected to know and can do at the end of each course.

Course Number is used to specify a course base on following guideline.

Note: Course Outcome Number: C -Study Year -Semester Number -Subject Code Number

Example: C234 - (2 - second Year; 3 - 3rd Semester; 4 - course code number)

COURSE CODE		:	C231	
COURSE NAME		:	AV Mathematics-III for EC Engineering	
Sl.No.	No. COURSE OUTCOMES		COURSE OUTCOMES	BTL
C231.1	Utilize the Fourier series to study the behaviour of periodic functions and their applications in system communications, digital signal processing, and field theory.			
C231.2	.2 Make use of Fourier transforms to analyse problems involving continuous-time signals			
C231.3	³ Apply Z-Transform techniques to solve difference equations			
C231.4	Explain that physical systems can be described by differential equations and solve such equations			L3
C231.5	Make us data	e o	f correlation and regression analysis to fit a suitable mathematical model for statistical	L3

COURSE	CODE	:	C232	
COURSE NAME		:	DIGITAL SYSEM DESIGN USING VERILOG	
Sl.No.	COURSE OUTCOMES		BTL	
C232.1	Solve Boolean functions using K-map and Quine-McCluskey minimization technique.			
C232.2	Analyze and design for combinational logic circuits.			
C232.3	Analyze the concepts of Flip Flops (SR, D, T and JK) and to design the synchronous sequential circuits using Flip Flops.			
C232.4	Construct Combinational circuits (adders, subtractors, multiplexers)		L3	
C232.5	Develop	se	quential circuits using Verilog descriptions.	L3



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COURSE	CODE	:	C233			
COURSE	NAME	:	ELECTRONIC PRINCIPLES AND CIRCUITS			
Sl.No.	COURSE OUTCOMES		BTL			
C233.1	illustrate the characteristics of BJTs and FETs for switching and amplifier circuits.					
C233.2	2 Design and analyse amplifiers and oscillators with different circuit configurations and biasing Liconditions.					
C233.3	Illustrate the feedback topologies and approximations in the design of amplifiers and oscillatorsL					
C233.4	Model of circuits using linear ICs for wide range applications such as ADC, DAC, filters and timers.		L3			
C233.5	Illustrate the power electronic device components and its functions for basic power electronic circuits.					

COURSE	E CODE	:	C234		
COURSE	E NAME	:	NETWORK ANALYSIS		
Sl.No.			COURSE OUTCOMES	BTL	
C234.1	Determine currents and voltages using source transformation/ source shifting/ mesh/ nodal analysis and reduce given network using star- delta transformation.				
C234.2	Solve problems by applying Network Theorems and electrical laws to reduce circuit complexities and to arrive at feasible solutions.				
C234.3	Analyse the circuit parameters during switching transients and apply Laplace transform to solve the given network				
C234.4	Evaluate the frequency response for resonant circuits and the			L3	
C234.5	Analyse network parameters for two port networks				

COURSE	CODE	:	C235				
COURSE	NAME	:	ANALOG AND DIGITAL SYSTEMS DESIGN LABORATORY				
Sl.No.		COURSE OUTCOMES					
C235.1	Design a	Design and analyse the BJT/FET amplifier and oscillator circuits.					
C235.2	Design and test Opamp circuits to realize the mathematical computations, DAC and precision L rectifiers						
C235.3	Design and test the combinational logic circuits for the given specifications						
C235.4	Test the sequential logic circuits for the given functionalityL3						
C235.5	Demons	tra	te the basic electronic circuit experiments using SCR and 555 timer.	L3			





COURSI	E CODE	:	C236		
COURSI	E NAME	:	ELECTRONIC DEVICES		
Sl. No.			COURSE OUTCOMES	BTL	
C236.1	Demonstrate the principles of semiconductor Physics L2				
C236.2	2 Demonstrate the principles and characteristics of different types of semiconductor devices L				
C236.3	Illustrate the fabrication process of semiconductor devices				
C236.4	Utilize the mathematical models of semiconductor junctions for circuits and systems.			L3	
C236.5	Identify t	he i	mathematical models of MOS transistors for circuits and systems.	L3	

COURSE CODE		:	C237		
COURSE NAME		:	SENSORS AND INSTRUMENTATION		
Sl. No.		COURSE OUTCOMES F			
C237.1	Illustrate the material properties required to make sensors L2				
C237.2	Explain the principle of transducers for measuring physical parameters.L2				
C237.3	Illustrate the manufacturing process of sensors				
C237.4	Analyze the instrument characteristics and errors.				
C237.5	Explain the principle of operation and develop circuits for multirange Ammeters, Voltmeters and Bridges to measure passive component values and frequency.L				

COURSE	CODE	:	C238		
COURSE NAME		:	COMPUTER ORGANIZATION AND ARCHITECTURE		
Sl.No.	COURSE OUTCOMES		BTL		
C238.1	Explain the basic organization of a computer system.L				
C238.2	Demonstrate the addressing modes, instruction formats and program control statement.				
C238.3	Explain	diff	erent ways of accessing an input/ output device including interrupts	L2	
C238.4	Illustrate the organization of different types of semiconductor and other secondary storage memories.			L2	
C238.5	Illustrate simple processor organization based on hard wired control and microprogrammed control I				





COURSE	E CODE	:	C239			
COURSE	E NAME	:	APPLIED NUMERICAL METHODS FOR EC ENGINEERS			
Sl.No.	COURSE OUTCOMES		BTL			
C239.1	Identify and measure errors in numerical computations					
C239.2	Test for consistency and solve a system of linear equations					
C239.3	Construct a function which closely fits given n- n-points of an unknown function.					
C239.4	apply the basic concepts related to solving problems by numerical differentiation and numerical L integration.			L3		
C239.5	Use appropriate numerical methods to study phenomena modelled as partial differential equations.					

COURSE	CODE	:	C2310	
COURSE NAME		:	LAB VIEW PROGRAMMING	
Sl.No.			COURSE OUTCOMES	BTL
C2310.1	Use LabVIEW to create data acquisition, analysis and display operations			
C2310.2	Create user interfaces with charts, graph and buttons			
C2310.3	Use the programming structures and data types that exist in LabVIEW			L3
C2310.4	Use various editing and debugging techniques.			

COURSE CODE		:	C2311		
COURSE NAME		:	MATLAB PROGRAMMING		
Sl.No.			COURSE OUTCOMES	BTL	
C2311.1	Demonstrate the syntax of MATLAB for arithmetic computations, arrays, matrices.				
C2311.2	Demonstrate the built in function, saving, and loading data, and create plots				
C2311.3	Develop program using symbolic computations, Importing, and exporting data and files			L3	
C2311.4	Develop program using character strings, Command line functions and Built-in functions.				

COURSE CODE		:	C2312		
COURSE NAME		:	C++ BASICS		
Sl.No.	COURSE OUTCOMES		BTL		
C2312.1	Develop C++ program to solve simple and complex problems				
C2312.2	Apply and implement major object-oriented concepts like message passing, function overloading, operator overloading and inheritance to solve real-world problems				
C2312.3	Use major C++ features such as Templates for data type independent designs and File I/O to deal with large data set.				
C2312.4	Analyze	e, de	esign, and develop solutions to real-world problems applying OOP concepts of C++	L3	



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COURSE CODE		:	C2313					
COURSE NAME		:	IOT FOR SMART INFRASTRUCTURE					
Sl.No.			COURSE OUTCOMES	BTL				
(2313.1	explain	the	e core concepts and components of IoT and its relevance to smart infrastructure. Identify	1.3				
C2515.1	and eva	lua	te the key technologies and communication protocols used in IoT for smart infrastructure	15				
	Explain	th	e benefits, challenges, and ethical considerations associated with implementing IoT in					
C2313.2	smart i	nfr	astructure projects and analyse & compare different IoT applications in smart cities,	L3				
	buildings, transportation, and energy management.							
	Make use of real-world case studies of successful IoT implementations in smart infrastructure and							
C2313.3	extract lessons learned. Demonstrate an understanding of security and privacy considerations in IoT							
	for smart infrastructure.							
	Demonstrate the impact of emerging technologies, such as artificial intelligence and 5G, on the							
C2313.4	future of IoT in smart infrastructure. Apply knowledge and critical thinking skills to propose IoT-							
	based solutions for smart infrastructure challenges.							
	Work ef	ffec	tively in teams to analyse, design, and present IoT projects related to smart infrastructure					
C2313.5	and cor	nm	unicate effectively and articulate the potential benefits and limitations of IoT for smart	L3				
	infrastr	uct	ure.					

COURSE CODE		:	C241		
COURSE	NAME	:	ENGINEERING ELECTROMAGNETICS		
Sl.No.			COURSE OUTCOMES	BTL	
C241.1	Solve pr	Solve problems on electrostatic force, electric field due to point, linear, volume charges by applying conventional methods and charge in a volume.			
C241.2	Apply G distribu	aus tior	s law to evaluate Electric fields due to different charge distributions and Volume Charge as by using Divergence Theorem.	L3	
C241.3	Illustrate potential and energy with respect to point charge and capacitance using Laplace equationand Apply Biot-Savart's and Ampere's laws for evaluating Magnetic field for different currentIconfigurations				
C241.4	Use mag voltage i	gne ind	tic force, potential energy and Magnetization with respect to magnetic materials and uced in electric circuits.	L3	
C241.5	Apply M Evaluate	lax e po	well's equations for time varying fields, EM waves in free space and conductors and wer associated with EM waves using Poynting theorem.	L3	

COURSI	E CODE	:	C242	
COURSI	E NAME	:	BASIC SIGNAL PROCESSING	
CO	COURSE OUTCOMES		BTL	
C242.1	Illustrate the basics of Linear AlgebraL2			
C242.2	Analyse different types of signals and systems L3			
C242.3	Analyse the properties of discrete-time signals & systemsL3			
C242.4	Analyse discrete time LTI systems L3			L3
C242.5	Analyse I	LTI	systems using Z transforms	L3





COURSI	E CODE	:	C243				
COURSE NAME		:	PRINCIPLES OF COMMUNICATION SYSTEMS				
CO			COURSE OUTCOMES	BTL			
C243.1	Demonstrate the amplitude and frequency modulation techniques and perform time and frequency						
	domain transformations.						
(243.2	Identify the schemes for amplitude and frequency modulation and demodulation of analog signals						
0210.2	and com	and compare the performance.					
C243.3	Illustrate the influence of channel noise on analog modulated signals. L2						
C243.4	Explain t	he	schemes for sampling, pulse amplitude modulation and pulse code modulation systems.	L2			
C243.5	Model th	e c	ircuits used in different stages of communication transmitters and receivers.	L3			

COURS	E CODE	:	C244		
COURS	E NAME	:	COMMUNICATION LABORATORY		
СО	COURSE OUTCOMES		BTL		
C244.1	Demonstrate the basic concepts of RF transmitters and Receivers.				
C244.2	Illustrate the AM and FM modulation generation and detection using suitable electronic circuits L3				
C244.3	Model and test the sampling, Multiplexing and pulse modulation techniques using electronic Librardware.				
C244.4	Model an	nd d	lemonstrate the electronic circuits used for RF transmitters and receivers.	L3	

COURS	E CODE	:	C245				
COURSE NAME		:	8051 MICROCONTROLLERS				
СО			COURSE OUTCOMES	BTL			
C245.1	Explain Microcor	Explain the difference between Microprocessors & Microcontrollers, Architecture of 8051L2Microcontroller, Interfacing of 8051 to external memory and Instruction set of 8051.L2					
C245.2	Develop 8051 Assembly level programs using 8051 instructions set						
C245.3	Explain the Interrupt system, operation of Timers/Counters and Serial port of 8051						
C245.4	Develop 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.						
C245.5	Develop & receive and Step	80! e se per	51 C programs to generate square wave on 8051 I/O port pin using interrupt and to send erial data using 8051 serial ports. Interface simple switches, simple LEDs, ADC 0804, LCD Motor to 8051 using 8051 I/O ports.	L3			





COURSE CODE		:	C246			
COURSE NAME		:	INDUSTRIAL ELECTRONICS			
CO			COURSE OUTCOMES	BTL		
C246.1	Explain c its opera	Explain different types of industrial power devices such as MOSFET, BJT, IGBT etc, there structure, and its operating characteristics.				
C246.2	Design and analyse the power electronic circuits such as switch mode regulators, inverters, controlled L3 rectifiers, and ac voltage controllers.					
C246.3	Explain various types of MEMs devices used for sensing pressure, temperature, current, voltage, humidity, vibration etc					
C246.4	Explain soft core processors such as ASIC and FPGA also interpret computer hardware, software, architecture, instruction set, memory organization, multiprocessor architecture.					
C246.5	Apply th requirem	ie j ien ⁻	protective methods for devices, various industrial power devices based on thermal ts and develop protective methods for the circuits against various electrical parameters.	L3		

COURS	E CODE	:	C247	
COURSE NAME		:	OPERATING SYSTEM	
CO	COURSE OUTCOMES		BTL	
C247.1	Explain the goals, structure, operation, and types of operating system.L2			
C247.2	Apply scheduling techniques to find performance factors			
C247.3	Explain organization of file system and IOCS L			
C247.4	Apply suitable techniques for contiguous and non-contiguous memory allocation. L			L3
C247.5	Explain 1	me	ssage passing, deadlock detection and prevention methods.	L2

COURS	E CODE	:	C248				
COURSE NAME		:	CONTROL SYSTEMS				
CO		COURSE OUTCOMES		BTL			
C248.1	Develop	Develop the mathematical model of mechanical and electrical systems.					
C248.2	Develop transfer function for a given control system using block diagram reduction techniques and signal flow graph method.						
C248.3	Apply the time domain specifications for first and second order systems.						
C248.4	Demonstrate the stability of a system in the time domain using Routh - Hurwitz criterion and Root- locus technique						
C248.5	Demonstrate the stability of a system in the frequency domain using Nyquist and bode plots.						





COURSE	CODE	:	C249			
COURSE NAME		:	EMBEDDED C BASICS			
СО			COURSE OUTCOME	BTL		
C249 1	Develop C programs in 8051 for solving simple problems that manipulate input data using different					
6249.1	instructions					
C249.2	Develop testing and experimental procedures on 8051Microcontroller, analyze their operation					
	under different cases.					
C249.3	Develop programs for 8051Microcontroller to implement real world problems.					
C249.4	Develo	op r	nicrocontroller applications using external hardware interface.	L3		

COURSE	CODE	:	C2410					
COURSE NAME		:	PCB DESIGN					
СО		COURSE OUTCOME B7						
C2410.1	Illustra	Illustrate the detailed circuit diagram and prerequisite before the actual PCB layout.L2						
C2410.2	Demonstrate the process of PCB production and Material selection L2							
C2410.3	Illustrate the PCB fabrication by transferring the conductor pattern on base material L							
C2410.4	Infer the knowledge about the Plating techniques, Etching process and multilayer PCB board construction							
C2410.5	Demon	Demonstrate new streams in PCB technology and modern facilities for PCB designL2						

COURSE	CODE	:	C2411			
COURSE NAME		:	DAQ USING LAB VIEW			
CO			COURSE OUTCOME	BTL		
C2411.1	Build temperature indicating instruments using LabVIEW (NIDAQ) L					
C2411.2	Develop a model to Interface peripheral devices/instruments to LabVIEW					
C2411.3	Build LabVIEW modules to sense and process audio inputs L					
C2411.4	Apply programming structures, data types, and the analysis and signal processing algorithms in LabVIEW					





COURSE CODE		:	C2412	
COURSE NAME		:	RISK MANAGEMENT IN IOT IMPLEMENTATION	
СО	COURSE OUTCOME		BTL	
C2412.1	explain the core concepts and applications of the Internet of Things and its impact on industries and society. Students will be able to identify and assess risks and challenges in IoT implementations, applying appropriate methodologies and techniques.			L3
C2412.2	develop comprehensive risk management strategies and mitigation plans tailored to specific IoT projects. Students will be able to implement security controls and best practices to protect IoT devices, networks, and data from potential threats and vulnerabilities.			L3
C2412.3	analyse and comply with relevant regulations, standards, and ethical considerations to ensure responsible and secure IoT implementations.			L3