ANJUMAN-I-ISLAM'S
KALSEKAR TECHNICAL CAMPUS, NEW PANVEL
Approved by : All India Council for Technical Education, Council of Architecture, Pharmacy Council of India New Delhi,
Recognised by : Directorate of Technical Education, Govt. of Maharashtra, Affiliated to : University of Mumbai.

☑ SCHOOL OF ENGINEERING & TECHNOLOGY
☐ SCHOOL OF PHARMACY
☐ SCHOOL OF ARCHITECTURE

DEPARTMENT OF ELECTRICAL ENGINEERING

Vision	To be the most sought after academic, research and practice based department of Electrical Engineering that others would wish to emulate.
Mission	Creating Exuberant Electrical Engineering Professionals.

Programe Outcomes

PO01	**Engineering Knowledge**	Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
PO02	**Problem Analysis**	Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences.
PO03	**Design/Development of Solutions**	Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
PO04	**Conduct Investigations of Complex Problems**	Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions for complex problems.
PO05	**Modern Tool Usage**	Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
PO06	**The Engineer and Society**	Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
PO07	**Environment and Sustainability**	Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
PO08	**Ethics**	Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
PO09	**Individual and Team Work**	Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
PO10	**Communication**	Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
PO11	**Project Management and Finance**	Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
PO12	**Life-long Learning**	Recognize the need for, and have the preparation and ability to engage in independent and lifelong learning in the broadest context of technological change.
PSO 01		Develop models, design, analyze and assess the performance of different types of Electrical Machines, Control Systems and generation, transmission, distribution, protection mechanisms in Power Systems.
PSO 02		To empower the students with engineering concepts along with aptitude skills for developing competency to succeed in competitive examinations.

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DEPARTMENT OF ELECTRICAL ENGINEERING

Curriculum : 2022-2026

LIST OF COURSE OUTCOME AND CO-PO MAPPING

Course Code & Name	CO No.	Course outcome	PO 01	PO 02	PO 03	PO 04	PO 05	PO 06	PO 07	PO 08	PO 09	PO 10	PO 11	PO 12	PSO 01	PSO 02
FEC101 EM -I	CO 01	Solve Engineering problems based on Complex Number and Hyperbolic Functions (L3)	2													
	CO 02	Examine the given Function for Maxima ana Minima using Partial Differentiation (L3)	3													
	CO 03	Find the Rank of given Matrices using Elemetary Transformations (L3)	3													
	CO 04	Solve system of Linear, Algebraic and Transcendental Equations using numerical methods and SciLab (L3)	2				1									
FEC102 EP -I	CO 01	Calculate physical quantities for the moving particles based on the quantum mechanical ideas.	2	1												
	CO 02	Correlate crystal structures with lattice parameters using theory of X ray diffraction.	2	1												
	CO 03	Categorize types of semiconductors and their applications in electronic devices.	2	1												
	CO 04	Calculate dimension of small objects using techniques based on interference of light.	2	1												
	CO 05	Distinguish between types of Superconductors and compare capacitors with batteries.	2	1												
	CO 06	Classify different engineering materials based on their properties.	2	1												
FEC103 EC -I	CO 01	Determine the bond order and magnetic properties to study the behaviour of some diatomic molecule in terms of atomic and	1													
	CO 02	Determine the aromaticity and study its relation with specific aromatic systems by using Huckel's Rule.	1													
	CO 03	Compare intermolecular forces and relate it to real gases at different temperature and pressure	1													
	CO 04	Interpret various phase transformation to study the behaviour of microscopic system using thermodynamics.	1													
	CO 05	Apply the knowledge of polymers,fabrication methods,conducting polymer in various industrial fields.	2													
	CO 06	Analyze the quality of water and suggest suitable methods of treatment to make it useful for mankind.	2													

Course Code & Name	CO No.	Course outcome	PO 01	PO 02	PO 03	PO 04	PO 05	PO 06	PO 07	PO 08	PO 09	PO 10	PO 11	PO 12	PSO 01	PSO 02
FEC104 EM	CO 01	Illustrate the concept of force,moment and apply the same in 2D in 3D force systems	2	1												
	CO 02	Demonstrate the understanding of centroid and locate the same of given lamis	2	1												
	CO 03	Correlate real life application, and estimate the force and other parameters related to friction	2	1												
	CO 04	Establish relation between displacement, velocity and acceleration of a particle & draw the motion curves	2	1												
	CO 05	Apply the concept of Instantaneous center of Rotation (ICR) and find various parameters for the given mechanism	2	1												
	CO 06	Analyze body in motion using force, acceleration, work energy and Impulse momentum principles	2	1												
FEC105 BEE	CO1	Learner will be able to apply various network theorem to determine the circuit response /behaviour	3	3											3	3
	CO2	Learner will be able to Evaulate and analyse single phase circuit.	3	3			3								3	3
	CO3	Learner will be able to Evaulate and analyse three phase circuit.	3	3			3								3	3
	CO4	Learner will be able to understand the constructional features and operation of single phase transformer.	3	3			3								3	3
	CO 5	Learner will be able to illustrate the working principle of three phase machine	3	3			3								3	3
	CO 6	Learner will be able to illustrate the working principle of single phase machine.	3	3			3								3	3
FEL101 EP-I	CO 01	Perform the experiments based on interference in thin film and analyze the results.	2	2		1					2					
	CO 02	Sketch different crystal structures, Miller planes and confirms the theory of crystallography.	2	2		1					2					
	CO 03	Perform the experiments on various semiconductor devices and analyze their characteristics.	2	2		1					2					
	CO 04	Plan and Present mini project objectives, framework and flow based on literature survey.	2	2		2	2		1		2	2		2		
FEL101 EC-I	CO 01	Determine the quality of water sample and calculate its hardness by EDTA method (L3)	1	1		1					2	1				
	CO 02	Calculate the COD of water sample to determine the extent of water pollution by using strong oxidizing agent. (L3)	1	1		1					2	1				
	CO 03	Test various solutions for free acid pH approximately by using pH determination methods. (L4)	1	1		1					2	1				
	CO 04	Synthesize a polymer quantitatively by condensation polymerization method. (L4)	1	1		1					2	1				
	CO 05	Determine the viscosity of given oil with respect to temperature by using Redwood viscometer. (L3)	1	1		1					2	1				
03 EM	CO 01	Verify equations of equilibrium of coplanar force system	2								1					
	CO 02	Verify law of moments.	2								1					
	CO 03	Determine the centroid of plane lamina.	2								1					

Course Code & Name	CO No.	Course outcome	PO 01	PO 02	PO 03	PO 04	PO 05	PO 06	PO 07	PO 08	PO 09	PO 10	PO 11	PO 12	PSO 01	PSO 02
FEL10	CO 04	Evaluate co-efficient of friction between the different surfaces in contact.	2								1					
	CO 05	Demonstrate the types of collision/impact and determine corresponding coefficient of restitution.	2								1					
	CO 06	Differentiate the kinematics and kinetics of a particle.	2								1					
FEL104 BEE	CO 01	Learner will be able to interpret and analyse the behaviour of D.C. circuits using network theorems.	2						1						2	2
	CO 02	Learner will be able to perform and infer experiment on single phase AC circuits.	2		2										2	2
	CO 03	Learner will be able to perform and infer experiment on Three phase AC circuits.	2		2	3									2	2
	CO 04	Learner will be able to illustrate the performance of single phase transformers parameters.	3		2	3									2	2
FEL105 BWSP - I	CO 01	Interpret the drawings for different geometrical tolerances on the given part ,Use marking tool for marking on given part and Develop						1			1	1				
	CO 02	Develop skill required for hardware maintenence,Develop skill to install and operating system and system drives and Develop to					1				1	1				
	CO 03	Develop the necessary skill required to handle/ use different plumbing tools.(L1)						1			1	1				

Course Code & Name	CO No.	Course outcome	PO 01	PO 02	PO 03	PO 04	PO 05	PO 06	PO 07	PO 08	PO 09	PO 10	PO 11	PO 12	PSO 01	PSO 02
FEC 201 EM-II	CO 01	Analyse and Solve given LDE of FOFD and higher order using suitable methods	2													
	CO 02	Solve improper integrals using special functions	3													
	CO 03	Analyse and calculate physical quantities of solids using double and triple integrals	3													
	CO 04	Solve differential equations and integrals numerically with the help of Scilab	2				1									
FEC 202 EP-II	CO 01	Apply theory of diffraction of light to determine wavelength of light and grating parameters.	2	1												
	CO 02	Compare different types of optical fibers, Lasers based on various parameters for wide spectrum of applications.	2	1												
	CO 03	Tests the given field based on vector analysis and transform the Maxwell's equations.	2	1												
	CO 04	Calculate physical quantities in different frames of reference based on special theory of relativity.	2	1												
	CO 05	Compare different methods of synthesis of nanoparticles and identify required characterization technique.	2	1												
	CO 06	Distinguish sensors based on their working principle and uses.	2	1												
FEC 203 EC-II	CO 01	Distinguish the ranges of the electromagnetic spectrum used for exciting different molecular	1													
	CO 02	Illustrate the concept of emission spectroscopy and describe the phenomenon of fluorescence and	1													
	CO 03	Apply the fundamental concepts of electrochemistry to determine EMF of a cell by using Nernst equation (L3)	1													
	CO 04	Classify different types of corrosion and suggest control measures in industries (L3)	2													
	CO 05	Illustrate the principles of Green chemistry and study environmental impact (L3)	1						1							
	CO 06	Determine the quality of fuel and quantify the oxygen required for combustion of fuel (L3)	2													
FEC 204 EG	CO 01	Apply the basic principles of projections in Projection of Lines and Planes	2											1		
	CO 02	Apply the basic principles of projections in Projection of Solids.	2											1		
	CO 03	Apply the basic principles of sectional views in Section of solids.	2											1		
	CO 04	Apply the basic principles of projections in converting 3D view to 2D drawing.	2											1		
	CO 05	Read a given drawing.	2											1		
	CO 06	Visualize an object from the given two views.	2											1		
OG	CO 01	Formulate simple algorithms for arithmetic, logical problems and implement them to	2	2												
	CO 02	Implement, test and execute programs comprising of control structures.	2		2		1									

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FEC 205 C PR...	CO 03	Apply the concept of functions and synthesize a complete program.	2		2											
	CO 04	Demonstrate the use of arrays and strings in C language.	2		2		1				1					
	CO 05	Demonstrate the use of structures in C language.	2		2		1				1					
	CO 06	Apply the concept of pointer implementation in C	2	2	2		1				1					
FEC 206 PCE - I	CO 01	Eliminate barriers and use verbal/nonverbal cues at social and workplace situations.												1		
	CO 02	Employ listening strategies to comprehend wideranging vocabulary, grammatical structures, tone and pronunciation												1		
	CO 03	Prepare effectively for speaking at social, academic and business situations.										2				
	CO 04	Use reading strategies for faster comprehension, summarization and evaluation of texts.												2		
	CO 05	Acquire effective writing skills for drafting academic, business and technical documents.										2				2
	CO 06	Understand and implement the behavioural needs for an engineer by following professional ethics						2		2						
FEL 201 EP-II	CO 01	Perform the experiments based on interference in thin film and analyze the results.	2	2							2					
	CO 02	Sketch different crystal structures, Miller planes and confirms the theory of crystallography.	2	2							2					
	CO 03	Perform the experiments on various semiconductor devices and analyze their characteristics.	2	2							2					
	CO 04	Plan and Present mini project objectives, framework and flow based on literature survey.	2	2	2	2	1	1			1	2		1		
FEL 202 EC-II	CO 01	Determine the moisture content of coal and relate it to quality of fuel	1	1		1										
	CO 02	Determine the acid value/saponification value of an oil to know its suitability in respective machines	1	1		1										
	CO 03	Determine Flash point of oil to know its suitabillity in respective machines	1	1		1										
	CO 04	Synthesize a drug by using principles of green chemistry and calculate percentage Atom Economy quantitatively	2	1		1										
	CO 05	Examine the emf ofl Cu-Zn system accurately at different concentration using Potentiometry	1	1		1										
FEL 203 EG	CO 01	Apply basic Principles of projections in projection in 2D drawing using a CAD software	2													
	CO 02	Creat, Annotate,Edit and Plot drawing using basic Auto CAD commands & Features	2													
	CO 03	pply the concept of layers to creat drwaing	2													
	CO 04	Apply basic Auto CAD skills ti draw different view of a 3D objects	2				1									
	CO 05	Apply Basic Auto CAD skills to draw the Isometric view from the given two views.	2				1									

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FEL 204 CP	CO 01	Implement given algorithms to a program & Correct syntax and logical errors	2	2												
	CO 02	Apply the Concept of looping and Branching Statment programs.	2		2		1									
	CO 03	Apply data in arrays, strings manipulate them through a Program	2		2		1									
	CO 04	Demonstrate the Concept of function in C programming.	2		2											
	CO 05	Demonstrate structures and manipulate them through a Program	2		2		1				1					
	CO6	Demonstrate the Concept of pointers and implement call by reference concept	2	2	2		1				1					
FEL 205 PCE-I	CO 01	Listen and comprehend all types of spoken discourse successfully.												1		
	CO 02	Speak fluently and make effective professional presentations.												1		
	CO 03	Read large quantities of text in a short time to comprehend, summarise and evaluate content.										2				
	CO 04	Draft precise business letters, academic essays and technical guidelines.												2		
	CO 05	Dress finely and conduct themselves with panache in social, academic and professional situations.										2				1
	CO 06	Understand and implement the behavioural needs of an engineer by following professional ethics.						2		3						
FEL 206 BSWP-II	CO 01	Interpret drawings for different geometrical tolerances on the given part, use marking tool for marking on given part and develop the			1			1	1		1	1		1		
	CO 02	Produce a printed circuit board (PCB), demonstrate wiring practices for the connection of simple electrical load/equipment and identify			1			1	1	1	1	1		1		
	CO 03	Interpret drawings for preparing the given part, use marking tool for marking on given part and develop the necessary skills required to			1			1	1		1	1		1		

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EEC301 EM-III	CO 01	Apply the concept of Laplace, inverse Laplace transform and its application to find the real integrals in engineering problems	2								1					
	CO 02	Apply Fourier series for real-life problems and complex engineering problems.	1								1					
	CO 03	Apply complex variable theory, application of harmonic conjugate to find orthogonal trajectories and analytic functions.	1				1				1					
	CO 04	Apply matrix operations to solve and find answer engineering problems	2								1					
	CO 05	Apply the concept of vector calculus in real life problems	2								1					
EEC302 ECA	CO 01	Apply network theorems for the analysis of electrical circuits.	3												1	1
	CO 02	Obtain the transient and steady-state response of electrical circuits.	3												1	1
	CO 03	Develop and analyse transfer function model of system using two port network parameter		1											1	1
	CO 04	Analyse time domain behaviour from pole zero plot.		1											1	1
	CO 05	Analyse electrical network using graph theory.		1											1	1
	CO 06	Apply network theorems for the analysis of electrical circuits.	3												1	1
EEC303 FEMM	CO 01	Students will be able to select the appropriate switching / protective device for Sustation.	2	2		2		2							1	
	CO 02	Students will be able to discriminate between the application of circuit breaker and fuse as a protective device.	2	2		2		2							1	
	CO 03	Students will be able to explain the asic concept of relay, types of relay and their applications in power system.	2	2		2		2							1	
	CO 04	Students will be able to select the specific protection required for different components of power system according to the type of fault.	2	2		2		2							1	
	CO 05	Students will be able to apply the specific protection provided for different types of tansmission lines	2	3		2		2							1	
	CO 06	Students will be able to explain the basic concept of Static relay and Numerical relays.	2	2		2		2							1	
EEC304 EPS-I	CO 01	Comprehend the power system and its components and Compare conventional and non conventional energy sources (L4)		3											1	1
	CO 02	Compare the ac transmission / distribution lines and the overhead insulators according to its application (L4)	2	3											2	2
	CO 03	Calculate the parameters of different types of ac transmission / distribution lines for analysis. (L3 & L4)	2	3											3	3
	CO 04	Draw and analyze the PU reactance diagram of a power system. (L4)		2	2										2	3
	CO 05	Analyse the performance of transmission lines.(L4)	2	3											3	3
	CO 06	Calculate the performance parameters of electric cable and acquire the knowledge of earthing to design it for individual and societal safety (L3 & L4)	2	3					1	1					2	2
	CO 01	Students will be able to identify and Design and analyse various rectifiers and amplifier circuits	1	2												

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EEC305 AE	CO 02	Students will be able to describe and Analyse DC and AC parameters of BJT.		2												
	CO 03	Students will be able to describe and Analyse DC and AC parameters of MOSFET	1	2											1	
	CO 04	Students will be able to identify and explain the functioning of OP-AMP and design OP-AMP based circuits.	2		2										1	
	CO 05	Students will be able to identify and describe Practical design aspect of regulated power supply circuits using linear regulators.	1	2				1								
	CO 06	Students will be able to identify and explain applications of commonly used special semiconductor devices		2												
EEL301 EMML	CO 01	Illustrate and analyze the performance of DC machines.	1	2											1	2
	CO 02	Demonstrate different speed control methods of DC motors.	2	2											2	
	CO 03	Illustrate and analyze the working of various sensors, transducers and instruments used for measurement of the various physical parameters.	1	2												1
	CO 04	Demonstrate the use of bridges for measurements of passive electrical components.	3	3	2										3	
	CO 05	Analyse the working signal processing circuits used in measurements and instruments	1	2											1	3
EEL302 EL-I	CO 01	Identify the different types of semiconductor devices and demonstrate their applications in electronic circuits.	1													
	CO 02	Analyse the performance of different types of rectifier with and without filter.	1													
	CO 03	Determine the dc and ac parameters of various semiconductor devices.	1													
	CO 04	Illustrate the frequency response of BJT/ MOSFET amplifier.	1													
	CO 05	Analyse the practical use of Op-amps in signal processing and waveform generators.	1													
EEL303 SL-I	CO 01	students will be able to Develop knowledge of software packages to model and program electrical and electronics systems.(L3)	3													
	CO 02	Students will be able to Model different electrical and electronic systems and analyse results(L4, L3)	3	3												
	CO 03	students will be able to Articulate importance of software packages used for simulation in laboratory experimentation/research by		3												
	CO 04	students will be able to evaluate performance of electric machines/circuits (L5)				3										
	CO 05	Design and comparison of results obtained via simulation and hardware (L6)			3									1		
EEL304 AEEL	CO 01	Demonstrate the effective use of various electrical and electronic measuring lab equipments.	1													
	CO 02	Distinguish various electrical LV/HV substation, supply equipments and their network connection	1													
	CO 03	Examine and use different low voltage protective switchgears along with residential /industrial wiring practices.	1			1										
	CO 04	Illustrate & demonstrate of Repair and maintain common house-hold appliances.	1									1				

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	CO 05	Support & Handle Electrical fire and shock hazards safety challenges in real practice	1		1					1			1			
EEM01MP-1A	CO 01	Apply Knowledge and skills to solve societal /research needs in a group.	3	3	2	1	2	2	2		2			1	1	
	CO 02	Draw the proper inferences from available results through theoretical/ experimental/ simulations.	3	3		2	2		1							
	CO 03	Develop interpersonal skills to work as member or leader of group.								1	3	1		2		
	CO 04	Analyze the impact of solution in societal and environmental context for sustainable development.	2	2		2	2	2	2	1				1		1
	CO 05	Use standard norms of applicable software engineering practices	2	2	2	2	2	1	1	1	2	2	1	1	2	2
	CO 06	Demonstrate and excel in written, oral communication and project management skills.	2	2	2			1		1	1			2	2	1

Course Code & Name	CO No.	Course outcome	PO 01	PO 02	PO 03	PO 04	PO 05	PO 06	PO 07	PO 08	PO 09	PO 10	PO 11	PO 12	PSO 01	PSO 02
EEC 401 EM IV	CO 01	Evaluate contour integrals, residues using complex integration	1								1					
	CO 02	Apply the concept of Correlation, Regression,probability and expectation for getting the spread of the data to the engineering	1			1					1					
	CO 03	Apply the concept of vector spaces and orthogonalization process in Engineering Problems	1								1					
	CO 04	Apply the concept of quadratic forms and Singular value decomposition in engineering problems	1								1					
	CO 05	Evaluate the extremals of the functional using the concept of Calculus of variation	1								1					
EEC 402 EACM I	CO 01	Illustrate working principle and performance of single phase transformer under different operating condition.	1	2						1						
	CO 02	Understand working principle of autotransformer.	1													
	CO 03	Analyze various types of connections and performance of three phase transformer under various condition.		2							1					
	CO 04	Demonstrate working principle and evaluate performance of three phase induction motor under various operating conditon		2												
	CO 05	Exemplify various starting methods and speed control of three phase induction motor.	1													
EEC 403 DE	CO 01	Perform conversion of various number systems	1	2												
	CO 02	Explain working of logic families and logic gates		2												
	CO 03	Design and implement combinational circuits	1	2											1	
	CO 04	Design and implement sequential circuits	2		2										1	
	CO 05	Outline the process of Analog to Digital conversion and Digital to Analog conversion	1	2				1								
	CO 06	Illustrate the use of PLDs to implement the given logical problem.		2												
EEC404 PEDC	CO 01	Explain the basic operation and characteristics of various semi controllable and fully controllable devices	3	2	1									3	2	1
	CO 02	Analyse various single phase and three phase power converter circuits and understand their applications.	3	3	1									1	2	1
	CO 03	Analyse dc to dc converter circuits and their applications.	3	3	1									1	2	1
	CO 04	Identify and describe various auxiliary circuits and requirements in power electronics applications such as gate driver circuit, snubber	3	3	1									1	2	1
	CO 05	Apply the basic concepts to select devices and converters for various applications	3	2	1									1	2	1
5 EHEV	CO 01	Identify and describe the history and evolvement of electric & hybrid electric vehicles	1						1							
	CO 02	Identify and describe the principles of various EV/HEVs drive train topologies.	1	1												
	CO 03	Select electric propulsion system components for EV/HEV drives for the desirable performance and control.	1		1											

Course Code & Name	CO No.	Course outcome	PO 01	PO 02	PO 03	PO 04	PO 05	PO 06	PO 07	PO 08	PO 09	PO 10	PO 11	PO 12	PSO 01	PSO 02
EEC40?	CO 04	Compare and evaluate various energy sources and energy storage components for EV/HEV	1	1												1
	CO 05	Model, analyze and design EV/HEV drive train with energy management strategies.	1			1	1									1
	CO 06	Recognize the need to adapt and engage in operations EV/HEV for sustainable transportation system.	1		1			1		1						
EEL401 EACML I	CO 01	Demonstrate the working principles and types of connections of 1φ and 3φ transformers.	1	1												
	CO 02	Analyze the performance of 3φ transformer under various operating conditions.	1												1	
	CO 03	Evaluate the performance of 3φ induction motor by carrying no load test , blocked rotor test and no load test	1	1												
	CO 04	Illustrate the operation of various type of 3φ induction motor starters.	1													
	CO 05	Illustrate different methods of speed control and braking of 3φ induction motors.	1													
EEL402 PPL	CO 01	Describe the Numbers, Math functions, Strings, List, Tuples and Dictionaries in Python	1												1	
	CO 02	Determine & Express different Decision Making statements and Functions	1				1									1
	CO 03	Analysis of Object oriented programming in Python		2		1										
	CO 04	explain and summarize different File handling operations	1												1	
	CO 05	Explain how to design GUI Applications in Python and evaluate different database operations	1		1		1									1
EEL403 EL-2	CO 01	Students will be able to apply diiferent logic gates , ff and counter in different application	3	2	2		1								1	1
	CO 02	Students will be able to analze sequantial and combinational circuits	3	2	2	1									1	1
	CO 03	Student will be able to explain the the operation of various power electronics devices and circuits	3	2			1								1	1
	CO 04	Students will be able to apply knowlege of power converter while designing the power converter in electronics circuits.	3	2	2										1	1
	CO 05	Students will be able to explain the use of power electronics in real life application	3	2	2		1								1	1
EEL404 SBL-II	CO 01	Students will be able to Understand types of PCBs and various tools used for PCB design	3	2	2											
	CO 02	Students will be able to Identify various electrical/electronic components and their packages/ footprints.	3	2	2					1						1
	CO 03	Students will be able to Illustrate the use of PCB CAD tools and their features for the practical designs	3	2												
	CO 04	Students will be able to Design the schematic, board layout for simple, moderately complex and complex circuits	3	2	2					1						
	CO 05	Students will be able to Fabricate and assemble the PCBs for simple and moderately complex circuits	3	2	2											
	CO 01	Apply Knowledge and skills to solve societal /research needs in a group.	3	3	2	1	2	2	2		2			1	1	

Course Code & Name	CO No.	Course outcome	PO 01	PO 02	PO 03	PO 04	PO 05	PO 06	PO 07	PO 08	PO 09	PO 10	PO 11	PO 12	PSO 01	PSO 02
EEM401 MP 1B	CO 02	Draw the proper inferences from available results through theoretical/ experimental/ simulations.	3	3		2	2		1							
	CO 03	Develop interpersonal skills to work as member or leader of group.								1	3	1		2		
	CO 04	Analyze the impact of solution in societal and environmental context for sustainable development.	2	2		2	2	2	2	1				1		1
	CO 05	Use standard norms of applicable software engineering practices	2	2	2	2	2	1	1	1	2	2	1	1	2	2
	CO 06	Demonstrate and excel in written, oral communication and project management skills.	2	2	2			1		1	1			2	2	1

Course Code & Name	CO No.	Course outcome	PO 01	PO 02	PO 03	PO 04	PO 05	PO 06	PO 07	PO 08	PO 09	PO 10	PO 11	PO 12	PSO 01	PSO 02
EEC501 EACM-II	CO 01	To analyze the operation of synchronous generator, hence design synchronous generator. (L4) (L6)	1	3	3										1	2
	CO 02	To determine the voltage regulation of synchronous generator by different methods (L5) Note: PO 9 and PO 10 are achieved by group discussion and group	1	-	-	3	-	-			2	2			1	2
	CO 03	To analyze the parallel operation of synchronous generators. (L4)	1	3											1	2
	CO 04	To apply Blondel's two reaction theory and solve simple problems on salient pole synchronous machines. (L3)	3												1	2
	CO 05	To analyze the operation of synchronous motor. (L4)	1	3											1	2
	CO 06	To derive the basic machine relations in dq0 variables for a synchronous machine without considering damper winding. (L3)	3												1	2
EEC 502 EPS-II	CO 01	students will be able to Analyze symmetrical faults on transmission line	1	1											1	1
	CO 02	Analyse symmetrical component and construct sequence network	1	1											1	1
	CO 03	Analysis of unsymmetrical faults on transmission lines	1	1											1	1
	CO 04	Illustratete he concept of power system transients	1												1	1
	CO 05	students will be able to distinguish different lightening arrester	1												1	1
	CO 06	student will be able to analyse the effect of corona.	1	1											1	1
EEC 503 CS	CO 01	Demonstrate an grouping of the fundamentals of (feedback) control systems	2												1	2
	CO 02	Determine and use models of physical systems in forms suitable for use in the analysis and design of control systems.	2	2	1										1	2
	CO 03	Express and solve system equations in state-variable form (state variable models).	2												1	2
	CO 04	Determine the time and frequency-domain responses of first and second-order systems to step and sinusoidal (and to some extent, ramp) inputs	2												1	2
	CO 05	Determine the (absolute) stability of a closed-loop control system	2												1	2
	CO 06	Determine the stability of system using Root locus, bode plot, polar plot, and Nyquist plot and students will be evaluate gain margin	2			2									1	2
EEC 504 EFW	CO 01	The learner will be able to apply knowledge of mathematics & physics in Electrical engineering field.	2	2	2		2		2					2		2
	CO 02	The learner will be able to analyze electrostatic field.	2	2	2		2		2					2		2
	CO 03	The learner will be able to apply & analyze magnetostatic field.	2	2	2		2		2					2		2
	CO 04	The learner will be able to analyze the effect of material medium on electric and mgnetic field.	2	2	2		2		2					2		2
	CO 05	The learner will be able to analyze & formulate in Electric and magnetic field.	2	2	2		2		2					2		2
	CO 06	The learner will be able to formulate wave equation for electromagnetic propogation in different media.	2	2	2		2		2					2		2

Course Code & Name	CO No.	Course outcome	PO 01	PO 02	PO 03	PO 04	PO 05	PO 06	PO 07	PO 08	PO 09	PO 10	PO 11	PO 12	PSO 01	PSO 02
EEDLO 5012 REE	CO 01	Explain different types conventional energy sources and their reserves	3	1												1
	CO 02	Identify and analyse the process of power generation through solar thermal energy utilization	3													1
	CO 03	Identify and analyse the process of power generation through solar photovoltaic energy utilization		1	1										1	
	CO 04	Identify and describe the various components and types of Wind Energy system	3												1	
	CO 05	Identify and describe the basic operation and types of Fuel cell system	3													
	CO 06	Explain different types of other non-conventional energy sources	3													
EEL501 EACML-II	CO 01	To analyze and apply the operation of synchronous machines (L4) (L3)	3	3							1	1			2	
	CO 02	To determine the voltage regulation of synchronous machines (L5)				3					2	2			2	
	CO 03	To analyze the synchronization (or parallel operation) of synchronous machines (L4)		3							1	1			2	
	CO 04	To determine the parameters of synchronous machines (L5)				3					2	2			2	
	CO 05	To analyze necessity of starter hence justify application of various starters. (L4)		3							1	1			2	
	CO 06	To perform industrial visit to gain practical knowledge on synchronous machine applications hence prepare report. (L6)			3						1	1			2	
EEL502 SL-II	CO 01	Develop the skill to use the software packages to model and program electrical and electronics systems	1				1					1			1	1
	CO 02	Model different electrical and electronic systems and analyze the results	1		1										1	1
	CO 03	Articulate importance of software packages used for simulation in laboratory experimentation /research/industry by analyzing the simulation results	1				1					1			1	1
	CO 04	Simulate circuits for performance analysis.	1	1			1								1	1
EEL503 CSL	CO 01	Illustrate the functioning of various components of control system.	-	-	-	3	-	-	-	-	2	2	-	-	1	1
	CO 02	Analyse the response of physical system for various inputs.	-	3	-	2	-	-	-	-	1	1	-	-	1	1
	CO 03	Analyze and interpret stability of the system through Root Locus, Bode plot and Nyquist plots.	-	3	-	2	-	-	-	-	1	1	-	-	1	1
	CO 04	Execute time response analysis of a second order control system using MATLAB	3	-	-	-	2	-	-	-	1	1	-	-	1	1
	CO 05	Design of Controllers/Observers using State Space Analysis approach			3						1	1			1	1
PCE-II	CO 01	Plan and prepare effective business/ technical documents which will in turn provide solid foundation for their future managerial roles.							2							1
	CO 02	Strategize their personal and professional skills to build a professional image and meet the demands of the industry.												1		
	CO 03	Emerge successful in group discussions, meetings and result-oriented agreeable solutions in group communication situations.						1								

Course Code & Name	CO No.	Course outcome	PO 01	PO 02	PO 03	PO 04	PO 05	PO 06	PO 07	PO 08	PO 09	PO 10	PO 11	PO 12	PSO 01	PSO 02
EEL 504	CO 04	Deliver persuasive and professional presentations.							2							
	CO 05	Develop creative thinking and interpersonal skills required for effective professional						1								
	CO 06	Apply codes of ethical conduct, personal integrity and norms of organizational behaviour.									2					
EEM501 MP 2A	CO 01	Apply Knowledge and skills to solve societal /research needs in a group.	3	3	2	1	2	2	2		2			1	1	
	CO 02	Draw the proper inferences from available results through theoretical/ experimental/ simulations.	3	3		2	2		1							
	CO 03	Develop interpersonal skills to work as member or leader of group.								1	3	1		2		
	CO 04	Analyze the impact of solution in societal and environmental context for sustainable development.	2	2		2	2	2	2	1				1		1
	CO 05	Use standard norms of applicable software engineering practices	2	2	2	2	2	1	1	1	2	2	1	1	2	2
	CO 06	Demonstrate and excel in written, oral communication and project management skills.	2	2	2			1		1	1			2	2	1

Course Code & Name	CO No.	Course outcome	PO 01	PO 02	PO 03	PO 04	PO 05	PO 06	PO 07	PO 08	PO 09	PO 10	PO 11	PO 12	PSO 01	PSO 02
EEC601 PSPS	CO 01	The learner will be able to select the appropriate switching/protecting device for substation.	2	2	1		1	1								
	CO 02	The learner will be able to descriminate between the application of circuit breaker and fuses as a protective device.	2	2	2		2	1								
	CO 03	The learner will be able to understand the basic concept of relay' types of relayand their application in power system.	2	1	1		1	1								
	CO 04	The learner will be able to select the specific protection required for different components of power system according to the type of fault.	2	1	1		1	1								
	CO 05	The learner will be able to apply the specific protection provided for different types of transmission lines.	2	2	2		1	1								
EEC 602 MA	CO 01	1. To analyse the difference between microprocessor and microcontroller based systems.		3											1	1
	CO 02	2. To write, debug and execute the software programs for internal peripheral devices of microcontroller.			3											1
	CO 03	3. To write, debug and execute the software programs for external peripheral devices formicrocontroller based systems.			3											1
	CO 04	4. To design and implement the peripheral devices interfacing with microcontroller			3											1
EEC 603 CSD	CO 01	explain fundamental control system design sppecification and basic principals of controller design	2												1	1
	CO 02	Design compensators using root loocus techniques	2	2		1									1	2
	CO 03	Design compensators using bode plot techniques	2	2											1	2
	CO 04	Design compensators based on stste space techniques	2	2											1	1
	CO 05	To explain basics of digital control system	2												1	1
	CO 06	Design of digital compensator	2			1									1	1
EEC 604 SS	CO 01	Students will be able to Discriminate continuous and discrete time signals and systems.	2	2												
	CO 02	Students will be able to Understand the transformation of discrete time signal to Z domain.	2	2		1										
	CO 03	Students will be able to Analyse frequency response of systems using Z domain.	2	2												
	CO 04	Students will be able to Design, implementation, analysis and comparison of digital filters for processing of discrete time signals	2	2		1										
EED6011 SEM	CO 01	To exemplify the working of Stepper motor and its control	2	1							1				1	
	CO 02	To demonstrate the functioning of SRM motor and its control	2	1						1					1	
	CO 03	To illustrate the working of BLDC motor and its control	2	2											1	
	CO 04	To illustrate the operational features of PMSM motor and its control	2	1											1	
	CO 05	To illustrate the operational features of Synchronous reluctance motor and its control	2	1											1	

Course Code & Name	CO No.	Course outcome	PO 01	PO 02	PO 03	PO 04	PO 05	PO 06	PO 07	PO 08	PO 09	PO 10	PO 11	PO 12	PSO 01	PSO 02
	CO 06	To illustrate the working of Linear motors	1	1											1	
EEL601 PSPSL	CO 01	The learner will be able to understand the working principle of various protective devices like circuit breaker, fuses, switches & contactors.		2	1	1	1									
	CO 02	The learner will be able to understand the concepts of various over current protection scheme.		2	2	2	1									
	CO 03	The learner will be able to understand different protection scheme of transformer and induction motor.		1	1	1	1									
	CO 04	The learner will be able to understand protection scheme of transmission line.		1	1	1	1									
EEL602 MAL	CO 01	1. To write, debug and execute Assembly language based programs.	1	1	3										1	1
	CO 02	2. To write, debug and execute embedded language based programs.	1	1	3										1	1
	CO 03	3. To design and implement the interfacing of internal peripheral devices.	1	1	3										1	1
	CO 04	4. To design and implement the interfacing of external peripheral devices.	1	1	3										1	1
	CO 05	Identify risks, manage the change to assure quality in software projects.	1	1											1	1
	CO 06	Apply testing principles on software project and understand the maintenance concepts.	1	1											1	1
EEL603 CSDL	CO 01	Implement various types of compensators and control algorithms using simulation platforms	1	2	1						1	1			1	1
	CO 02	Apply root-locus & Bode Plot techniques to analyze and design control systems.	1	1	2						1	1			1	1
	CO 03	Able to design digital controllers, assess their design through the constraint specifications	1	2	2						1	1			1	1
EEL604 SBL 3	CO 01	learner will be able to comprehend with various components and subsystems used in idustrial automation				2	2									
	CO 02	learner will be able understand the integration of components and subsystem				2							2	2		
	CO 03	learner will be able to interface the microcontroller/PLC with external devices/sesors											2	2		
	CO 04	learner will be able to interface the microcontroller/PLC with control circuits											2	2		
	CO 05	learner will be able to implement system for any application											2	2		
EEM601 MP 2B	CO 01	Apply Knowledge and skills to solve societal /research needs in a group.	3	3	2	1	2	2	2		2			1	1	
	CO 02	Draw the proper inferences from available results through theoretical/ experimental/ simulations.	3	3		2	2		1							
	CO 03	Develop interpersonal skills to work as member or leader of group.								1	3	1		2		
	CO 04	Analyze the impact of solution in societal and environmental context for sustainable development.	2	2		2	2	2	2	1				1		1
	CO 05	Use standard norms of applicable software engineering practices	2	2	2	2	2	1	1	1	2	2	1	1	2	2

Course Code & Name	CO No.	Course outcome	PO 01	PO 02	PO 03	PO 04	PO 05	PO 06	PO 07	PO 08	PO 09	PO 10	PO 11	PO 12	PSO 01	PSO 02
	CO 06	Demonstrate and excel in written, oral communication and project management skills.	2	2	2			1		1	1			2	2	1

Course Code & Name	CO No.	Course outcome	PO 01	PO 02	PO 03	PO 04	PO 05	PO 06	PO 07	PO 08	PO 09	PO 10	PO 11	PO 12	PSO 01	PSO 02
EEC701 EDC	CO 01	students will be able to apply the concept of moment of interia on any combination of transalation and rotational motion	3												2	1
	CO 02	Students will be able to determine the motor power rating for a specific application for reliable operation.	3			1									2	1
	CO 03	Students will be able to identify the modes of operation and close loop control of electrical drive.	3												2	1
	CO 04	Students will be able to analyse the speed control of DC drives in an energy efficient manner using power electronics.	3	2											2	1
	CO 05	Students will be able to analyse the speed control of induction motor drive using various methods.	3	2											2	1
	CO 06	Students will be able to Compare the advance control techniques for AC drives.	3	2											2	1
EEC702 EPSII	CO 01	Students will be able to analyze different methods of load flow solutions and do litrechutre survey (group)	1	2							1				1	1
	CO 02	Students will be able to analyze different application of optimization methods for task like economic load dispatch.	1	2											1	1
	CO 03	Student will be able to analyze power system problem and automatic frequency and voltage control.	1	2											1	1
	CO 04	Student will be able to explain & analyzes the dynamics of power system stability and voltage stability methods to improve the stability	1	2											1	1
	CO 05	Students will be able to analyze voltage stability of power system and methods to improve stability of system.	1	2											1	1
	CO 06	Students will be able to differentte various operating states of power system & control action required to obtain secured operation.	1	2											1	1
EEDO7012 HVDCT	CO 01	Identify significance of dc over ac transmission systems, types of HVDC link, Components of	2												1	
	CO 02	Discuss & Analyze multi-pulse converters.(L6)		2	2											
	CO 03	Explain & Illustrate the basic control of HVDC system and its limitation, features and implementation.(L5)	2			2			1							
	CO 04	Discuss the converter firing control schemes for starting and stopping of HVDC link.(L6)	2			2									1	
	CO 05	Explain and analyze faults and protection of HVDC system with Group Discussion(L4,L5)	2			2									1	
	CO 06	Illustrate & Interprete the harmonics, their causes, effects and use of different filters.(L5)	2			2									1	
EEDO7021 MGSG	CO 01	Identify and describe the impact of renewable energy integration for mitigating energy crises and sustainable future. (L4)		3											2	2
	CO 02	Analyze the concept of distributed generation and installation and power quality issues and control operation of micro grid (L4)		2				2							2	2
	CO 03	Identify and describe the concept of Microgrid and its various topologies, modes of operation control and communication		3												1
	CO 04	Review various Microgrid operations, islanding and role of energy storage to adapt (L3)		2												1
	CO 05	Develop skills to identify issues, opportunities & challenges in Smart grid for its planning & formulation of regulations. (L5)				2					1	1			2	1
	CO 06	Identify the various Smart Grid technologies, automation, resiliency and its adoption in current power system. (L4)		2											2	

Course Code & Name	CO No.	Course outcome	PO 01	PO 02	PO 03	PO 04	PO 05	PO 06	PO 07	PO 08	PO 09	PO 10	PO 11	PO 12	PSO 01	PSO 02
ILOC7018 Energy Audit and Management	CO 01	Students will be able to identify and describe present state of energy security and its importance. (L3):	3	-	-	-										
	CO 02	Students will be able to identify and describe the basic principles and methodologies adopted in energy audit of an utility.(L3)	3	-	-	-										
	CO 03	Students will be able to describe the energy performance evaluation of some common electrical installations and identify the energy	3	-	-	-										
	CO 04	Students will be able to describe the energy performance evaluation of some common thermal installations and identify the energy saving	3			-										
	CO 05	Students will be able to analyze the data collected during performance evaluation and recommend energy saving measures(L4,L5)	-	3		3					2	2				
ILO7016 Cyber Security & Laws	CO 01	explain the concept of cybercrime and its effects on outside world	2			2	2									
	CO 02	explain offenses of cybercrime and organization measures	2		3		3									
	CO 03	Applying tools and methods in cybercrime	2	2		3										
	CO 04	Explain the concept of cyberspace		2		3	2									
	CO 05	Distinguish different aspects of cyber law			3		2									
	CO 06	Apply information Security standards in design development		2		3	2									
EEL701 EDCL	CO 01	Students will be able to analyze the dynamic performance of ac drives.	2	2											1	1
	CO 02	Students will be able to analyze the dynamics of electrical braking in dc drives	2	2											1	1
	CO 03	Students will be able to analyze the control aspects and the performance of power electronic drives.	2	2											1	1
	CO 04	studenyts will be able to use simulation tools to evaluate the performance of ac and dc drive	2	2			3					2			1	1
EEL702 SLIII	CO 01	Develop the skill to use the software packages to model and program electrical and electronics (L4 &L6)	2		2										2	
	CO 02	Model different electrical and electronic systems and analyze the results (L3 & L4)	2	3											2	
	CO 03	To anlyse HVDCT systems by simulation or coding in MATLAB (L4)	2	3											2	
	CO 04	Articulate importance of software packages used for simulation in laboratory experimentation /research/industry by analyzing the	2	3								1		1	2	
	CO 05	Simulate circuits for performance analysis.(L3)	2	2											2	
	CO6	Anlyse Power system by simulation or coding in MATLAB (L4)	2	2											2	
EEL703 PEDL	CO 01	Illustrate design of auxiliary circuits for Power Electronic systems	3	2	2										1	
	CO 02	Analyse the requirements, model and design a compensator for a power electronic converter.	3	2	2										1	
	CO 03	Create a power electronic converter for a particular application	3	2											1	

Course Code & Name	CO No.	Course outcome	PO 01	PO 02	PO 03	PO 04	PO 05	PO 06	PO 07	PO 08	PO 09	PO 10	PO 11	PO 12	PSO 01	PSO 02
E	CO 04	Implement control algorithm for a power electronic converter in hardware / simulation platform	3	2	2		1								1	
EEP701	CO 01	Apply Knowledge and skills to solve societal /research needs in a group.	3	3	2	1	2	2		2		2		1	1	
	CO 02	Draw the proper inferences from available results through theoretical/ experimental/ simulations.	3	3		2	2					1				
	CO 03	Develop interpersonal skills to work as member or leader of group.						3	1		1			2		
	CO 04	Analyze the impact of solution in societal and environmental context for sustainable development.	2	2		2	2			2	1	2		1		1
	CO 05	Develop a solution using norms of applicable software engineering practices and demonstrate excel in written, oral communication and	2	2	2	2	2	2	2	1	1	1	1	1	2	2
	CO 06	Combine diffrent skills like critical thinking, problem solving approach, ethical practice and team work which will lead to life long	2	2	2			1		1	1			2	2	1

Course Code & Name	CO No.	Course outcome	PO 01	PO 02	PO 03	PO 04	PO 05	PO 06	PO 07	PO 08	PO 09	PO 10	PO 11	PO 12	PSO 01	PSO 02
EEC801 Design, Management and Auditing of electrical system	CO 01	Distribution System like requirements, design considerations, estimating and costing.	3	2	2										2	1
	CO 02	To do sizing, selecting transformer, switchgear and cable as required for distribution system	3	2	2										2	1
	CO 03	energy conservation method used in it and design methods of illumination system for a given purpose.	2	2	2			2							2	1
	CO 04	explain and apply fundamentals of energy audit methodology and approach. (To submit a report of Home Energy Audit)	2		2						3				2	2
	CO 05	to design suitable energy monitoring system to analyze and optimize the energy consumption	2	2				2	2						2	1
	CO 06	To illustrate Engineering knowledge in energy audit and energy efficient technologies to improve energy efficiency	2					2	2						2	2
EEC802 FACTS	CO 01	Illustarte the aspects of flexible ac transmission syetem over conventional ac transmission system	2	2		2			1						2	2
	CO 02	Analyzetheconcept of load compensation	2	2		2									2	2
	CO 03	Categorize the static shunt compensation for transmission line	2	2		2									2	2
	CO 04	Categorize the static series compensation for transmission line	2	2		2									2	2
	CO 05	Outline the conept of voltage and phase angle regulator	2	2		2									2	2
	CO 06	Explain unified power flow controller using circuit diagram and phsor	2	2		2									2	2
EEDO8044 PSPR	CO 01	Students will be able to EXPLAIN the different power system planning and forecasting technique.	2	2		2	2								2	
	CO 02	Students will be able to EXPLAIN & make generation system model for the power system in terms of frequency and duration failure	2	2		2	2									
	CO 03	Students will be able to calculate reliability indices of the power system based on system model and load curve	2	2		2	2									
	CO 04	system,predict its behavior and do the required change in order to achieve reliability	2	2		2	2									
	CO 05	Students will be able to EXPLAIN the Power reserves Methods.	2	2		2	2									
	CO 06	Students will be able to EXPLAIN the Composite generation and transmission system & power reliability.	2	2		2	2									
EEDO8021 PM	CO 01	Students will be able to Discriminate / selection criteria and select an appropriate project from different options	1	2									2			
	CO 02	Students will be able to Explain and Write work break down structure for a project and develop a schedule based on it		2									2			
	CO 03	to the project and decide an approach to deal with them strategically	1	2									2			
	CO 04	Students will be able to Use Earned value technique to design and determine & predict status of the project	2		2											
	CO 05	Students will be able to Capture lessons learned and implement during project phases and document them for future reference	1	2												
	CO 01	Apply business conceptual skills in today's market.	3										2			

Course Code & Name	CO No.	Course outcome	PO 01	PO 02	PO 03	PO 04	PO 05	PO 06	PO 07	PO 08	PO 09	PO 10	PO 11	PO 12	PSO 01	PSO 02
ILOC78028 DBM	CO 02	Analyze the consumer behaviour using modern tools.	3	3			2						2			
	CO 03	Apply business management skills to solve organizational issues	1							2			3			
	CO 04	Identify and evaluate ethical, social, and environmental impacts in business	2	2		3				2		2				
	CO 05	Formulate E-business strategy for challenges & E-transition of a business.	1	1	2	2							3	2		
	CO 06	Design a business plan.	1	2	3								3	2		
EEL801 SL4	CO 01	Analyze the operation of various electrical lighting systems using simulation.	3	1	1		2								1	1
	CO 02	pcb design for implementation for basic electrical network	3	1	1		2								1	1
	CO 03	Analyze the operation of various electrical systems using simulator	3	2	1		2								1	1
	CO 04	software based design of solar pv power generating plant	3	2	1		2								1	1
EEL802 ESDL	CO 01	Design electrical system for different applications.	1		2										1	
	CO 02	Design and Implementation of Auxiliary Circuits for Power Electronics Applications			2											
	CO 03	Design and Implementation of small scale Solar PV (upto 2 kW) power generating plant.			3										1	
EEP803	CO 01	Apply Knowledge and skills to solve societal /research needs in a group.	3	3	2	1	2	2		2		2		1	1	
	CO 02	Draw the proper inferences from available results through theoretical/ experimental/ simulations.	3	3		2	2					1				
	CO 03	Develop interpersonal skills to work as member or leader of group.						3	1		1			2		
	CO 04	Analyze the impact of solution in societal and environmental context for sustainable development.	2	2		2	2			2	1	2		1		1
	CO 05	Develop a solution using norms of applicable software engineering practices and demonstrate excel in written, oral communication and	2	2	2	2	2	2	2	1	1	1	1	1	2	2
	CO 06	Combine diffrent skills like critical thinking, problem solving approach, ethical practice and team work which will lead to life long	2	2	2			1		1	1			2	2	1