

# 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  $\hfill\Box$  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: 2020-2024**

		LIST OF COURSE	OUT	COM	E ANI	<u> CO-</u>	PO M	APPI	<u>NG</u>							
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
7	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													
FEC101 EM	CO 03	Find the Rank of given Matrices using Elemetary Transformations (L3)	3													
<u>F</u>	CO 04	Solve system of Linear, Algebraic and Transcendental Equations using numerical methods and SciLab (L3)	2				1									
	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												
2 EP -	CO 03	Categorize types of semiconductors and their applications in electronic devices.	2	1												
FEC102	CO 04	Calculate dimension of small objects using techniques based on interference of light.	2	1												
<u> </u>	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												
	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													
FEC103 EC	CO 04	Interpret various phase transformation to study the behaviour of microscopic system using thermodynamics.	1													
<u> </u>	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 &	CO No.	Course outcome	PO	PSO	PSO											
Name			01	02	03	04	05	06	07	08	09	10	11	12	01	02
	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												
FEC104 EM	CO 03	Correlate real life application, and estimate the force and other parameters related to friction	2	1												
FECI	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  Analyze body in motion using force, acceleration, work energy and	2	1												
	CO 06	Impulse momentum principles  Learner will be able to apply various network theorem to determine	2	1												
	CO1	the circuit response /behaviour	3	3											3	3
E	CO2	Learner will be able to Evaulate and analyse single phase circuit.	3	3			3								3	3
FEC105 BEE	CO3	Learner will be able to Evaulate and analyse three phase circuit.	3	3			3								3	3
FEC1	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
7	CO 01	Perform the experiments based on interference in thin film and analyze the results.	2	2		1					2					
FEL101 EP-1	CO 02	Sketch different crystal structures, Miller planes and confirms the theory of crystallography.	2	2		1					2					
FEL1	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.  Determine the quality of water sample and calculate its hardness by	2	2		2	2		1		2	2		2		
	CO 01	EDTA method (L3)	1	1		1					2	1				
EC-I	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				
FEL101 EC-1	CO 03	Test various solutions for free acid pH approximately by using pH determination methods. (L4)	1	1		1					2	1				
E	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)  Verify equations of equilibrium of coplanar force system	1	1		1					2	1				
	CO 01		2								1					
_	CO 02	Verify law of moments.	2								1					
03 EM	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
FEL1	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					
E3	CO 01	Learner will be able to interpret and analyse the behaviour of D.C. circuits using network theorems.	2						1						2	2
04 BEE	CO 02	Learner will be able to perform and infer experiment on single phase AC circuits.	2		2										2	2
FEL10	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
BWSP -	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				
105 BV	CO 02	Develop skill required for hardware maintenence, Develop skill to install and operating system and system drives and Develop to					1				1	1			·	
FELI	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
<b>=</b>	CO 01	Analyse and Solve given LDE of FOFD and higher order using suitable methods	2													
1 EM-	CO 02	Solve improper integrals using special functions	3													
FEC 201 EM-II	CO 03	Analyse and calculate physical quantities of solids using double and triple integrals	3													
<u>-</u>	CO 04	Solve differential equations and integrals numerically with the help of Scilab	2				1									
	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												
FEC 202 EP-II	CO 03	Tests the given field based on vector analysis and transform the Maxwell's equations.	2	1												
FEC 2	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												
	CO 01	Distinguish the ranges of the electromagnetic spectrum used for exciting different molecular  Illustrate the concept of emission spectroscopy and	1													
月	CO 02	describe the phenomenon of fluorescence and Apply the fundamental concepts of electrochemistry	1													
FEC 203 EC-II	CO 03	to determine EMF of a cell by using Nernst equation (L3)  Classify different types of corrosion and suggest	1													
FEC 2	CO 04	control measures in industries (L3)  Illustrate the principles of Green chemistry and	2													
	CO 05	study environmental impact (L3)  Determine the quality of fuel and quantify the	1						1							
	CO 06	oxygen required for combustion of fuel (L3)  Apply the basic principles of projections in Projection of Lines and	2													
	CO 01	Planes Apply the basic principles of projections in Projection of Solids.	2											1		
EG	CO 02	Apply the basic principles of sectional views in Section of solids.	2											1		
FEC 204 F	CO 03	Apply the basic principles of projections in converting 3D view to 2D	2											1		
FEC	CO 04	drawing.  Read a given drawing.	2											1		
	CO 05	Visualize an object from the given two views.	2											1		
	CO 06	Formulate simple algorithms for arithmetic, logical problems and	2	2										1		
50	CO 02	implement them to  Implement, test and execute programs comprising of control structures.	2		2		1									

Course		_	PO	PSO	PSO											
Code & Name	CO No.	Course outcome	01	02	03	04	05	06	07	08	09	10	11	12	01	02
C PR	CO 03	Apply the concept of functions and synthesize a complete program.	2		2											
FEC 205 (	CO 04	Demonstrate the use of arrays and strings in C language.	2		2		1				1					
FEC	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					
	CO 01	Eliminate barriers and use verbal/nonverbal cues at social and workplace situations.												1		
<u> </u>	CO 02	Employ listening strategies to comprehend wideranging vocabulary, grammatical structures, tone and pronunciation												1		
PCE	CO 03	Prepare effectively for speaking at social, academic and business situations.										2				
FEC 206 PCE	CO 04	Use reading strategies for faster comprehension, summarization and evaluation of texts.												2		
<u> </u>	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						
=	CO 01	Perform the experiments based on interference in thin film and analyze the results.	2	2							2					
)1 EP-II	CO 02	Sketch different crystal structures, Miller planes and confirms the theory of crystallography.	2	2							2					
FEL 201	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		
	CO 01	Determine the moisture content of coal and relate it to quality of fuel	1	1		1										
EC-II	CO 02	Determine the acid value/saponification value of an oil to know its suitability in respective machines	1	1		1										
FEL 202 EC-II	CO 03	Determine Flash point of oil to know its suitabillity in respective machines	1	1		1										
FE	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										
	CO 01	Apply basic Principles of projections in projection in 2D drawing using a CAD software	2													
3 EG	CO 02	Creat, Annotate, Edit and Plot drawing using basic Auto CAD commands & Features	2													
FEL 203	CO 03	pply the concept of layers to creat drwaing	2													
<u> </u>	CO 04	Apply basic Auto CAD skills to 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									

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 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									
04 CP	CO 03	Apply data in arrays, strings manipulate them through a Program	2		2		1									
FEL 204 CP	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					
	CO 01	Listen and comprehend all types of spoken discourse successfully.												1		
-	CO 02	Speak fluently and make effective professional presentations.												1		
FEL 205 PCE-I	CO 03	Read large quantities of text in a short time to comprehend, summarise and evaluate content.										2				
EL 206	CO 04	Draft precise business letters, academic essays and technical guidelines.												2		
<b>E</b>	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						
SWP-	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		
206 BSWP- II	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		
FEL	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		

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 01	Apply the concept of Laplace, inverse Laplace transform and its application to find the real integrals in engineering problems	2								1					
H-M	CO 02	Apply Fourier series for real-life problems and complex engineering problems.	1								1					
EEC301 EM-III	CO 03	Apply complex variable theory, application of harmonic conjugate to find orthogonal trajectories and analytic functions.	1				1				1					
EEC	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					
	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
EEC302 ECA	CO 03	Develop and analyse transfer function model of system using two port network parameter		1											1	1
EEC3(	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
	CO 01	Students will be able to select the appropriate switching / protective device for Sustation.	2	2		2		2							1	
<u> </u>	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	
EEC303 FEMM	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	
EC303	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	
<u> </u>	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	
	CO 01	Comprehend the power system and its components and Compare conventional and non conventional energy sources (L4)		3											1	1
] 7	CO 02	Compare the ac transmission / distribution lines and the overhead insulators according to its application (L4)	2	3											2	2
304 EPS-I	CO 03	Calculate the parameters of different types of ac transmission / distribution lines for analysis. (L3 & L4)	2	3											3	3
EEC30	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)  Calculate the performance parameters of electric capie and acquire the	2	3											3	3
	CO 06	knowledge of earthing to design it for individual and societal safety	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												

Course			PO	PSO	PSO											
Code &	CO No.	Course outcome	01	02	03	04	05	06	07	08	09	10	11	12	01	02
Name	60.02	Students will be able to describe and Analyse DC and AC parameters		2												
됴	CO 02	of BJT. Students will be able to describe and Analyse DC and AC parameters		2												
105 A	CO 03	of MOSFET	1	2											1	
EEC305 AE	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												
	CO 01	Illustrate and analyze the performance of DC machines.	1	2											1	2
MML	CO 02	Demonstrate different speed control methods of DC motors.	2	2											2	
EEL301 EMML	CO 03	Illustrate and analyze the working of various sensors, transducers and instruments used for measurement of the various physical parameters.	1	2												1
EEL	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
	CO 01	Identify the different types of semiconductor devices and demonstrate their applications in electronic circuits.	1													
3F-1	CO 02	Analyse the performance of different types of rectifier with and without filter.	1													
EEL302 EL-1	CO 03	Determine the dc and ac parameters of various semiconductor devices.	1													
EE	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													
	CO 01	students will be able to Develop knowledge of software packages to model and program electrical and electronics systems.(L3)	3													
] [-1]	CO 02	Students will be able to Model different electrical and electronic systems and analyse results(L4, L3) students will be able to Articulate importance of software packages	3	3												
EEL303 SL-1	CO 03	used for simulation in laboratory experimentation/research by		3												
[99	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		
	CO 01	Demonstrate the effective use of various electrical and electronic measuring lab equipments.	1													
EEL	CO 02	Distinguish various electrical LV/HV substation, supply equipments and their network connection	1													
EEL304 AEEL	CO 03	Examine and use different low voltage protective switchgears along with residential /industrial wiring practices.	1			1										
TGG	CO 04	Illustrate & demonstrate of Repair and maintain common house-hold appliances.	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 05	Support & Handle Electrical fire and shock hazards safety challenges in real practice	1		1					1			1			
	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							
MP-1	CO 03	Develop interpersonal skills to work as member or leader of group.								1	3	1		2		
EEM01	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			PO	PSO	PSO											
Code &	CO No.	Course outcome	01	02	03	04	05	06	07	08	09	10	11	12	01	02
Name																
	CO 01	Evaluate contour integrals, residues using complex integration	1								1					
M IV	CO 02	Apply the concept of Correlation, Regression, probability and expectation for getting the spread of the data to the engineering	1			1					1					
EEC 401 EM IV	CO 03	Apply the concept of vector spaces and orthogonalization process in Engineering Problems	1								1					
EEC	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					
	CO 01	Illustrate working principle and performance of single phase transformer under different operating condition.	1	2						1						
ICM I	CO 02	Understand working principle of autotransformer.	1													
EEC 402 EACM I	CO 03	Analyze various types of connections and performance of three phase transformer under various condition.		2							1					
EEC 2	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													
	CO 01	Perform conversion of various number systems	1	2												
	CO 02	Explain working of logic families and logic gates		2												
03 DE	CO 03	Design and implement combinational circuits	1	2											1	
EEC 403 DE	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												
	CO 01	Explain the basic operation and characteristics of various semi controllable and fully controllable devices	3	2	1									3	2	1
EDC	CO 02	Analyse various single phase and three phase power converter circuits and understand their applications.	3	3	1									1	2	1
EEC404 PEDC	CO 03	Analyse de to de converter circuits and their applications.	3	3	1									1	2	1
EEC	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
	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												
5 ЕНЕV	CO 03	Select electric propulsion system components for EV/HEV drives for the desirable performance and control.	1		1											

Course			PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PSO	PSO
Code &	CO No.	Course outcome	01	02	03	04	05	06	07	08	09	10	11	12	01	02
Name			01	02	05	04	0.5	00	07	00	0,7	10	11	12	01	02
EEC40;	CO 04	Compare and evaluate various energy sources and energy storage components for EV/HEV	1	1												1
Ξ.	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						
1	CO 01	Demonstrate the working principles and types of connections of $1\phi$ and $3\phi$ transformers.	1	1												
CML	CO 02	Analyze the performance of $3\phi$ transformer under various operating conditions.	1												1	
01 EA	CO 03	Evaluate the performance of $3\phi$ induction motor by carrying no load test , blocked rotor test and no load test	1	1												
EEL401 EACML 1	CO 04	Illustrate the operation of various type of $3\phi$ induction motor starters.	1													
	CO 05	Illustrate different methods of speed control and braking of $3\phi$ induction motors.	1													
	CO 01	Describe the Numbers, Math functions, Strings, List, Tuples and Dictionaries in Python	1												1	
PPL	CO 02	Determine & Express different Decision Making statements and Functions	1				1									1
EEL402 PPL	CO 03	Analysis of Object oriented programming in Python		2		1										
EE	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
	CO 01	Students will be able to apply diiferent logic gates , ff and counter in different application	3	2	2		1								1	1
3L-2	CO 02	Students will be able to analze sequantial and combinational circuits	3	2	2	1									1	1
EEL403 EL-2	CO 03	Student will be able to explain the the operation of various power electronics devices and circuits	3	2			1								1	1
99	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
	CO 01	Students will be able to Understand types of PCBs and various tools used for PCB design	3	2	2											
SBL-II	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												
EEL404	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
<u>e</u>	CO 02	Draw the proper inferences from available results through theoretical/experimental/ simulations.	3	3		2	2		1							
MP	CO 03	Develop interpersonal skills to work as member or leader of group.								1	3	1		2		
EM401	CO 04	Analyze the impact of solution in societal and environmental context for sustainable development.	2	2		2	2	2	2	1				1		1
<u>a</u>	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
1 (unit	CO 01	To analyze the operation of synchronous generator, hence design synchronous generator. (L4) (L6) To determine the vortage regulation of synchronous generator by	1	3	3										1	2
	CO 02	different methods (L5)	1	-	-	3	-	-			2	2			1	2
EACIV	CO 03	To analyze the parallel operation of synchronous generators. (L4)	1	3											1	2
EEC501 EACM-II	CO 04	To apply Blondel's two reaction theory and solve simple problems on salient pole synchronous machines. (L3)	3												1	2
<u> </u>	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
	CO 01	students will be able to Analyze symmetrical faults on transmission line	1	1											1	1
<sub>=</sub>	CO 02	Analyse symmetrical component and construct sequence network	1	1											1	1
EEC 502 EPS-II	CO 03	Analysis of unsymmetrical faults on transmission lines	1	1											1	1
EC 500	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
	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
EEC 503 CS	CO 03	Express and solve system equations in state-variable form (state variable models).	2												1	2
EEC ?	CO 04	second-order systems to step and sinusoidal (and to some extent,	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
	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
4 EFW	CO 03	The learner will be able to apply & analyze magnetostatic field.	2	2	2		2		2					2		2
EEC 504	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
<u> </u>	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
	CO 01	Explain different types conventional energy sources and their reserves	3	1												1
EE	CO 02	Identify and analyse the process of power generation through solar thermal energy utilization	3													1
012 R	CO 03	Identify and analyse the process of power generation through solar photovoltaic energy utilization		1	1										1	
EEDLO 5012 REE	CO 04	Identify and describe the various components and types of Wind Energy system	3												1	
E E	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													
	CO 01	To analyze and apply the operation of synchronous machines (L4) (L3)	3	3							1	1			2	
13	CO 02	To determine the voltage regulation of synchronous machines (L5)				3					2	2			2	
EEL501 EACML-11	CO 03	To analyze the synchronization (or parallel operation) of synchronous machines (L4)		3							1	1			2	
S01 I	CO 04	To determine the parameters of synchronous machines (L5)				3					2	2			2	
199	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	
=	CO 01	Develop the skill to use the software packages to model and program electrical and electronics systems	1				1					1			1	1
SL-II	CO 02	Model different electrical and electronic systems and analyze the results	1		1										1	1
EEL502	CO 03	Articulate importance of software packages used for simulation in laboratory experimentation /research/industry by analyzing the	1				1					1			1	1
	CO 04	Simulate circuits for performance analysis.	1	1			1								1	1
	CO 01	Illustrate the functioning of various components of control system.	-	1	-	3	-	-	ı	1	2	2	1	-	1	1
SI SI	CO 02	Analyse the response of physical system for various inputs.	-	3	-	2	-	-	-	1	1	1	-	-	1	1
EEL503 CSL	CO 03	Analyze and interpret stability of the system through Root Locus, Bode plot and Nyquist plots.	-	3	-	2	-	-	-	1	1	1	-	-	1	1
<u>e</u> e	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
	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		
PCE-II	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
T 504	CO 04	Deliver persuasive and professional presentations.							2							
EEI	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					
	CO 01	Apply Knowledge and skills to solve societal /research needs in a group.	3	3	2	1	2	2	2		2			1	1	
Z4	CO 02	Draw the proper inferences from available results through theoretical/experimental/ simulations.	3	3		2	2		1							
MP	CO 03	Develop interpersonal skills to work as member or leader of group.								1	3	1		2		
EEM501	CO 04	Analyze the impact of solution in societal and environmental context for sustainable development.	2	2		2	2	2	2	1				1		1
<u> </u>	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			PO	PSO	PSO											
Code & Name	CO No.	Course outcome	01	02	03	04	05	06	07	08	09	10	11	12	01	02
	CO 01	The learner will be able to select the appropriate switching/protecting device for substation.	2	2	1		1	1								
SPS	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								
EEC601 PSPS	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								
EEC	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								
	CO 01	To analyse the difference between microprocessor and microcontroller based systems.		3											1	1
EEC 602 MA	CO 02	2. To write, debug and execute the software programs for internal peripheral devices of microcontroller.			3											1
EEC (	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
	CO 01	explain fundamental control system design sppecification and basic principals of controller design	2												1	1
<u> </u>	CO 02	Design compensators using root loocus techniques	2	2		1									1	2
EEC 603 CSD	CO 03	Design compensators using bode plot techniques	2	2											1	2
EEC	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
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										
EEC 604	CO 03	Students will be able to Analyse frequency response of systems using Z domain.  Students will be able to Design, implementation, analysis and	2	2												
	CO 04	comparison of digital filters for processing of discrete	2	2		1										
	CO 01	To exemplify the working of Stepper motor and its control	2	1							1				1	
SEM	CO 02	To demonstrate the functioning of SRM motor and its control	2	1						1					1	
011 SF	CO 03	To illustrate the working of BLDC motor and its control	2	2											1	
EED6011	CO 04	To illustrate the operational features of PMSM motor and its control	2	1											1	
		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	
	CO 01	various protective devices like circuit breaker, fuses, switches &		2	1	1	1									
EEL601 PSPSL	CO 02	The learner will be able to understand the concepts of various over current protection scheme.		2	2	2	1									
TP 1091	CO 03	The learner will be able to understand different protection scheme of transformer and induction motor.		1	1	1	1									
EF	CO 04	The learner will be able to understand protection scheme of transmission line.		1	1	1	1									
	CO 01	1. To write, debug and execute Assembly language based programs.	1	1	3										1	1
T	CO 02	2. To write, debug and execute embedded language based programs.	1	1	3										1	1
2 MAL	CO 03	3. To design and implement the interfacing of internal peripheral devices.	1	1	3										1	1
EEL602	CO 04	4. To design and implement the interfacing of external peripheral devices.	1	1	3										1	1
<b>Ξ</b>	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
CSDL	CO 01	Implement various types of compensators and control algorithms using simulation platforms	1	2	1						1	1			1	1
603 С	CO 02	Apply root-locus & Bode Plot techniques to analyze and design control systems.	1	1	2						1	1			1	1
EEL603	CO 03	Able to design digital controllers, assess their design through the constraint specifications	1	2	2						1	1			1	1
	CO 01	learner will be able to comprehend with various components and subsystems used in idustrial automation				2	2									
SBL 3	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		
EEL604	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		
	CO 01	Apply Knowledge and skills to solve societal /research needs in a group.	3	3	2	1	2	2	2		2			1	1	
2B	CO 02	Draw the proper inferences from available results through theoretical/experimental/simulations.	3	3		2	2		1							
MP 2B	CO 03	Develop interpersonal skills to work as member or leader of group.								1	3	1		2		
EEM601	CO 04	Analyze the impact of solution in societal and environmental context for sustainable development.	2	2		2	2	2	2	1				1		1
虿	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
	1 CO 06	Demonstrate and excel in written, oral communication and project management skills.	2	2	2			1		1	1			2	2	1

Course			DO.	DO.	DO.	DO.	DO.	DO.	DO.	DO.	DO.	DO.	DO.	DO.	DCO	DCO
Code &	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
Name			U1	02	03	04	05	UO	07	08	09	10	11	12	U1	02
	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
EEC701 EDC	CO 03	Students will be able to identify the modes of operation and close loop control of electrical drive.	3												2	1
EEC7(	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
	CO 01	Students will be able to analyze different methods of load flow solutions and do litrechutre survey (group)	1	2							1				1	1
Ħ	CO 02	Students will be able to analyze different application of optimization methods for task like economic load dispatch.	1	2											1	1
EEC702 EPSIII	CO 03	Student will be able to analyze power system problem and automatic frequency and voltage control.	1	2											1	1
EEC70	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.  Students will be able to differentte various operating states of power	1	2											1	1
	CO 06	system & control action required to obtain secured operation.	1	2											1	1
	CO 01	Identify significance of dc over ac transmission systems, types of HVDC link, Components of	2												1	
ЪСТ	CO 02	Discuss & Analyze multi-pulse converters.(L6)		2	2											
EEDO7012 HVDCT	CO 03	Explain & Illustrate the basic control of HVDC system and its limitation, features and implementation.(L5)	2			2				1						
DO70	CO 04	Discuss the converter firing control schemes for starting and stopping of HVDC link.(L6)	2			2									1	
<b>A</b>	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	
	CO 01	Identify and describe the impact of renewable energy integration for mitigating energy crises and sustainable future. (L4)		3											2	2
989	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
)21 M(	CO 03	Identify and describe the concept of Microgrid and its various topologies, modes of operation control and communication		3												1
EEDO7021 MGSG	CO 04	Review various Microgrid operations, islanding and role of energy storage to adapt (L3)		2												1
E E	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			PO	PSO	PSO											
Code & Name	CO No.	Course outcome	01	02	03	04	05	06	07	08	09	10	11	12	01	02
	CO 01	Students will be able to identify and describe present state of energy security and its importance. (L3):	3	-	-	-										
gy Au ment	CO 02	Students will be able to identify and describe the basic principles and methodologies adopted in energy audit of an utility.(L3)	3	-	-	-										
8 Ener lanage	CO 03	Students will be able to describe the energy performance evaluation of some common electrical installations and identify the energy	3	-	-	-										
ILOC7018 Energy Audit and Management	CO 04	Students will be able to describe the energy performance evaluation of some common thermal installations and identify the energy saving	3			-										
)11	CO 05	Students will be able to analyze the data collected during performance evaluation and recommend energy saving measures(L4,L5)	ı	3		3					2	2				
aws	CO 01	explain the concept of cybercrime and its effects on outside world	2			2	2									
ILO7016 Cyber Security & Laws	CO 02	explain offenses of cybercrime and organization measures	2		3		3									
Securi	CO 03	Applying tools and methods in cybercrime	2	2		3										
Cyber	CO 04	Explain the concept of cyberspace		2		3	2									
7016	CO 05	Distinguish different aspects of cyber law			3		2									
шо	CO 06	Apply information Security standards in design development		2		3	2									
]	CO 01	Students will be able to analyze the dynamic performance of ac drives.	2	2											1	1
EEL701 EDCL	CO 02	Students will be able to analyze the dynamics of electrical braking in dc drives	2	2											1	1
EEL70	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
	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	
EEL702 SLIII	CO 03	To anlyse HVDCT systems by simulation or coding in MATLAB (L4)  Articulate importance of software packages used for simulation in	2	3											2	
EEL7	CO 04	laboratory experimentation /research/industry by analyzing the Simulate circuits for performance analysis.(L3)	2	3								1		1	2	
	CO 03	Anlyse Power system by simulation or coding in MATLAB (L4)	2	2											2	
	CO 01	Illustrate design of auxiliary circuits for Power Electronic systems	2	2											2	
DI	CO 02	Analyse the requirements, model and design a compensator for a	3	2	2										1	
EL703 PEDL	CO 02	power electronic converter.  Create a power electronic converter for a particular application	3	2	2										1	
EL7		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
<u>e</u>	CO 04	Implement control algorithm for a power electronic converter in hardware / simulation platform	3	2	2		1								1	
	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				
107	CO 03	Develop interpersonal skills to work as member or leader of group.						3	1		1			2		
EEP	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			DO.	DO.	DO.	DO.	DO.	DO.	DO.	DO.	DO.	DO.	DO.	DO.	DCO	DCO
Code &	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
Name			U1	02	03	04	05	00	U/	UO	09	10	11	12	UI	UZ
t and	CO 01	Distribution System like requirements, design considerations, estimating and costing.	3	2	2										2	1
gemen il syste	CO 02	To do sizing, selecting transformer, switchgear and cable as required for distribution system	3	2	2										2	1
Mana	CO 03	energy conservation method used in it and design methods of illumination system for a given purpose.	2	2	2			2							2	1
esign, g of el	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
EEC801 Design, Management and Auditing of electrical system	CO 05	to design suitable energy monitoring system to analyze and optimize the energy consumption	2	2				2	2						2	1
EEC	CO 06	To illustrate Engineering knowledge in energy audit and energy efficient technologies to improve energy efficiency	2					2	2						2	2
	CO 01	Illustarte the aspects of flexible ac transmission system over conventional ac transmission system	2	2		2			1						2	2
SI	CO 02	Analyzetheconcept of load compensation	2	2		2									2	2
EEC802 FACTS	CO 03	Categorize the static shunt compensation for transmission line	2	2		2									2	2
EC80)	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
	CO 01	Students will be able to EXPLAIN the different power system planning and forecasting technique.	2	2		2	2								2	
PR	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									
EEDO8044 PSPR	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									
ED08	CO 04	system,predict its behavior and do the required change in order to achieve reliability	2	2		2	2									
<u>a</u>	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									
	CO 01	Students will be able to Discriminate / selection criteria and select an appropriate project from different options	1	2									2			
1 PM	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			
EEDO8021 PM	CO 03	to the project and decide an approach to deal with them strategically	1	2									2			
EEL	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