



Mar Baselios Christian College of Engineering and Technology
Department of Electrical and Electronics Engineering

2024-2027 BATCH

Semester	Course Code	Course Code NBA	Name of the Course	Course Outcome Statement													PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PSO 12	PSO 2
I	GYMAT101	E101	FOR ELECTRICAL SCIENCE AND PHYSICAL	Solve systems of linear equations and diagonalize matrices.													3	3	2										
				Solve homogeneous and non-homogeneous linear differential equation with constant coefficients.													3	3	2										
				Compute Laplace transform and apply it to solve ODEs arising in engineering													3	3	2										
				Determine the Taylor series and evaluate Fourier series expansion for different periodic functions.													3	3	2										
				Explain the Basic Concepts of Electrochemistry and Corrosion to explore the possible applications in various engineering fields													3	2	-	-	-	-	-	-	-	-			
I	GXCYT122	E122	INFORMATION SCIENCE & ELECTRICAL	Describe the use of various engineering materials in different industries													3	3	-	-	-	-	-	-	-	-			
				Apply appropriate analytical techniques for the synthesis and characterization of various engineering materials.													3	3	-	-	-	-	-	-	-	-			
				Outline various water treatment and waste management methods													3	3	-	-		2	3	-	-	-			
				Understand the projection of points and lines located in different quadrants													3	2	-	-	-	-	-	-	-	-			
I	GMEST103	E103	ENGINEERING GRAPHICS AND COMPUTER AIDED DRAWING	Prepare Multiview orthographic projections of objects by visualizing them in different positions													3	2	-	-	-	-	-	-	-	-			
				Plot sectional views and develop surfaces of a given object													3	2	-	-	-	-	-	-	-	-			
				Prepare pictorial drawings using the principles of isometric projection													3	2	-	-	-	-	-	-	-	-			
				Sketch simple drawing using CAD tools.													3	2	2		3	-	-	-	-	-			
				Apply fundamental concepts and circuit laws to solve simple DC/AC electric circuits													3	2	-	-	-	-	-	-	-	-			
				Classify series and parallel magnetic circuits													2	-	-	-	-	-	-	-	-	-			
I	GXEEST104	E104	INTRODUCTION TO ELECTRICAL AND ELECTRONICS	Understand three phase AC systems													3	2	-	-	-	-	-	-	-	-			
				Describe the fundamental concepts of electronic components and devices													2	1	-	-	-	-	-	-	-	-			
				Outline the principles of communication systems													2	-	-	-	-	-	-	-	-	-			
				Identify various applications of modern electronics in the contemporary world													3		1	-		3	1	-	-	-			
				Utilize computing as a model for solving real world problems													3	3	3	-	-	-	-	-	-	-			
				Articulate a problem before attempting to solve it and prepare a clear and accurate model to represent the problem													3	3	3	-	-	-	-	-	-	-			



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					1	2	3	4	5	6	7	8	9	10	11	12		
I	UCEST106	E105	ALGORITHMIC THINKING IN PYTHON	Utilize effective algorithms to solve the formulated models and translate algorithms into executable programs	3	3	3	-	-	-	-	-	-	-	-	-	3	
				Interpret the problem solving strategies, a systematic approach to solving computational problems, and essential python programming skills	3	3	3	-	-	-	-	-	-	-	-	-	3	
				Demonstrate safety measures against electrical shocks	-	-	-	-	-	3	-	-	-	-	-	-	2	
				Familiarise with transformers, rheostats, batteries and earthing schemes	1	-	-	-	-	2	1	-	-	-	-	-	2	
				Illustrate the connection diagram and identify the suitable accessories necessary for wiring simple electric circuits	2	-	-	-	-	1	-	-	-	-	-	-	2	
				Identify various electronic components	3	-	-	-	-	2	-	-	-	-	-	-	3	
				Operate various measuring instruments	3	-	-	-	-	3	2	-	-	2	-	-	3	
				Apply the design procedure of simple electronic circuits on breadboard and PCB	3	-	3	1	3	2	1	-	-	2	-	-	3	
				Build the ability to work in a team with good interpersonal skills	-	-	-	-	-	-	-	-	3	2	-	-	2	
				Understand the vector representation of forces and moments	3	3	-	-	-	-	-	-	-	-	-	-	-	
I	GBEST13	E213	ENGINEERING MECHANICS	Identify and describe the components of system of forces acting on the rigid body	3	3	-	-	-	-	-	-	-	-	-	-	-	
				Apply the conditions of equilibrium to different force system	3	3	-	-	-	-	-	-	-	-	-	-	-	
				Identify appropriate principles to solve problems of mechanics.	3	3	-	-	-	-	-	-	-	-	-	-	-	
				Develop the understanding of fundamental principles of rigid body dynamics	3	3	-	-	-	-	-	-	-	-	-	-	-	
				Explain the different human body systems and describe various types of physical activities along with methods to measure and quantify these activities.	-	-	-	2	3	3	-	3	3	2	-	-	2	
				Explain how to maintain or improve health and wellness through psychological practices, dietary habits, and sports activities.	-	-	-	2	3	3	-	2	2	-	-	-	2	
				Discuss about common hypokinetic disorders and musculoskeletal disorders, and describe the importance of leading a healthy lifestyle through the practice of yoga and abstaining from addictive substances.	-	-	-	-	-	-	-	-	-	-	-	-	-	
				Explain the basics of first aid and describe common sports injuries	-	-	-	0	3	3	-	3	-	-	-	-	2	
				Compute the partial and total derivatives and maxima and minima of multivariable functions and to apply in engineering problems.	-	-	-	2	3	3	-	-	-	-	-	-	2	
				Understand theoretical idea of multiple integrals and to apply them to find areas and volumes of geometrical shapes.	3	3	-	2	-	-	-	-	-	-	-	-	2	-
II	GYMAT201	E201	MATHEMATICS FOR PHYSICAL SCIENCE - 2	Compute the derivatives and line integrals of vector functions and to learn their applications.	3	3	-	2	-	-	-	-	-	-	-	-	2	-

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II	UCHUT128	E128	LIFE SKILLS AND PROFESSIONAL COMMUNICATION	Develop the ability to know & understand oneself, show confidence in one's potential & capabilities, set goals and develop plans to accomplish tasks										1			3	
				Develop the ability to communicate and connect with others, participate in groups/teams, empathies, respect diversity, be responsible and understand the need to exercise emotional intelligence														
				Develop thinking skills, problem-solving and decision-making skills								3		3			3	
				Develop listening, reading, writing & speaking skills, ability to comprehend & successfully convey any idea, and ability to analyze, interpret & effectively summarize textual, audio & visual content										1				
				Develop the ability to create effective presentations through audio-visual mediums with the use of technology tools and initiate effective use of social media platforms & tech forums for content delivery and discussions										1	1		2	
II	PCEET205	E205	MEASUREMENTS AND INSTRUMENTATION	Initiate profile-building exercises in line with the professional requirements, and start networking with professionals/academicians										1	1			
				Classify various parameters and errors associated with measuring instruments.	3	2											2	
				Apply suitable methods for the measurement of current, voltage, power and energy.	3	3				2							2	
				Understand suitable methods for the measurement of magnetic quantities, resistance, inductance and capacitance.	3	3											2	
				Describe the working principle, selection criteria and applications of various sensors and transducers in relation to measurements systems	3	2											2	
II	GXESL208	E208	IT WORKSHOP	Explain the operation of digital measurement systems.	3	2			2								2	
				Discuss the applications of modern instrumentation schemes for industrial process														
				Experiment with the fundamental hardware components of a computer and how to interface them with software systems.	3	2	3		3	2							2	
				Make use of the command line of Linux operating system and shell programming.	3	3	3	3	3								3	
				Experiment with the data network communication scenarios using Wireshark.	3	3	3	3	3								3	
II				Develop basic websites using HTML, CSS & JavaScript and manage the versions.	3	3	3	3	3								3	



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III	GYMAT301		MATHEMATICS FOR ELECTRICAL SCIENCE AND PHYSICAL SCIENCE - 3	Determine the Fourier transforms of functions and apply them to solve problems arising in engineering.	3			2								2	
				Understand the analyticity of complex functions and apply it in conformal mapping.	3	3		2								2	
				Compute complex integrals using Cauchy's integral theorem and Cauchy's integral formula.	3	3		2								2	
				Understand the series expansion of complex function about a singularity and apply residue theorem to compute real integrals.	3	3		2								2	
III	PCEET302	E302	CIRCUITS & NETWORKS	Apply circuit theorems to solve complex DC and AC electric networks	3	3										3	
				Apply transformation from time domain to s-domain, solve dynamic electric circuits	3	3										3	
				Solve series and parallel resonant circuits	3	3										3	
				Analyse three-phase networks in star and delta configurations under balanced and unbalanced conditions.	3	3										3	
III	PCEET303	E303	DC MACHINES & TRANSFORMERS	Describe two-port networks in terms of various parameters.	3	3										3	
				Describe two-port networks in terms of various parameters.	3	3										3	
				Describe the constructional details of DC machines	3	2										3	
				Analyse the performance DC generator under various load conditions	3	3										3	
III	PBEEET304	E304	ANALOG ELECTRONICS	Analyse the performance DC generator under various load conditions	3	3										3	
				Analyse the performance of 1-phase transformer and auto-transformer under various load conditions	3	3										3	
				Describe the constructional details and operation of 3-phase transformers.	3	2										3	
				Design BJT and FET amplifier circuits	3	3	3	3	3								
III	PBEEET304	E304	ANALOG ELECTRONICS	Design Oscillator circuits	3	3	3	3	3								
				Design and develop various OPAMP application circuits.	3	3	3	3	3								
				Implementation of active filters	3	3	3	3	3								
				Implement an electronic hardware circuit for the solution of a real time problem	3	3	3	3	3	3	3	2	1	3	3	3	3
			CO	Apply the concept of machine learning algorithms including neural networks and supervised/unsupervised learning techniques for engineering applications	3	3	3	3	3								



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III	GNES1305	E305	INTRODUCTION TO THE ARTIFICIAL INTELLIGENCE AND DATA SCIENCE	Apply advanced mathematical concepts such as matrix operations, singular values, and principal component analysis to analyze and solve engineering problems.	3	3	3	3									
				Analyze and interpret data using statistical methods including descriptive statistics, correlation, and regression analysis to derive meaningful insights and make informed decisions.	3	3	3	3									
				Integrate statistical approaches and machine learning techniques to ensure practically feasible solutions in engineering contexts.													
				Develop the ability to apply the principles of engineering ethics in their professional life.						3	2	3	3	2		2	
III	UCHUT347	E347	ENGINEERING ETHICS AND SUSTAINABLE DEVELOPMENT	Develop the ability to exercise gender-sensitive practices in their professional lives	1					3	2	3	3	2		2	
				Develop the ability to explore contemporary environmental issues and sustainable practices.						3	3	2	3	2		2	
				Develop the ability to analyse the role of engineers in promoting sustainability and climate resilience.	1					3	3	2	3	2		2	
				Develop interest and skills in addressing pertinent environmental and climate-related challenges through a sustainable engineering approach.						3	3	2	3	2		2	
III	PCEEL307	EL307	CIRCUITS AND MEASUREMENTS LAB	Analyse voltage current phasor relations of RLC circuits	3		2						2			3	
				Verify DC network theorems by setting up various electric circuits	3	3	2						2			3	
				Measure power in single and three phase circuits by various methods	3	3							2			3	
				Determine the calibration characteristics of various meters used in electrical systems	3	3								2		3	
				Determine magnetic characteristics of different electrical devices	3	3							2			3	
				Analyse the characteristics of various types of transducer systems	3	3	2		3				2			3	
				Determine electrical parameters using various bridges	3	3							2			3	
				Develop simulation models of electric circuits using modern simulation tools.	3	3	2		3				3			3	
III	CEEL308	EL308	ANALOG ELECTRONICS LAB	Use the various electronic instruments and for conducting experiments.	3												
				Design and develop various electronic circuits using diodes and Zener diodes.	2	3	3	3	3				3	3			
				Design and implement amplifier and oscillator circuits using BJT and JFET.	2	3	3	3	3				3	3			
				Design and implement basic circuits using IC (OPAMP and 555 timers).	2	3	3	3	3				3	3			

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