

**COs (2021-22)**

**3rd SEM**

<b>S. No.</b>	<b>Paper Code</b>	<b>Paper/COs</b>
<b>1</b>	<b>ETMA-201</b>	<b>Applied Mathematics-III</b>
	ETMA-201.1	Apply the analytical techniques to construct Fourier series of periodic functions and Fourier transform to find the solution of boundary value problems.
	ETMA-201.2	Find Z and inverse Z transform and solve the difference equations with Z transform
	ETMA-201.3	Solve algebraic, transcendental equations, simultaneous equations and interpolate the given data.
	ETMA-201.4	Find approximate value of the derivative, definite integral for a given data and solution of differential equations using numerical techniques.
<b>2</b>	<b>ETEC-203</b>	<b>Analog Electronics-I</b>
	ETEC-203.1	Understand the concept of bias stabilization and bias stability for single stage amplifier circuit.
	ETEC-203.2	Implement the small signal and large signal models of transistor in amplifier circuits.
	ETEC-203.3	Compare the concept of positive and negative feedback in analog circuits.
	ETEC-203.4	Able to learn design of power amplifier and its classifications.
<b>3</b>	<b>ETEE-205</b>	<b>Materials in Electrical System</b>
	ETEE-205.1	Understand the different types of materials and properties of conducting materials.
	ETEE-205.2	Understand the insulating materials in different states of matter.
	ETEE-205.3	Understand various properties and use of magnetic materials.
	ETEE-205.4	Understand the importance of special types of materials used in electrical systems.
<b>4</b>	<b>ETEE-207</b>	<b>Circuit and Systems</b>
	ETEE-207.1	Various signal and systems.
	ETEE-207.2	Understand the knowledge about the time domain analysis of 1st and 2nd order system.
	ETEE-207.3	Apply and correlate the parameters of 2 port N/w
	ETEE-207.4	Synthesize N/w function /driving point function RL,RC and RLC network and design various filters.
<b>5</b>	<b>ETCS-209</b>	<b>Data Structures</b>
	ETCS-209.1	Recall and understand the basic concepts of Primitive data structures and algorithms.
	ETCS-209.2	Understand elementary data structures such as stack, queue and linked list
	ETCS-209.3	Apply the concept of basic data structure on advanced tree structure, graph representation and various traversal methods
	ETCS-209.4	Apply the basic concepts of data structure on sorting and searching techniques.
<b>6</b>	<b>ETEE-211</b>	<b>Electrical Machines-I</b>
	ETEE-211.1	Understanding the construction features & principle of working of transformers & dc Machines.
	ETEE-211.2	Studying the characteristics of dc machines, the speed control of dc motor & their applications.
	ETEE-211.3	Applying test results of transformer to obtain equivalent circuit, draw phasor diagrams & determine efficiency & voltage regulation.
	ETEE-211.4	Designing connections for 3-phase transformer & emphasizing their applications in Electrical Industry.

7	<b>ES-251</b>	<b>Analog Electronics-I Lab</b>
	ES-251.1	Understand the input and output characteristics of transistors and SCR
	ES-251.2	Able to design single stage BJT amplifiers.
	ES-251.3	Understand the effect on gain and bandwidth in multi stage amplifiers.
	ES-251.4	Observe the effect of feedback on gain of single stage amplifiers.
8	<b>ECC-253</b>	<b>Electrical Machines-I Lab</b>
	ECC-253.1	Explain the construction detail and different methods of starting and speed control of dc motor.
	ECC-253.2	Analyze the performance and efficiency of dc machine.
	ECC-253.3	Determine equivalent circuit, voltage regulation and efficiency of single phase transformer.
	ECC-253.4	Illustrate various types of connection in three phase transformer.
9	<b>CIC-255</b>	<b>Data Structures Lab</b>
	CIC-255.1	
	CIC-255.2	
	CIC-255.3	
	CIC-255.4	
10	<b>CIC-257</b>	<b>Circuit and Systems Lab</b>
	CIC-257.1	Understand the concept of signal and system.
	CIC-257.2	Analyze the interconnection of various 2-port network
	CIC-257.3	Analyze the electric circuit using sci-lab.
	CIC-257.4	Create model of electric network using sci-lab.
11	<b>ETEE-259</b>	<b>Scientific Computing Lab</b>
	ETEE-259.1	Acquire knowledge of basic sci-lab.
	ETEE-259.2	Illustrate various data types and programme design.
	ETEE-259.3	Apply sci-lab to solve problems of matrices and quadratic equations.
	ETEE-259.4	Apply sci-lab to simulate various electrical circuits.

**4th SEM**

	<b>ETEE-202</b>	<b>Electrical Machine-II</b>
	ETEE-202.1	Understanding of constructional features and working principle of various synchronous and asynchronous machine.
	ETEE-202.2	Analyze equivalent circuit and various characteristics of 3-phase and 1-phase induction motor.
	ETEE-202.3	Apply various method to determine voltage regulation of synchronous generator
<b>12</b>	ETEE-202.4	Apply various method of starting speed control of three phase and 1-phase induction motor.
	<b>ETEC-204</b>	<b>Analog Electronics-II</b>
	ETEC-204.1	Analyze the working of building blocks used in Analog IC
	ETEC-204.2	Design the Op Amp Application circuits.
	ETEC-204.3	Understand the characteristics OTA and design OTA-C application circuits.
<b>13</b>	ETEC-204.4	Understand the working of PLL and Current Conveyor and their application.
	<b>ETEE-206</b>	<b>Power System-I</b>
	ETEE-206.1	Identify and understand the components of an electric power system.
	ETEE-206.2	Comprehend and analyze the mechanical and electrical characteristics of power system.
	ETEE-206.3	Comprehend the various concepts and analyze the mechanical and electrical characteristics of power system.
<b>14</b>	ETEE-206.4	Analyze the power flow in the electrical power system.
	<b>ETEE-208</b>	<b>Electrical and Electronics Measuring Instruments</b>
	ETEE-208.1	Ability to understand principle and working of different power and energy instruments.
	ETEE-208.2	Ability to design different dc and ac bridges circuit for the measurement of R,L,C.
	ETEE-208.3	Ability to analyze the operation of various display devices and recorders with their applications.
<b>15</b>	ETEE-208.4	Ability to evaluate the operators and application of various electronics measuring instruments.
	<b>ETEE-210</b>	<b>Electromagnetic Field Theory</b>
	ETEE-210.1	To remember vectors in all coordinate system and apply them to electrostatics and magnetostatics.
	ETEE-210.2	To list Maxwell equations and solve them for specific regular geometries.
	ETEE-210.3	To understand general electromagnetic wave propagation & its application to engineering problems.
<b>16</b>	ETEE-210.4	To study transmission lines & their application.
	<b>ETEE-212</b>	<b>Control Systems</b>
	ETEE-212.1	To understand concept of mathematical modelling & simplify transfer functions using block diagram & signal flow graphs.
	ETEE-212.2	To analyze the steady state and transient response of various systems in time domain & frequency domain.
	ETEE-212.3	To study the concept of stability, controllers & compensators to enable design of physical models.
<b>17</b>	ETEE-212.4	To be able to do stability analysis & performance evaluation with the help of various plots.
	<b>ETEE-252</b>	<b>Electrical Machine-II Lab</b>
	ETEE-252.1	To Understand various starting method of induction method.
	ETEE-252.2	Evaluate equivalent circuit and its parameter by performing no load and block rotor test on 3-phase and 1-phase induction motor.
	ETEE-252.3	To analyze the performance of three phase induction machine by load test.
<b>18</b>	ETEE-252.4	To illustrate various test on synchronous machine.

<b>19</b>	<b>ETEE-254</b>	<b>Analog Electronics-II Lab</b>
	ETEE-254.1	Understand the characteristics of IC 741Op Amp.
	ETEE-254.2	Design basic Op Amp application circuits
	ETEE-254.3	Analyse the design of Analog filters.
	ETEE-254.4	Design sine wave and square wave generators circuits.
<b>20</b>	<b>ETEE-256</b>	<b>Power System-I Lab</b>
	ETEE-256.1	Recognize various types of cables (insulated ) and insulators.
	ETEE-256.2	Study the performance of long transmission lines under light or/and no load condition.
	ETEE-256.3	Perform tests to calculate various parameters of the power system.
	ETEE-256.4	Make a model of the transmission line to calculate various parameters and efficiency.
<b>21</b>	<b>ETEE-258</b>	<b>Electrical and Electronics Measuring Instruments Lab</b>
	ETEE-258 .1	Calculate passive elements R,L,C using various ac bridges.
	ETEE-258 .2	Illustrate the method of measuring phase,frequency,inductance and capacitance using cro.
	ETEE-258 .3	Evaluate 3-phase power by two wattmeter methods.
	ETEE-258 .4	Testing of 1-phase and 3-phase energy meters.
<b>22</b>	<b>ETEE-260</b>	<b>Control Systems Lab</b>
	ETEE-260.1	Explain the components of control system to determine the transfer function.
	ETEE-260.2	Illustrate transient and steady state of a system and study response of controller.
	ETEE-260.3	Analyze control system in frequency domain.
	ETEE-260.4	Determine stability of given system and implement compensating technique to design simple system.