Arunachala college of Engineering for Women

B.E. ELECTRICAL AND ELECTRONICS ENGINEERING

REGULATION – 2017

CHOICE BASED CREDIT SYSTEM

INSTITUTION VISION

To incubate value based technical education and produce outstanding women graduate to complete with the technological challenges with right attitude towards social empowerment.

INSTITUTION MISSION

- To equip necessary resources and to establish sufficient infrastructure for a beneficial process of learning that paves the way for making ideal technocrats.
- To educate and make the students efficient with necessary skills and to make them industry ready.
- To establish a higher learning and proficient research skills to confront fast-pacing technological scenarios.
- To provide valuable resources for social empowerment through excellence in technicial education.

PROGRAMME OUTCOMES (POs)

After going through four years of study, our Electrical and Electronics Engineering Graduates will exhibit ability to:

PO1   Engineering knowledge : Apply knowledge of mathematics, basic science and engineering science.

PO2   Problem analysis : Identify, formulate and solve engineering problems.

PO3   Design/development of solutions : Design an electrical system or process to improve its performance, satisfying its constraints.

PO4   Conduct investigations of complex problems : Conduct experiments in electrical and electronics systems and interpret the data.

PO5   Modern tool usage : Apply various tools and techniques to improve the efficiency of the system

PO6   The Engineer and society : Conduct themselves to uphold the professional and social obligations.

PO7   Environment and sustainability : Design the system with environment consciousness and sustainable development.

PO8   Ethics: Interacting industry, business and society in a professional and ethical manner.

PO9   Individual and team work : Function in a multidisciplinary team.

PO10   Communication : Proficiency in oral and written Communication.

PO11   Project management and finance: Implement cost effective and improved system.

PO12   Life-long learning : Continue professional development and learning as a life-long activity.

DEPARTMENT VISION

To impart a quality education with the sole intention to equip them with higher standard in the field of Electrical and Electronics Engineering and make them ethically strong to enlighten the society.

DEPARTMENT MISSION

- To provide, the best supportive environment for the students to promote, technical and intellectual values.
- To integrate, education with human values like leadership, teamwork and social activities.
- To establish a high quality teaching to meet the growing challenges in industries.
- To promote excellence in higher education and research in the field of Electrical and Electronics Engineering.

PROGRAM EDUCATIONAL OBJECTIVES

- To provide a solid knowledge in Electrical & Electronics Engineering that imparts the necessary analytical, logical and designing skills.
- To have an innovative skill to design develop, and to maintain the Electrical and Electronics systems.
- To produce professionals with effective communication, competence and ethical acumen that enable them to pursue a successful career.

PROGRAM SPECIFIC OUTCOMES

1. Ability to acquire updated knowledge in the field of Electrical Technology, Power Electronics and Power Systems to design and protect the Electrical systems.
2. Use logical and technical skills to develop and analyze electrical models to meet the demands of industry and to provide solutions to real time problems.
3. Utilizing the modern technologies and advancements to provide a reliable and sustainable Electrical systems to the society.

COURSE OUTCOMES

SEMESTER I

HS8151- Communicative English

After successful completion of the course, the students should be able to

	Course Outcomes	Highest Cognitive Level	Mapped PO & PSO
CO 101.1	Developing basic reading and listening skills, Exchanging personal information.	K2	PO:1;PSO:1
CO 101.2	Comprehend reading passages and developing skills in free writing on given topics	K2	PO:1;PSO:1
CO 101.3	Writing coherently and speak in routine actions an expressing opinions.	K2	PO:1;PSO:1
CO 101.4	To improve skills in writing informal letters/emails and speaking about one self and others.	K2	PO:1;PSO:1
CO 101.5	Writing essays on given outlines and participating in informal conversation.	K2	PO:1;PSO:1
K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 – Create			

MA8151- Engineering Mathematics – I

After successful completion of the course, the students should be able to

	Course Outcomes	Highest Cognitive Level	Mapped PO & PSO
CO 102.1	Apply Differentiation to solve maxima and minima of functions of one variable	K3	PO:1,2;PSO:1
CO 102.2	Apply Maxima or minima in two variables using partial differentiation	K3	PO:1,2;PSO:1
CO 102.3	Understand the concepts of integration	K3	PO:1,2;PSO:1
CO 102.4	Apply multiple integrals to compute area and volume of solids	K3	PO:1,2;PSO:1
CO 102.5	Apply various techniques in solving differential equations	K3	PO:1,2;PSO:1
K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 – Create			

PH8151- Engineering Physics

After successful completion of the course, the students should be able to

Course Outcomes		Highest Cognitive Level	Mapped PO & PSO
CO 103.1	The students are able to understand the basics of properties of matter and its applications	K2	PO:1;PSO:1
CO 103.2	The students will gain knowledge on the concepts of waves ,optical devices and their applications	K2	PO:1;PSO:1
CO 103.3	The students will acquire knowledge on the concepts of thermal properties of materials and their applications in expansion joints and heat exchangers.	K2	PO:1;PSO:1
CO 103.4	To understand the importance of quantum theory in tunneling microscope	K2	PO:1;PSO:1
CO 103.5	The students will have adequate knowledge in the basics of crystals, their structures and different crystal growth techniques.	K2	PO:1;PSO:1
K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 – Create			

CY8151- Engineering Chemistry

After successful completion of the course, the students should be able to

Course Outcomes		Highest Cognitive Level	Mapped PO & PSO
CO 104.1	To infer the quality of water from quality parameter data and propose suitable treatment methodologies to treat water.	K2	PO:1;PSO:1
CO 104.2	To identify and apply basic concepts of nanoscience and nanotechnology in designing the synthesis of nanomaterials for engineering and technology applications.	K2	PO:1;PSO:1
CO 104.3	To apply the knowledge of phase rule and composites for material selection requirements.	K2	PO:1;PSO:1
CO 104.4	To recommend suitable fuels for engineering processes and applications.	K2	PO:1;PSO:1
CO 104.5	To recognize different forms of energy resources and apply them for suitable applications in energy sectors.	K2	PO:1;PSO:1
K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 – Create			

GE8151- Problem Solving and Python Programming

After successful completion of the course, the students should be able to

Course Outcomes		Highest Cognitive Level	Mapped PO & PSO
CO 105.1	Explain the syntax for python programming constructs.	K2	PO:1,2;PSO:1
CO 105.2	Compute the flow of the program to obtain the programmatic solution.	K2	PO:1,2;PSO:1
CO 105.3	Examine the programs with sub problems using 'Python' language.	K3	PO:1,2,3;PSO:1
CO 105.4	Compute the compound data using Python lists, tuples, and dictionaries	K2	PO:1,2;PSO:1
CO 105.5	Explain the syntax for python programming constructs& Apply python programs to read and write data from/to files.	K3	PO:1,2,3;PSO:1
K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 – Create			

GE8152- Engineering Graphics

Course Outcomes		Highest Cognitive Level	Mapped PO & PSO
CO 106.1	To draw free hand sketch using different types geometrical constructions and Curves.	K2	PO:1,2;PSO:1
CO 106.2	To draw orthographic projection of lines and plane surfaces	K3	PO:1,2;PSO:1
CO 106.3	To draw the projections of various simple solids in different orientation and position	K3	PO:1,2,3;PSO:1
CO 106.4	To apply the knowledge acquired on practical applications of sectioning and development of solids	K3	PO:1,2;PSO:1
CO 106.5	Draw isometric and perspective projections of components	K3	PO:1,2,3;PSO:1
K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 – Create			

GE8161- Problem Solving and Python Programming Laboratory

	Course Outcomes	Highest Cognitive Level	Mapped PO & PSO
C107.1	Write, test, and debug simple Python programs.	K1	PO:1,2;PSO:1
C107.2	Apply the concept of conditionals and loops in Python programs.	K3	PO:1,2;PSO:1
C107.3	Develop the Python programs step-wise by defining functions and calling them.	K4	PO:1,2,3;PSO:1
C107.4	Use Python lists, tuples, dictionaries for representing compound data.	K3	PO:1,2;PSO:1
C107.5	Read and write data from/to files in Python.	K1	PO:1;PSO:1
C107.6	Apply the concept of Pygame.	K3	PO:1,2;PSO:1
C107.7	Exhibit ethical principles in engineering practices	A3	PO:8 ;PSO:1
C107.8	Perform task as an individual and / or team member to manage the task in time	A3	PO:9;PSO:1
C107.9	Express the Engineering activities with effective presentation and report.	A3	PO:10;PSO:1
C107.10	Interpret the findings with appropriate technological / research citation.	A2	PO:12;PSO:1

K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 – Create

BS8161- Physics and Chemistry Laboratory

	Course Outcomes	Highest Cognitive Level	Mapped PO & PSO
C108.1	Determine the Modulus of elasticity of materials and Coefficient of Viscosity of liquids	K2	PO:1,2;PSO:1
C108.2	Determine the Thermal Conductivity of bad conductor using Lee's disc method	K2	PO:1,2;PSO:1
C108.3	Calculate the Compressibility of liquids and velocity of ultrasonic waves in liquids	K2	PO:1,2,3;PSO:1
C108.4	Measure the wavelength of prominent spectral lines of Mercury Spectrum and particle size of powder using diffraction phenomenon and thickness of thin materials using interference phenomenon,	K2	PO:1,2;PSO:1
C108.5	Determine the band gap energy of a semiconductor	K2	PO:1;PSO:1
C108.6	Calculate water quality parameters such as hardness, alkalinity of the given water sample.	K2	PO:1,2;PSO:1
C108.7	Estimate the amount of the given acids using conductometric titrations.	K2	PO:8 ;PSO:1
C108.8	Estimate the amount of the given acids using pH titrations	K2	PO:9;PSO:1
C108.9	Determine the amount of iron content in the given substance using potentiometric titration	K2	PO:10;PSO:1
C108.10	Determine the amount of chloride content in the given water sample.	K2	PO:12;PSO:1

K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 – Create

HS8251- Technical English

After successful completion of the course, the students should be able to

Course Outcomes		Highest Cognitive Level	Mapped PO & PSO
CO 111.1	Enhance the reading skills and developing technical writing skills.	K2	PO:1;PSO:1
CO 111.2	Speak on given topics by clearly using presentation strategies	K2	PO:1;PSO:1
CO 111.3	Write logically on topics without grammatical mistakes	K2	PO:1;PSO:1
CO 111.4	Write job applications an issue based essays skill fully	K2	PO:1;PSO:1
CO 111.5	Listen and understand lectures participate in GD	K2	PO:1;PSO:1
K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 – Create			

After successful completion of the course, the students should be able to

Course Outcomes		Highest Cognitive Level	Mapped PO & PSO
CO 112.1	Apply Differentiation to solve maxima and minima of functions of one variable	K3	PO:1,2;PSO:1
CO 112.2	Apply Maxima or minima in two variables using partial differentiation	K3	PO:1,2;PSO:1
CO 112.3	Understand the concepts of integration	K3	PO:1,2;PSO:1
CO 112.4	Apply multiple integrals to compute area and volume of solids	K3	PO:1,2;PSO:1
CO 112.5	Apply various techniques in solving differential equations	K3	PO:1,2;PSO:1
K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 – Create			

PH8253-Physics for Electronics Engineering

After successful completion of the course, the students should be able to

Course Outcomes		Highest Cognitive Level	Mapped PO & PSO
CO 113.1	The students are able to understand the classical and quantum electron theories	K2	PO:1;PSO:1
CO 113.2	The students will acquire knowledge on the basics of semiconductor physics.	K2	PO:1;PSO:1
CO 113.3	The students get knowledge on magnetic and dielectric properties of materials..	K2	PO:1;PSO:1
CO 113.4	To understand the functions of opto electronic devices	K2	PO:1;PSO:1
CO 113.5	The students will understand the basics of quantum structures and their applications.	K2	PO:1;PSO:1
K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 – Create			

BE8252-Basic Civil and Mechanical Engineering

After successful completion of the course, the students should be able to

Course Outcomes		Highest Cognitive Level	Mapped PO & PSO
CO 114.1	Students will be able to appreciate the Civil and Mechanical Engineering components of Projects	K2	PO:1;PSO:1
CO 114.2	Student will be able to explain the usage of construction material and proper selection of construction materials.	K2	PO:1;PSO:1
CO 114.3	Students will be able to measure distances and area by surveying	K2	PO:1;PSO:1
CO 114.4	Students will be able to identify the components used in power plant cycle and demonstrate working principles of petrol and diesel engine.	K2	PO:1;PSO:1
CO 114.5	Students will be able to elaborate the components of refrigeration and Air conditioning cycle.	K2	PO:1;PSO:1
K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 – Create			

EE8251-Circuit Theory

At the End of the course, the student should be able to		Highest Cognitive level	Mapped PO & PSO
CO 115.1	Develop Resistors in series and parallel circuits.	K2	PO:1,2;PSO:1
CO 115.2	Analyze Network Reduction And Theorems.	K3	PO:1,2,3;PSO:1
CO 115.3	Illustrate the Transient response of RL, RC and RLC Circuits using Laplace transform for DC input and A.C. sinusoidal input.	K4	PO:1,2,3PSO:1,2
CO 115.4	Explain about three phase 3-wire and 4-wire circuits with star and delta connected loads,	K4	PO:1,2,3;PSO:1,2
CO 115.5	Acquire knowledge about Series and parallel resonance circuits.	K2	PO:1,2;PSO:1,2
K1-Remember; K2-Understand; K3-Apply; K4-Analyze; K5-Evaluate; K6-Create			

GE8291-Environmental Science and Engineering

After successful completion of the course, the students should be able to

	Course Outcomes	Highest Cognitive Level	Mapped PO & PSO
CO 116.1	Summarize the values, threats, conservation of biodiversity and ecosystems	K2	PO:1;PSO:1
CO 116.2	Discuss the sources, effects, control measures of different types of pollution, and solid waste management	K2	PO:1;PSO:1
CO 116.3	Associate the effects of exploitation of Natural resources on environment	K2	PO:1;PSO:1
CO 116.4	Summarize the water conservation methods and various environmental acts for environmental sustainability	K2	PO:1;PSO:1
CO 116.5	Explain the effect of Human population and role of IT in environment and human health	K2	PO:1;PSO:1
K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 – Create			

GE8261- Engineering Practices Laboratory

	Course Outcomes	Highest Cognitive Level	Mapped PO & PSO
C117.1	Identify Tools and Techniques used for Sheet Metal Fabrication.	K1	PO:1,2;PSO:1
C117.2	Use welding equipment to join the structures.	K3	PO:1,2;PSO:1
C117.3	Demonstrate Plumbing requirements of domestic buildings.	K4	PO:1,2,3;PSO:1
C117.4	Apply the skills of basic electrical engineering for house wiring practice	K3	PO:1,2;PSO:1
C117.5	Measure various electrical quantities	K1	PO:1;PSO:1
C117.6	Explain the working of electronic components and its utilization	K3	PO:1,2;PSO:1
C117.7	Apply electronic principles to develop circuits for primitive application	A3	PO:8 ;PSO:1
C117.8	Exhibit ethical principles in engineering practices	A3	PO:9;PSO:1
C117.9	Perform task as an individual and / or team member to manage the task in time	A3	PO:10;PSO:1
C117.10	Express the Engineering activities with effective presentation and report.	A2	PO:12;PSO:1
K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 – Create			

EE8261- Electric Circuits Laboratory

Course Outcomes	Highest	Mapped PO & PSO

	Cognitive Level	
C117.1	Analysis of various circuit theorems and concepts in engineering applications	K4	PO:1,2;3PSO:1,2,3
C117.2	Review of various simulation tools and demonstrate with various circuits	K3	PO:1,2,3;PSO:1,2
C117.3	Exhibit ethical Principles in engineering Practices	K4	PO:1,2,3;PSO:1,2,3
C117.4	Perform task an individual and or team member to manage the task	K3	PO:1,2;PSO:1,2
C117.5	Measure various electrical quantities	K2	PO:1,2;PSO:1,2
C117.6	Explain the working of electronic components and its utilization	K3	PO:1,2;PSO:1,2,3
K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 – Create		

SEMESTER III

MA8353, Transforms and Partial differential equations

After successful completion of the course, the students should be able to

	Course Outcomes	Highest Cognitive Level	Mapped PO & PSO
CO 201.1	Solve the first and higher order Homogeneous and Non- Homogeneous Partial differential equations	K3	PO:1,3 PSO:1,2,3
CO 201.2	Find the Fourier Series of a given function satisfying Dirichlet's conditions.	K3	PO:1,3 PSO:1,2,3
CO 201.3	Apply Fourier Series methods to solve boundary value problem for linear Partial differential equations	K4	PO:1,2,3 PSO:1,2
CO 201.4	Find the Fourier Transforms for a given functions	K3	PO:1,2,3 PSO:1,2
CO 201.5	Determine Z-Transforms of standard functions and use them to solve Difference equations.	K3	PO:1,3 PSO:1,2
K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 – Create			

EE8351- Digital Logic Circuits

COURSE OUTCOMES:

After successful completion of the course, the students should be able to

Course Outcomes		Highest Cognitive Level	Mapped PO & PSO
CO 202.1	Explain The Various Types Of Number system and digital logic families	K2	PO:1 PSO:1
CO 202.2	Apply k-map for simplification and implementation of combinational logic circuit	K3	PO:1 PSO:1
CO 202.3	Analyze the synchronous sequential logic circuits	K4	PO:1,2 PSO:1
CO 202.4	Analyze the asynchronous sequential logic circuits	K4	PO:1,2 PSO:1
CO 202.5	Develop the VHDL coding for combinational and sequential circuits	K6	PO:1 PSO:1
K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 – Create			

EE8391 - Electromagnetic Theory

COURSE OUTCOMES:

After successful completion of the course, the students should be able to

Course Outcomes		Highest Cognitive Level	Mapped PO & PSO
CO 203.1	Analyze the coordinate system and vector fields	K4	PO:1 PSO:1
CO 203.2	Apply the principles of electrostatics related to electric field and electric potential	K4	PO:1 PSO:1
CO 203.3	Implement the principles of magnetostatics related to magnetic field and magnetic potential	K4	PO:1,2 PSO:1
CO 203.4	Understand the concepts of Maxwell's equations in differential and integral form	K4	PO:1,2 PSO:1
CO 203.5	Interpret the concepts of electromagnetic waves and pointing vector	K4	PO:1 PSO:1

K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 – Create	

EE8301- Electrical Machines – I

At the End of the course, the student should be able to		Highest Cognitive level	Mapped PO & PSO
CO 204.1	Able to understand the Magnetic-circuit analysis and introduce magnetic materials.	K2	PO:1,2 PSO:1,2.3
CO 204.2	Ability to understand the prediction of performance of transformers.	K4	PO:1,2 PSO:1,2,3
CO 204.3	Ability to study of working principles of electrical machines using the concepts of electromechanical energy conversion principles.	K4	PO:1,2 PSO:1
CO 204.4	Ability to analyze and expressions for generated voltage and torque developed in all Electrical Machines and Generator types, determination of their no load/load characteristics.	K3	PO:1,2 PSO:1
CO 204.5	To understand the Various losses taking place in D.C. Motor and to study the different testing methods to arrive at their performance.	K3	PO:1,2 PSO:1
K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 – Create			

EC8353- Electron Devices and Circuits

COURSE OUTCOMES:

After successful completion of the course, the students should be able to

Course Outcomes		Highest Cognitive Level	Mapped PO & PSO
CO 205.1	Explain the structure , operation, VI characteristics of PN junction diode, Zener diode &display devices	K2	PO:1 PSO:1,
CO 205.2	Explain the structure, operation & characteristics of Transistors & Thyristors	K2	PO:1 PSO:1,
CO 205.3	Analyze the small signal performance of single stage BJT & FET amplifier	K4	PO:1,2 PSO:1
CO205.4	Analyze how the diffential amplifier, single tuned amplifier and power amplifiers amplify the frequency signals	K4	PO:1,2 PSO:1
CO 205.5	Analyze RC, LC and crystal oscillator using BJT	K4	PO:1 PSO:1
K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 – Create			

ME8792- Power Plant Engineering

COURSE OUTCOMES:

After successful completion of the course, the students should be able to

Course Outcomes		Highest Cognitive Level	Mapped PO & PSO
CO 206.1	Explain the different blocks in coal based power plant	K2	PO:1,2 PSO:1,2,3
CO 206.2	Summarize the working of diesel, gas turbine and combined cycle power plant	K2	PO:1,2 PSO:1,2,3
CO 206.3	Explain the layout and various types of reactors in nuclear power plant	K2	PO:1,2 PSO:1
CO206.4	Illustrate the operation of various types of renewable power plants	K2	PO:1,2 PSO:1
CO 206.5	Summarize the tariffs and performance parameters of the power plant and waste disposal techniques	K2	PO:1,2 PSO:1
K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 – Create			

EC8311- Electronics Laboratory

After successful completion of the course, the students should be able to

Course Outcomes		Highest Cognitive Level	Mapped PO & PSO
CO207.1	Illustrate the operation of Semiconductor devices with their characteristics for various applications	K2	PO:1,2,3 PSO:1
CO207.2	Construct the amplifier and Oscillator Circuits for any frequency using BJT and determine the output responses	K3	PO:1,2,3 PSO:1
CO207.3	Compare the ripple factor of the diode rectifiers with and without filters	K2	PO:1,2,3 PSO:1
CO207.4	Identify the performance of Multivibrators and differential amplifier using FET	K3	PO:1,2,3 PSO:1,2

CO207.5	Build passive filters for particular cutoff frequencies	K3	PO:1,2,3 PSO:1,2
CO207.6	Exhibit ethical principles in engineering practices	A3	PO:8
CO207.7	Perform task as an individual and / or team member to manage the task in time	A3	PO:9,11
CO207.8	Express the Engineering activities with effective presentation and report.	A3	PO:10
CO207.9	Interpret the findings with appropriate technological / research citation.	A2	PO:12
K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 – Create A1-Receiving, A2-Responding, A3-Valuing			

EE8311- Electrical Machines Laboratory – I

After successful completion of the course, the students should be able to

Course Outcomes		Highest Cognitive Level	Mapped PO & PSO
CO208.1	Analyze the characteristics of DC generator and DC motor on No load and loaded conditions	K4	PO:1,2,3 PSO:1
CO208.2	Examine the various losses and efficiency of DC machines and transformer	K4	PO:1,2,3 PSO:1
CO208.3	sketch the load characteristics of single phase and three phase transformer	K3	PO:1,2,3 PSO:1
CO208.4	Develop the equivalent circuit of single phase transformer	K5	PO:1,2,3 PSO:1,2
CO208.5	Explain the concepts of starters and connection of three phase transformer	K2	PO:1,2,3 PSO:1,2
CO208.6	Exhibit ethical principles in engineering practices	A3	PO:8

CO208.7	Perform task as an individual and / or team member to manage the task in time	A3	PO:9,11
CO208.8	Express the Engineering activities with effective presentation and report.	A3	PO:10
CO208.9	Interpret the findings with appropriate technological / research citation.	A2	PO:12
K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 – Create A1-Receiving, A2-Responding, A3-Valuing			

SEMESTER IV

MA8491- Numerical Methods

After successful completion of the course, the students should be able to

Course Outcomes		Highest Cognitive Level	Mapped PO & PSO
CO 211.1	Explain the basic concepts and techniques of solving algebraic and transcendental equations.	K2	PO:1,2,3 PSO:1,2
CO 211.2	Infer the numerical techniques of interpolation and error approximations in various intervals in real life situations.	K2	PO:1,2,3 PSO:1,2
CO 211.3	Extend the numerical techniques of differentiation and integration for engineering problems.	K2	PO:1,2,3 PSO:1,2
CO 211.4	Illustrate the knowledge of various techniques and methods for solving first and second order ordinary differential equations.	K2	PO:1,2,3 PSO:1,2
CO 211.5	Solve the partial and ordinary differential equations with initial and boundary conditions by using certain techniques with engineering applications.	K2	PO:1,2,3 PSO:1,2
K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 – Create			

EE8401-Electrical Machines – II

COURSE OUTCOMES:

After successful completion of the course, the students should be able to

Course Outcomes		Highest Cognitive Level	Mapped PO & PSO
CO 212.1	Outline the construction and working principle of Synchronous Generator and MMF curves and armature windings.	K2	PO:1,2,3 PSO:1,2
CO 212.2	Illustrate the principle of operation and performance of Synchronous motor	K2	PO:1,2,3 PSO:1,2
CO 212.3	Outline the construction and working principle of Three-phase Induction Motor	K2	PO:1,2,3 PSO:1,2
CO 212.4	Explain the starters and speed control method of three phase Induction motor.	K2	PO:1,2,3 PSO:1,2
CO 212.5	Demonstrate the construction and working principle of Special Machines and single-phase induction motor.	K2	PO:1,2,3 PSO:1,2
K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 – Create			

EE8402-Transmission and Distribution

After successful completion of the course, the students should be able to

Course Outcomes		Highest Cognitive Level	Mapped PO & PSO
CO213.1	Discuss the various parameters of transmission line and structure of power system and calculation of capacitance and Inductance values	K2	PO:1,2,3 PSO:1,2
CO213.2	Summarize the concepts of ABCD parameters and regulation, efficiency of transmission line.	K3	PO:1,2,3 PSO:1,2
CO213.3	Discuss the various types of insulators, its performance and calculation sag in Overhead transmission system.	K2	PO:1,2,3 PSO:1,2
CO213.4	Explain the different construction of cables and grading of cables using in transmission system.	K2	PO:1,2,3 PSO:1,2

Course Outcomes		Highest Cognitive Level	Mapped PO & PSO
CO213.5	Discuss the concepts of distribution system and layout of substation, concepts of HVDC, FACTS ..	K2	PO:1,2,3 PSO:1,2
K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 – Create			

EE8403- Measurements and Instrumentation

After successful completion of the course, the students should be able to

Course Outcomes		Highest Cognitive Level	Mapped PO & PSO
C0214.1	Summarize the characteristics and errors of the instruments and the need for calibration	K2	PO:1,2 PSO:1
C0214.2	Explain the various operation of AC and DC electrical and electronic instruments	K2	PO:1,2 PSO:1
C0214.3	Describe the various measurement devices in AC as well as in DC	K2	PO:1,2,3 PSO:1
C0214.4	Explain the different storage and display devices used in electrical measurements	K2	PO:1 PSO:1
C0214.5	Discuss the concepts and operational features of different display Devices and Data Acquisition System.	K2	PO:1,2, PSO:1
K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 – Create			

EE8451- Linear Integrated Circuits and Applications

COURSE OUTCOMES:

After successful completion of the course, the students should be able to

Course Outcomes		Highest Cognitive Level	Mapped PO & PSO
CO 215.1	Infer the process in IC fabrication procedure	K2	PO:1,2 PSO:1
CO 215.2	Analyze the characteristics of op-amp	K2	PO:1,2,3 PSO:1
CO 215.3	Illustrate the importance of signal analysis using op-amp based circuits	K2	PO:1,2,3 PSO:1
CO 215.4	Explain the functional blocks and the applications of special ICs like timers, PLL circuits	K2	PO:1,2,3 PSO:1
CO 215.5	Explain the functional blocks of application Ics like regulator, SMPS, Function generator	K2	PO:1,2,3,4 PSO:1
K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 – Create			

IC8451- Control Systems

After successful completion of the course, the students should be able t0

Course Outcomes		Highest Cognitive Level	Mapped PO & PSO
CO216.1	Model the various systems by mathematical equations and find transfer function	K3	PO:1,2 PSO:1,2,3
CO216.2	Explain the basic components of feedback control systems and summarize the various errors	K2	PO:1,2,3 PSO:1,2
CO216.3	Identify the performance parameters of the system through the time domain and frequency domain approach	K3	PO:1,2,3 PSO:1,2
CO216.4	Infer the stability of the system in time domain and frequency domain & applu different compensation techniques to improve the stability of the system	K3	PO:1,2,3 PSO:1,2
CO216.5	Explain the state space variables in effect of state feedback of system	K2	PO:1,2,3,4 PSO:1,2
K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 – Create			

EE8411 - Electrical Machines Laboratory – II

After successful completion of the course, the students should be able to

Course Outcomes		Highest Cognitive Level	Mapped PO & PSO
CO217.1	Pre-determine the regulation of both salient and non-salient pole Alternators by EMF, MMF and ZPF Methods	K2	PO:1,2,3 PSO:1,2
CO217.2	Analyze the Characteristics of synchronous motor using V and inverted V curves	K2	PO:1,2,3 PSO:1,2
CO217.3	Determine the efficiency and equivalent circuit parameter of Single and three phase induction motor and Analyze the losses of Induction Motor	K2	PO:1,2,3 PSO:1,2
CO217.4	Analyze the response of speed variation in slip-ring Induction motor for change in rotor resistance	K2	PO:1,2,3 PSO:1,2
CO217.5	Determine the efficiency and Analyze the losses of Single Phase Induction Motor	K2	PO:1,2,3 PSO:1,2
CO217.6	Exhibit ethical principles in engineering practices	A3	PO:8
CO217.7	Perform task as an individual and / or team member to manage the task in time	A3	PO:9,11
CO217.8	Express the Engineering activities with effective presentation and report.	A3	PO:10
CO217.9	Interpret the findings with appropriate technological / research citation.	A2	PO:12
K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 – Create A1-Receiving, A2-Responding, A3-Valuing			

EE8461- Linear and Digital Integrated Circuits Laboratory

After successful completion of the course, the students should be able to

Course Outcomes		Highest Cognitive Level	Mapped PO & PSO
CO 218.1	Implement Boolean function using logic gates	K2	PO:1,2,3,5 PSO:1
CO 218.2	Implement Code conversion using logic gates	K2	PO:1,2,3,5 PSO:1
CO 218.3	Design and implement 4 bit Shift Registers	K2	PO:1,2,3,5 PSO:1
CO 218.4	Design and implement applications of Op-Amp	K2	PO:1,2,3,5 PSO:1
CO 218.5	Design and implement counters using specific counter IC	K2	PO:1,2,3,5 PSO:1
CO 218.6	Exhibit ethical principles in engineering practices	A3	PO:8
CO 218.7	Perform task as an individual and / or team member to manage the task in time	A3	PO:9,11
CO 218.8	Express the Engineering activities with effective presentation and report.	A3	PO:10
CO 218.9	Interpret the findings with appropriate technological / research citation.	A2	PO:12
K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 – Create A1-Receiving, A2-Responding, A3-Valuing			

EE8412- Technical Seminar

After successful completion of the course, the students should be able to

Course Outcomes		Highest Cognitive Level	Mapped PO & PSO
CO 219.1	Function effectively as an individual and Make effective presentation on Engineering/ technology	K2	PO:1,2,3 PSO:1
CO 219.2	Review, prepare and present technological developments in the field of electrical and electronics engineering.	K2	PO:1,2,3 PSO:1
CO 219.3	Design documentation and write effective reports on seminar topics	K2	PO:1,2 PSO:1
CO 219.4	Exhibit ethical principles in engineering practices	A3	PO:8
CO 219.5	Perform task as an individual and / or team member to manage the task in time	A3	PO:9,11
CO 219.6	Express the Engineering activities with effective presentation and report.	A3	PO:10
CO 219.7	Interpret the findings with appropriate technological / research citation.	A2	PO:12
K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 – Create A1-Receiving, A2-Responding, A3-Valuing			

SEMESTER 5

EE8501 Power System Analysis

After successful completion of the course, the students should be able to

	Course Outcomes	Highest Cognitive level	Mapped PO & PSO
CO 301.1	Understand the per unit system and Formation of Y-Bus matrix in power system	K2	PO:1,2 PSO:1
CO 301.2	Develop power flow equation and Apply the concept iterative method to power flow problem	K4	PO:1,2 PSO:1
CO 301.3	Analyze the Symmetrical Fault occur in power system	K4	PO:1,2 PSO:1
CO 301.4	Analyze Un symmetrical Fault occur in power system	K3	PO:1,2 PSO:1
CO 301.5	Understand stability of power system and analyze the stability by numerical methods	K3	PO:1,2 PSO:1
K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 – Create			

EE8551 Microprocessors and Microcontrollers

After successful completion of the course, the students should be able to

	Course Outcome	Highest Cognitive Level	Mapped PO & PSO
CO 302.1	Describe the basic Architecture of 8085 Microprocessor and working of all blocks of the processor, IO and memory interfacings with necessary timing diagrams.	K2	PO:1,2,10 PSO:1,2
CO 302.2	Classify the instructions with the help of Addressing modes of 8085 with necessary programs	K2	PO:1,2,10 PSO:1,2
CO 302.3	Explain the basic Architecture of 8051 Microcontroller with working of various blocks of the controller like Interrupts, Timer, IO ports etc. with necessary timing diagram and compare the programming concepts with 8085.	K2	PO:1,2,10 PSO:1,2
CO	Illustrate how the different peripherals are interfaced with Microprocessor &	K2	PO:1,2,10

302.4	Microcontroller		PSO:1,2
CO 302.5	Apply the knowledge of programming concepts of 8051 Microcontroller for various applications like keyboard display interface, servo motor etc.,	K3	PO:1,2,3,10 PSO:1,2
K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 – Create			

EE8552 Power Electronics

After successful completion of the course, the students should be able to

Course Outcomes		Highest Cognitive Level	Mapped PO & PSO
CO 303.1	Explain the different types of power semiconductor devices and their switching characteristics	K2	PO:1,2,3,4,7 PSO:1
CO 303.2	Analyze the operation, characteristics and performance parameters of various types of controlled rectifiers	K4	PO:1,2,3,4,7 PSO:1
CO 303.3	Analyze the operation, switching techniques & basic topologies of different types of DC-DC switching regulators	K4	PO:1,2,3,4,7 PSO:1
CO 303.4	Apply the modulation techniques for pulse width modulated inverters	K3	PO:1,2,3,4,7 PSO:1,2
CO 303.5	Apply the operation of AC voltage controllers and cyclo converters for their applications	K3	PO:1,2,3,4,7 PSO:1
K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 – Create			

EE8591 Digital Signal Processing

After successful completion of the course, the students should be able to

Course Outcomes		Highest Cognitive Level	Mapped PO & PSO
CO304.1	Explain The Various Types Of signals and systems	K2	PO:1,2,3,4,5 PSO:1
CO304.2	Understand the discrete time systems	K3	PO:1,2,3,4,5 PSO:1,2
CO304.3	Analyze DFT computation	K4	PO:1,2,3,4,5 PSO:1
CO304.4	Design of different types of FIR AND IIR filters	K4	PO:1,2,3,4,5 PSO:1,4
CO304.5	Acquire knowledge on various architecture of Digital Signal Processors	K6	PO:1,2,3,4,5 PSO:1
K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 – Create			

CS8398 Object Oriented Programming

After successful completion of the course, the students should be able to

Course Outcomes		Highest Cognitive Level	Mapped PO & PSO
CO305.1	Explain the Object Oriented Programming concepts and basic features of Java	K2	PO:1,2,3 PSO:1
CO305.2	Interpret the OOPS principles with packages, inheritance and interfaces	K2	PO:1,2 PSO:1
CO305.3	Interpret exceptions and use I/O streams	K2	PO:1,2 PSO:1

Course Outcome No.	Course Outcome	Highest Cognitive Level	Mapped PO & PSO
CO305.4	Illustrate a java application with threads and generics classes	K3	PO:1,2,3 PSO:1
CO305.5	Demonstrate and build simple Graphical User Interfaces	K3	PO:1,2,3 PSO:1
K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 – Create			

OMD551 Basics of Bio medical Instrumentation

After successful completion of the course, the students should be able to

Course Outcome No.	Course Outcome	Highest Cognitive Level	Mapped PO & PSO
CO306.1	Study the different bio potential and it's applicable for medical field	K1	PO:1,2,3 PSO:1,2
CO306.2	Understand the different electrode placement for various physiological recording	K2	PO:1,2,3 PSO:1
CO306.3	Explain the bio amplifier for various physiological recording	K2	PO:1,2,3 PSO:1
CO306.4	Describe the temperature, respiration rate, pulse rate and cardiac output in biomedical measurement	K2	PO:1,2,3 PSO:1
CO306.5	Explain the different biochemical measurement	K2	PO:1,2,3 PSO:1
CO306.6	Describe the various methods on blood pressure measurement	K2	PO:1,2,3 PSO:1,2
K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 – Create			

EE8511 Control and Instrumentation Laboratory

After successful completion of the course, the students should be able to

Course Outcome No.	Course Outcome	Highest Cognitve Level	Mapped PO & PSO
CO307.1	Analyze the characteristics of P, PI and PID controllers experimentally and analyze the stability of the control system using MATLAB	K2	PO:1,2,3 PSO:1
CO307.2	Compute the transfer function of a Field controlled DC motor experimentally and analyze the response of Lag, Lead and Lag-Lead Compensators	K2	PO:1,2,3 PSO:1

CO307.3	Analyze the transient response of Position Control system experimentally and analyze the Characteristics of Synchro-Transmitter- Receiver and to Use MATLAB for the Simulation of Control Systems.	K2	PO:1,2,3 PSO:1
CO307.4	Ability to analyze the basic concepts of bridge networks and to analyze the Dynamics of Sensors/Transducers	K2	PO:1,2,3 PSO:1
CO307.5	Measure the Power and Energy experimentally and analyze signal conditioning circuits and to Use MATLAB for Process Simulation	K2	PO:1,2,3 PSO:1
CO307.6	Exhibit ethical principles in engineering practices	A3	PO:1,2,3 PSO:1
K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 – Create A1-Receiving, A2-Responding, A3-Valuing			

HS8581 Professional Communication

After successful completion of the course, the students should be able to

Course Outcome No.	Course Outcome	Highest Cognitve Level	Mapped PO & PSO
CO308.1	Ability to make effective presentations	K2	PO:9,10,11 PSO:1
CO308.2	Ability to Participate confidently in Group Discussions.	K2	PO:9,10,11 PSO:1

CO308.3	Attend job interviews and be successful in them	K2	PO:9,10,11 PSO:1
CO308.4	Develop adequate Soft Skills required for the workplace	K2	PO:9,10,11 PSO:1
CO308.5	Exhibit ethical principles in engineering practices	A3	PSO:8
CO308.6	Perform task as an individual and / or team member to manage the task in time	A3	PSO:9,11
CO308.7	Express the Engineering activities with effective presentation and report.	A3	PSO:10
CO308.8	Interpret the findings with appropriate technological / research citation.	A2	PSO:12
K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 – Create A1-Receiving, A2-Responding, A3-Valuing			

CS8383 Object Oriented Programming Laboratory

After successful completion of the course, the students should be able to

Course Outcome No.	Course Outcome	Highest Cognitve Level	Mapped PO & PSO
CO309.1	Develop and implement Java programs for simple applications that make use of classes, packages and interfaces	K2	PO:1,2 PSO:1
CO309.2	Develop and implement Java programs with arraylist, exception handling and multithreading	K2	PO:1,2 PSO:1
CO309.3	Design applications using file processing, generic programming and event handling	K2	PO:1,2 PSO:1
CO309.4	Exhibit ethical principles in engineering practices	A3	PO:8
CO309.5	Perform task as an individual and / or team member to manage the task in time	A3	PO:9,11
CO309.6	Express the Engineering activities with effective presentation and report.	A3	PO:10
CO309.7	Interpret the findings with appropriate technological / research citation.	A2	PO:12
K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 – Create A1-Receiving, A2-Responding, A3-Valuing			

SEMESTER VI

EE8601 Solid State Drives

After successful completion of the course, the students should be able to

Course Outcome No.	Course Outcome	Highest Cognitive Level	Mapped PO & PSO
CO 311.1	Classify the various types of drives and load torque characteristics and Apply the multi quadrant dynamics in hoist load system.	K2	PO:1,2,10 PSO:1
CO 311.2	Illustrate the operation of steady state analysis of single phase and three phase fully controlled converter and Chopper fed separately excited dc motor drives and discuss the various control strategies of converter	K2	PO:1,2,10 PSO:1
CO 311.3	Explain the operation and characteristics of various methods of solid state speed control of induction motor.	K2	PO:1,2,10 PSO:1
CO 311.4	Describe the operation of various modes of V/f control of synchronous motor drives and different types of permanent magnet synchronous motor drives.	K2	PO:1,2,10 PSO:1
CO 311.5	Design a current and speed controller and develop the transfer function for DC motor, load and converter, closed loop control with current and speed feedback.	K2	PO:1,2,10 PSO:1
K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 – Create A1-Receiving, A2-Responding, A3-Valuing			

EE8602 Protection and Switchgear

After successful completion of the course, the students should be able to

	Course Outcome	Highest Cognitive level	Mapped PO & PSO
CO 312.1	Ability to understand and analyze power system operation, stability, control and protection.	K2	PO:1,2,10 PSO:1
CO 312.2	Ability to understand the principle of protective schemes and various faults in the Power System Scenario.	K4	PO:1,2,10 PSO:1
CO 312.3	Ability to examine protection of power system with various protection relays.	K4	PO:1,2,10 PSO:1
CO 312.4	Able to study the various types of the circuit breakers.	K3	PO:1,2,3,10 PSO:1
CO 312.5	Able to impart knowledge, the arc quenching phenomena and the protection against over voltages.	K3	PO:1,2,10 PSO:1
K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 – Create			

EE8691 Embedded Systems

After successful completion of the course, the students should be able to

Course Outcome No.	Course Outcome	Highest Cognitive Level	Mapped PO & PSO
CO313.1	Outline the basic build process of embedded systems, structural units in embedded processor and selection of processor and memory devices depending upon the applications.	K2	PO:1,10 PSO:1,2
CO313.2	Explain the different types of I/O device ports, buses and different interfaces for data transfer in embedded networking.	K2	PO:1,2,4,10 PSO:1,2
CO313.3	Demonstrate the different techniques like state machine model, sequential program model and concurrent model in Embedded Product Development Life Cycle (EDLC)	K2	PO:1,2,4,10 PSO:1,2

Course Outcome No.	Course Outcome	Highest Cognitive Level	Mapped PO & PSO
CO313.4	Explain the basic concept of Real Time Operating Systems and scheduling of different task and compare the features of different types of Real Time Operating Systems	K2	PO:1,2,10 PSO:1,2
CO313.5	Summarize the concepts of Embedded systems in real time applications	K2	PO:1,2,3,5,10 PSO:1,2
K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 – Create			

EE6604 Design Of Electrical Machines

After successful completion of the course, the students should be able to

Course Outcome No.	Course Outcome	Highest Cognitive Level	Mapped PO & PSO
CO315.1	Explain the major considerations to evolve a good design of an electrical machine.	K2	PO:1,2,3 PSO:1
CO315.2	Develop the output equations of transformer.	K3	PO:1,2,3 PSO:1,2
CO315.3	Illustrate the two types of Armature winding employed in a DC Machine.	K4	PO:1,2,3 PSO:1
CO315.4	Determine D and L of a IM.	K4	PO:1,2,3 PSO:1,2
CO315.5	Analyze the important features of turbo-alternator rotors.	K2	PO:1,2,3 PSO:1
K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 – Create			

EE8661 Power Electronics and Drives Laboratory

After successful completion of the course, the students should be able to

Course Outcome No.	Course Outcome	Highest Cognitive Level	Mapped PO & PSO
CO 316.1	Draw the VI characteristics of SCR and TRIAC	K1	PSO:1
CO 316.2	Analyze the characteristics of MOSFET and IGBT	K4	PO:1,2,3 PSO:1
CO 316.3	Design a single phase AC to DC half and fully controlled converter	K3	PO:1,2,3 PSO:1
CO 316.4	Analyze the output response of step down chopper and step up MOSFET and draw the output waveforms of single phase IGBT based PWM inverter.	K4	PO:1,2,3 PSO:1,2
CO 316.5	Observe the response of IGBT based three-phase PWM inverter and Resonant dc-to-dc converter	K2	PO:1 PSO:1,2
CO 316.6	Exhibit ethical principles in engineering practices	A3	PSO:8
CO 316.7	Perform task as an individual and / or team member to manage the task in time	A3	PSO:9,11
CO 316.8	Express the Engineering activities with effective presentation and report.	A3	PSO:10
CO 316.9	Interpret the findings with appropriate technological / research citation.	A2	PSO:12
K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 – Create A1-Receiving, A2-Responding, A3-Valuing			

EE8681 Microprocessors and Microcontrollers Laboratory

After successful completion of the course, the students should be able to

Course Outcome No.	Course Outcome	Highest Cognitive Level	Mapped PO & PSO
CO317.1	Design a program for arithmetic operation, Ascending/ Descending order, finding Maximum/Minimum numbers, rotate instruction and code conversions and execute using 8085 processor	K2	PO:1,2,3 PSO:1
CO317.2	Identify and convert Analog to Digital , Digital to Analog numbers and implement the traffic light controller with 8085	K2	PO:1,2,3 PSO:1
CO317.3	Design a code to display the given words using keyboard display controller for serial communication and programming practices with simulator/Emulator /open source	K2	PO:1,2,3 PSO:1
CO317.4	Analyze a program using read key to interface with display units and demonstrate conditional jumps ,loops and calling subroutines with 8051 Microcontroller .	K2	PO:1,2,3 PSO:1
CO317.5	Create program using I/O port ,8051 timer , A/D & D/A interface with DC & AC motors and develop a program for hardware application using embedded processors	K2	PO:1,2,3 PSO:1
CO317.6	Exhibit ethical principles in engineering practices	A3	PO:8
CO317.7	Perform task as an individual and / or team member to manage the task in time	A3	PO:9,11
CO317.8	Express the Engineering activities with effective presentation and report.	A3	PO:10
CO317.9	Interpret the findings with appropriate technological / research citation.	A2	PO:11,12

K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 – Create

A1-Receiving, A2-Responding, A3-Valuing

EE8611 Mini Project

After successful completion of the course, the students should be able to

COs	Course Outcome	Highest Cognitive Level	Mapped PO & PSO
CO 318.1	Identify and apply the real world and societal importance problems in the Electrical and its allied area.	K1	PO:1,2,3,5,6,10,12 PSO:1,2,3
CO 318.2	Apply modern engineering tools for solution	K3	PO:1,2,10,12 PSO:1,2,3
CO 318.3	Express the Engineering activities with effective presentation and report.	A3	PO:1,2,10,12 PSO:1,2,3
CO 318.4	Perform task as an individual and / or team member to manage the task in time	A3	PO:1,2,12 PSO:1,2,3

SEMESTER VII

EE8701 High Voltage Engineering

After successful completion of the course, the students should be able to

Course Outcome		Highest Cognitive level	Mapped PO & PSO
CO 401.1	Identify the causes of over voltage and its effects in power system.	K2	PO:1,2,3,10 PSO:1,2,3
CO 401.2	Classify the breakdown Mechanisms in Solid, Liquid, gases and Composite dielectrics	K3	PO:1,2,3,10 PSO:1,2,3
CO 401.3	Design different type of Generating circuit for high voltage D.C and high voltage A.C	K4	PO:1,2,3,10 PSO:1,2,3
CO 401.4	Measure A.C and D.C high voltage and current using appropriate method.	K4	PO:1,2,10 PSO:1,2,3
CO 401.5	Test the transformer ,insulator , circuit breakers, surge diverters and cables also discuss the insulation coordination	K2	PO:1,2,3,10 PSO:1,2,3
K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 – Create			

EE8702 Power System Operation and Control

After successful completion of the course, the students should be able to

Course Outcome		Highest Cognitive level	Mapped PO & PSO
CO 402.1	Analyze the various load characteristics with load curve and load duration curve.	K2	PO:1,2 PSO:1

CO 402.2	Describe modeling of power-frequency dynamics and design power-frequency controller.	K4	PO:1,2 PSO:1
CO 402.3	Explain the modeling of reactive power-voltage interaction and the control actions.	K4	PO:1,2 PSO:1
CO 402.4	Solve economic dispatch problems and unit commitment problems in power systems.	K3	PO:1,2 PSO:1
CO 402.5	Explain the need of computer controls to energy management using SCADA.	K3	PO:1 PSO:1
K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 – Create			

EE8703 Renewable Energy Systems

After successful completion of the course, the students should be able to

Course Outcomes		Highest Cognitive Level	Mapped PO & PSO
CO 403.1	Acquire knowledge about the Renewable energy sources	K2	PO:1,2,3,10 PSO:1,2,3
CO 403.2	Explain the operation of types of wind power plants.	K3	PO:1,2,3,10 PSO:1,2,3
CO 403.3	Understand the operation of solar thermal power plant.	K4	PO:1,2,3,10 PSO:1,2,3
CO 403.4	Acquire knowledge about Biomass resources.	K4	PO:1,2,3,10,12 PSO:1,2,3
CO 403.5	Analyze Hybrid energy system.	K2	PO:1,2,10,12 PSO:1,2,3
K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 – Create			

OEC 753 Signals and Systems

After successful completion of the course, the students should be able to

Course Outcomes		Highest Cognitive level	Mapped PO & PSO
CO 404.1	Explain The Various Types Of signals and systems	K2	PO:1,2,3,4,5 PSO:1
CO 404.2	Understand the Fourier Series and Fourier Transform	K3	PO:1,2,3,4,5 PSO:1,2
CO 404.3	Analyze convolution integral	K4	PO:1,2,3,4,5 PSO:1
CO 404.4	Apply Z-Transform and DTFT in Discrete time signals and discrete time systems	K4	PO:1,2,3,4,5 PSO:1,2
CO 404.5	Understand the difference equation	K2	PO:1,2,3,4,5 PSO:1
K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 – Create			

EE8005 Special

Electrical Machines

After successful completion of the course, the students should be able to

Course Outcome No.	Course Outcome	Highest Cognitive Level	Mapped PO & PSO
CO314.1	To impart knowledge on Construction, principle of operation and performance of synchronous reluctance motors.	K3	PO:1,2,3,4,7 PSO:1
CO314.2	To impart knowledge on the Construction, principle of operation, control and performance of stepping motors.	K3	PO:1,2,3,4,7 PSO:1
CO314.3	To impart knowledge on the Construction, principle of operation, control and performance of switched reluctance motors.	K4	PO:1,2,3,4,7 PSO:1
CO314.4	To impart knowledge on the Construction, principle of operation, control and performance of permanent magnet brushless D.C. motors.	K4	PO:1,2,3,4,7 PSO:1

CO314.5	To impart knowledge on the Construction, principle of operation and performance of permanent magnet synchronous motors.	K2	PO:1,2,3,4,7 PSO:1
	K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 – Create		

EE8711 Power System Simulation Laboratory

After successful completion of the course, the students should be able to

Course Outcome		Highest Cognitive level	Mapped PO & PSO
CO 407.1	Study The power system planning and operational studies.	K2	PO:1,2,3,4, PSO:1,2,3
CO 407.2	Simulate the power flow using GS and NR method	K3	PO:1,2,3,4, PSO:1,2,3
CO 407.3	Compute The Symmetric and Unsymmetrical fault	K3	PO:1,2,3,4, PSO:1,2,3
CO 407.4	Analyse The Concept Of economic dispatch.	K3	PO:1,2,3,4, PSO:1,2,3
CO407.5	Exhibit ethical principles in engineering practices	A3	PO:1,2,3,4, PSO:1,2,3
CO407.6	Perform task as an individual and / or team member to manage the task in time	A3	PO:1,2,3,4, PSO:1,2,3
K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 – Create ;A1-Receiving, A2-Responding, A3-Valuing			

EE8712 RENEWABLE ENERGY SYSTEMS LABORATORY

After successful completion of the course, the students should be able to

Course Outcome		Highest Cognitive level	Mapped PO & PSO
CO 408.1	Understand the Solar PV Systems and Wind systems.	K2	PO:1,2,3,4, PSO:1,2,3
CO 408.2	Analyse The Renewable Energy Sources And Technologies	K3	PO:1,2,3,4, PSO:1,2,3
CO 408.3	Asses The Performance Of Grid Connected And Standalone Systems	K3	PO:1,2,3,4, PSO:1,2,3
CO 408.4	Simulate The Various Renewable Energy Sources	K3	PO:1,2,3,4, PSO:1,2,3
CO408.5	Study The Basics Of Intelligent Controllers	K2	PO:1,2,3,4, PSO:1,2,3
CO408.6	Express the Engineering activities with effective presentation and report.	A3	PO:1,2,3,4, PSO:1,2,3
CO408.7	Interpret the findings with appropriate technological / research citation.	A2	PO:1,2,3,4, PSO:1,2,3
K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 – Create			
A1-Receiving, A2-Responding, A3-Valuing			

SEMESTER VIII

GE8076 Professional Ethics in Engineering

After successful completion of the course, the students should be able to

Course Outcome		Highest Cognitive level	Mapped PO & PSO
CO 411.1	Understand the awareness on engineering ethics and human values	K2	PO:1,2,12 PSO:1
CO 411.2	Instil moral and social values and loyalty to the society	K3	PO:1,12 PSO:1
CO 411.3	Able to appreciate the rights of others	K3	PO:1,2,12 PSO:1
CO 411.4	Know the responsible experimenters and knowledge on balance outlook on law	K4	PO:1,2,12 PSO:1
CO 411.5	Understand the safety, responsibilities and rights	K3	PO:1,2,12 PSO:1
K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 – Create			

EE8017 High Voltage Direct Current Transmission

After successful completion of the course, the students should be able to

Course Outcomes		Highest Cognitive Level	Mapped PO & PSO
CO 412.1	Develop the knowledge of HVDC transmission and the applicability and advantage of HVDC transmission over conventional AC transmission and review the existing HVDC systems along with MTDC systems	K3	PO:1,2,12 PSO:1
C O412.2	Analyze various types of converters and their	K3	PO:1

	working.		PSO:1
C O412.3	Formulate and solve mathematical problems related to rectifier and inverter control methods and learn about different control schemes as well as starting and stopping of DC links.	K4	PO:1,2,12 PSO:1
CO 412.4	Develop harmonic models and use the knowledge of circuit theory to develop filters and assess the requirement and type of protection for the filters.	K3	PO:1,2,12 PSO:1,2,3
C O 412.5	Analyze the power flow analysis in AC/DC systems	K3	PO:1,2,12 PSO:1,2,3
K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 – Create			

EE8811- Project Work

After successful completion of the course, the students should be able to

COs	Course Outcome	Highest Cognitive Level	Mapped PO & PSO
C O 413.1	Identify and apply the real world and societal importance problems in the Electrical and its allied area.	K1	PO:1,2,5,6,10,12 PSO:1,2,3
C O 413.2	Apply modern engineering tools for solution	K3	PO:1,2,10,12 PSO:1,2,3
C O 413.3	Identify, analyze, design, implement and handle prototype projects with a complete and organized solution methodologies	K6	PO:1,2,10,12 PSO:1,2,3
C O 413.4	Exhibit ethical principles in engineering practices	A3	PO:1,2,12 PSO:1,2,3
C O 413.5	Perform task as an individual and / or team member to manage the task in time	A3	PO:1,2 PSO:1,2,3
C O 413.6	Express the Engineering activities with effective presentation and report.	A3	PO:1,2 PSO:1,2,3

C O 413.7	Interpret the findings with appropriate technological / research citation.	A2	PO:1,2 PSO:1,2,3
K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 – Create A1-Receiving, A2-Responding, A3-Valuing			