



SRI BHARATHI ENGINEERING COLLEGE FOR WOMEN

(Approved by AICTE, Affiliated to Anna University, Chennai, India)

Kaikkurichi, Pudukkottai – 622 303

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING REGULATION 2013 COURSE OUTCOMES (CO)

I SEMESTER

HS6151- TECHNICAL ENGLISH-I

Students will be able to

CO1	Apply the collaborative and social aspects of research and writing processes.
CO2	Comprehend that research and writing is a series of tasks, including accessing, retrieving, evaluating, analyzing and synthesizing appropriate data and information from sources that vary in content, format, structure and scope.
CO3	Use appropriate technologies to organize, present and communicate information to address a range of audiences, purposes and genres.
CO4	Design the multidisciplinary settings to manage projects as an individual, as a member or leader after taking the exercises like role-play, group discussion and making presentations.
CO5	Model the life-long learning methods suitable for all the environments committed to professional ethics and responsibilities after inculcating the habit of reading and writing.
CO6	Analyze and identify the root for effective managerial skills through different spoken discourse and excerpts.

MA6151- MATHEMATICS-I

Students will be able to

CO1	Describe a clear idea of matrix algebra pertaining eigen values and eigen vectors in addition dealing with quadratic forms.
CO2	Learn infinite series and their convergence and acquire the knowledge of with limitations.
CO3	Use infinite series approximations for solutions arising in mathematical modeling.
CO4	Explain and characterize phenomena which evolve around circle of curvature and envelope.
CO5	Extend the function of a one variable to several variables. Multivariable functions of real variables arise inevitable in engineering.
CO6	Expose to double and triple integration so that they can handle integrals of higher order which are applied in engineering field.

PH6151- ENGINEERING PHYSICS-I

Students will be able to

CO1	Classify the Bravais lattices and different types of crystal structures and growth technique.
CO2	Demonstrate the properties of elasticity and heat transfer through objects.
CO3	Explain black body radiation, properties of matter waves and Schrodinger wave equations.
CO4	Describe and analyzing the quantum nature of radiation and matter to solve the real time societal and technological problems.
CO5	Illustrate the acoustic requirements, production and application of ultrasonics.
CO6	Examine the characteristics of laser and optical fiber.



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CY6151- ENGINEERING CHEMISTRY-I

Students will be able to

CO1	Classify the polymers, different polymerization techniques and its uses.
CO2	Describe the laws of thermodynamics, various thermodynamics functions and their significance.
CO3	Explain the photo physical processes and the components of analytical instruments.
CO4	Illustrate the phase diagrams, alloys and heat treatment processes
CO5	Discuss the synthesis, characteristics and the applications of nano materials.
CO6	Create the knowledge of nonmaterial's and their applications in fields like medicinal, electrical, electronic, chemical, etc.

GE6151- COMPUTER PROGRAMMING

Students will be able to

CO1	Explain the basic organization of computers, the number systems and write the pseudo code for algorithms and flow chart.
CO2	Develop 'C' programming fundamentals, looping statements and solve problems.
CO3	Design 'C' programs for arrays and strings.
CO4	Use functions with pass by value and reference, pointers in programs.
CO5	Develop coding in 'C' for structures and unions with storage classes and pre-processor.
CO6	Design and execute C programs for simple applications.

GE6152- ENGINEERING GRAPHICS

Students will be able to

CO1	Construct the conic sections and special curves and outline their practical applications and sketch the orthographic views from pictorial views and models.
CO2	Apply the principles of orthographic projections of points in all quadrants, lines and planes in first quadrant.
CO3	Draw the projections of simple solids like prisms, pyramids, cylinder and cone and obtain the traces of plane figures.
CO4	Design the sectional views of solids like cube, prisms, pyramids, cylinders & cones and Development of its lateral surfaces.
CO5	Apply the principles of isometric projection and perspective projection of simple solids and truncated prisms, pyramids, cone and cylinders.
CO6	Build an engineering component using Paper drawing as well as in CAD.

GE6161- COMPUTER PRACTICES LABORATORY

Students will be able to

CO1	Prepare data using MS-word & Excel to visualize graphs, charts in MS-Excel.
CO2	Outline the given problem using flowchart and to program using Switch case & Control structures.
CO3	Develop the code using decision making & looping statements.
CO4	Apply passing parameters using Arrays & Functions.
CO5	Use structure and Union for a given database and to bring out the importance of Unions over structure.
CO6	Design and implement C programs for simple applications.



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COURSE OUTCOMES (CO)

GE6162- ENGINEERING PRACTICES LABORATORY

Students will be able to

CO1	Demonstrate wiring for a simple residential house, identify the ratings of various appliances like Fluorescent tube, incandescent lamp, etc.
CO2	Calculate the different Electrical quantities, measure the energy consumption using single phase energy meter.
CO3	Measure the resistance to earth of an electrical equipment, analyze AC signal parameters using CRO.
CO4	Verify the Truth tables of Logic gates AND, OR, EOR and NOT, generate clock signal using suitable gates.
CO5	Develop soldering in a PCB, measure ripple factor of Half Wave Rectifier and Full Wave Rectifier.
CO6	Provide exposure to the students with hands-on experience on various basic engineering practices in Civil and Mechanical Engineering.

GE6163-PHYSICS AND CHEMISTRY LABORATORY-I

Students will be able to

CO1	To apply the physics principles of Thermal physics and Properties of Matter to evaluate properties of materials.
CO2	Evaluate the wavelength of spectral lines using spectrometer, the wavelength of laser, particle size, acceptance angle of an optical fiber using semiconductor diode laser and the thickness of a thin wire through interference fringes using Air wedge apparatus.
CO3	Appraise the velocity of sound and compressibility of the liquid using ultrasonic interferometer and thermal conductivity for bad conductors using Lee's disc apparatus.
CO4	Determine the DO content in water sample by winkler's method and molecular weight of polymer by Ostwald viscometer.
CO5	Find the strength of an acid using pH meter and conductometer.
CO6	Estimate the amount of weak and strong acids in a mixture by conductometer.

II SEMESTER

HS6251-TECHNICAL ENGLISH-II

Students will be able to

CO1	Speak clearly, confidently, comprehensibly, and communicate with one or many listeners using appropriate communicative strategies.
CO2	Define the impact of the professional engineering solution in societal and environmental contexts with the help of the basic grammar taught to communicate effectively and confidently.
CO3	Write cohesively and coherently and flawlessly avoiding grammatical errors, using a wide vocabulary range, organizing their ideas logically on a topic.
CO4	Read different genres of texts adopting various reading strategies.
CO5	Listen/view and comprehend different spoken discourses/excerpts in different accents.
CO6	Recognize, understand, and analyze the context within which language, information, and knowledge are produced, managed, organized, and disseminated.



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PH6251-ENGINEERING PHYSICS - II

Students will be able to

CO1	Illustrate classical and quantum free electron theory and calculate carrier concentration in metals.
CO2	Describe the carrier concentration in semi conductors and identify the p-type and n-type semi conductor using hall effect.
CO3	Illustrate the special material properties such as magnetism.
CO4	Discuss the super conductivity.
CO5	Explain the dielectrics, types of polarization, losses and breakdown
CO6	Discuss the properties, preparation and applications of metallic alloys, SMA, nano materials, NLO, Bio-materials.

MA6251-MATHEMATICS-II

Students will be able to

CO1	Solve ordinary differential equations that model most of the engineering problems.
CO2	Acquaint the concepts of vector calculus-like Gradient, Divergence, Curl, Directional derivative, Irrotational vector and Solenoidal vector.
CO3	Make to appreciate the purpose of using transforms to create new domain in which it is easier to handle the problem that is being investigated.
CO4	Develop an Explaining of the standard techniques of complex variable and mapping so as to enable the student to apply them with confidence, in application areas such as heat conduction, elasticity, fluid dynamics and flow of electric current.
CO5	Expose to the concept of Cauchy's integral theorem, Taylor, Laurent expansions and Singular points.
CO6	Use Application of residue theorem to evaluate complex integrals.

CY6251-ENGINEERING CHEMISTRY-II

Students will be able to

CO1	Explain the problems of using hard water in boilers and the methods of treatment of water for boiler use.
CO2	Design the electrochemical cells and to identify the types of corrosion and the methods of preventing.
CO3	Illustrate the methods of harnessing energy from non-conventional energy sources.
CO4	Classify various engineering materials and their importance.
CO5	Relate the significance of solid, liquid and gaseous fuels and to calculate the calorific values of fuels and the requirement of air for combustion in furnaces.
CO6	Analyze issues related to fuels and their synthesis and able to understand working of IC and diesel engines.

GE6251-BASIC CIVIL AND MECHANICAL ENGINEERING

Students will be able to

CO1	Explain the working principles of various power plants and differentiate the pumps and turbines.
CO2	State the functions of IC engine and classify the various types of boilers.
CO3	Apply the principles of vapour absorption and compression systems and Explain the



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COURSE OUTCOMES (CO)

	Operation of air conditioner.
CO4	Summarize the principles of surveying and use various measurements for surveying.
CO5	Discuss about various engineering materials and levelling instruments.
CO6	Classify the types of bridges, foundation, floorings, roofs, plasters and R.C.C structural members and state the purpose of dam.

EE6201- CIRCUIT THEORY

Students will be able to

CO1	Apply Kirchoff's current and voltage law to simple circuits and Solve complex circuits using Mesh & Nodal Methods.
CO2	Apply Network theorems to solve simple and complex linear circuits.
CO3	Solve the Series and Parallel resonance circuit and analyze the performance of single & double tuned circuits.
CO4	Develop the Transient response of RLC circuits using Laplace Transform.
CO5	Explain the characteristics of two port networks.
CO6	Discuss three phase balanced and unbalanced star, delta network.

GE6262- PHYSICS AND CHEMISTRY LABORATORY

Students will be able to

CO1	Appraise the Young's modulus of the beam by uniform and non uniform bending method, the moment of inertia and Rigidity Modulus for thin wire using Torsion Pendulum.
CO2	Use Poiseuille's method for determining the coefficient of viscosity of the liquid
CO3	Estimate the refractive index of spectral lines for determining the dispersive power of a prism circuit.
CO4	Determine the type, amount of alkalinity, hardness in a given water sample.
CO5	Evaluate the amount of copper using EDTA method.
CO6	Examine the potentiometric redox titration and Conductometric precipitation titration.

GE6263- COMPUTER PROGRAMMING LABORATORY

Students will be able to

CO1	Explain UNIX Operating system and usage of file system.
CO2	Apply Shell Commands for a given task using filter and pipe commands.
CO3	Develop and implement the Shell scripts in VI editor.
CO4	Develop and Execute C Program on Unix environment.
CO5	Apply File handling in C to copy, merge and display the given file.
CO6	Design C program for problems.

EE6211- ELECTRIC CIRCUITS LABORATORY

Students will be able to



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COURSE OUTCOMES (CO)

CO1	Apply KCL, KVL and Network Theorems to Simple and Complex circuits.
CO2	Demonstrate the working of CRO and Determine the Time Constant of RC circuit.
CO3	Determine frequency response of RLC circuits and Use MATLAB to simulate series, parallel resonant circuit, low pass, high pass filter.
CO4	Use MATLAB to simulate three phase balanced, unbalanced circuit.
CO5	Measure the power in three phase circuits by two wattmeter methods.
CO6	Determine h-parameters of Two port networks and Calibrate single phase energy meter.

III SEMESTER

MA6351- TRANSFORMS AND PARTIAL DIFFERENTIAL EQUATIONS

Students will be able to

CO1	Explain about the basic concepts of PDE for solving standard partial differential equations.
CO2	Demonstrates the Fourier series analysis which is central to many applications in engineering.
CO3	Describe the applications of partial differential equations.
CO4	Develop an understanding of the Fourier transform techniques used in wide variety of situations.
CO5	Comprehend the effective mathematical tools for the solutions of partial differential equations that model several physical processes.
CO6	Design Z transform techniques for discrete time systems.

EE6301- DIGITAL LOGIC CIRCUITS

Students will be able to

CO1	Comprehend various number systems and simplify the logical expressions using Boolean functions.
CO2	Explain about the combinational circuits
CO3	Compute simulation using software package.
CO4	Design various synchronous sequential circuits.
CO5	Describe the asynchronous sequential circuits and PLDs.
CO6	Demonstrate the concepts of VHDL and its simulation.

EE6302- ELECTROMAGNETIC THEORY

Students will be able to

CO1	Comprehend the basic mathematical concepts related to electromagnetic vector fields.
CO2	Explain the basic concepts about electrostatic fields, electrical potential, energy density and their applications.
CO3	Discuss about the magneto static fields, magnetic flux density, vector potential and its applications.
CO4	Describe the different methods of emf generation and Maxwell's equations.
CO5	Illustrate about the concepts of electromagnetic waves and Pointing vector.
CO6	Demonstrate the types of waves and characterizing parameter



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GE6351- ENVIRONMENTAL SCIENCE AND ENGINEERING

Students will be able to

CO1	Implement and discuss about the scientific, technological, economic and political solutions to environmental problems.
CO2	Comprehend the interrelationship between living organism and environment.
CO3	Describe about the importance of environment by assessing its impact on the human world: envision the surrounding environment, its functions and its value.
CO4	Explain the dynamic processes and the features of the earth's interior and surface.
CO5	Discuss about the integrated themes and biodiversity, natural resources.
CO6	Demonstrate the concept of pollution control and waste management.

EC6202- ELECTRON DEVICES AND CIRCUITS

Students will be able to

CO1	Comprehend the structure of basic electronic devices.
CO2	Explain about the half wave and full wave rectifiers.
CO3	Describe the operation and applications of transistor like BJT and FET.
CO4	Illustrate the characteristics of BJT and MOSFET based amplifier and its frequency response.
CO5	Demonstrate the characteristics of multi stage amplifier and differential amplifier.
CO6	Discuss on design and analysis of feedback amplifiers and oscillators.

EE6303- LINEAR INTEGRATED CIRCUITS AND APPLICATIONS

Students will be able to

CO1	Explain the concept of the IC fabrication procedure.
CO2	Describe about the characteristics; realize circuits; design for signal analysis using Op-amp. ICs.
CO3	Define the applications of Op-amp.
CO4	Illustrate the internal functional blocks and the applications of special ICs like Timers, PLL circuits.
CO5	Comprehend about the regulator Circuits, ADCs.
CO6	Discuss the application of ICs.

EC6361- ELECTRONICS LABORATORY

Students will be able to

CO1	Describe about the characteristics of Semiconductor diode and Zener diode and NPN Transistor.
CO2	Discuss the characteristics of JFET and UJT and draw the equivalent circuit and generation of saw tooth waveforms.



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COURSE OUTCOMES (CO)

CO3	Demonstrate about the characteristics of photo diode & photo transistor, light activated relay circuit.
CO4	Design the RC phase shift and LC oscillators.
CO5	Explain on the Single Phase half-wave and full wave rectifiers and passive filters.
CO6	Comprehend on the Differential amplifiers using FET and CRO.

EE6311- LINEAR AND DIGITAL INTEGRATED CIRCUITS LABORATORY

Students will be able to

CO1	Implement the Boolean Functions, Adder/ Subtractor circuits and code converters.
CO2	Discuss about the Parity generator and parity checking and Encoders and Decoders.
CO3	Design and implement the counter and Shift Registers.
CO4	Explain about the multiplexer and de-multiplexer and Timer IC application.
CO5	Comprehend the Application of Op-Amp.
CO6	Describe about the VCO and PLL ICs.

IV SEMESTER

MA6459- NUMERICAL METHODS

Students will be able to

CO1	Comprehend the basic concepts of solving algebraic and transcendental equations.
CO2	Discuss the numerical techniques of interpolation in various intervals in real life situations.
CO3	Explain the numerical techniques of differentiation.
CO4	Develop an understanding of the integration which plays an important role in engineering and technology disciplines.
CO5	Discuss about the various techniques and methods of solving ordinary differential equations.
CO6	Comprehend the knowledge of various techniques and methods of solving various types of partial differential equations.

EE6401- ELECTRICAL MACHINES – I

Students will be able to

CO1	Comprehend the techniques of magnetic-circuit analysis and magnetic materials.
CO2	Explain about the constructional, the principle of operation and testing of single and three phase transformers.
CO3	Describe about the working principles of electrical machines using the concepts of electromechanical energy conversion principles.
CO4	Design the expressions for generated voltage and torque developed in all Electrical Machines.
CO5	Demonstrate the working of DC machines as Generator types, no- load/load characteristics, starting and methods of speed control of motors.
CO6	Estimate the various losses taking place in D.C. Motor and the different testing methods.



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COURSE OUTCOMES (CO)

CS6456- OBJECT ORIENTED PROGRAMMING

Students will be able to

CO1	Summarize the basic knowledge on Object Oriented concepts.
CO2	Describe the characteristics of object oriented programming through C++.
CO3	Demonstrate on the implementation features of object oriented programming to solve real world problems.
CO4	Discuss the overview of Java.
CO5	Explain about the Packages and Interfaces, Exception handling.
CO6	Comprehend on the Multithreaded programming, Strings, Input/Output.

EE6402- TRANSMISSION AND DISTRIBUTION

Students will be able to

CO1	Develop expressions for the computation of transmission line parameters.
CO2	Explain the equivalent circuits for the transmission lines based on distance and compute operating voltage for determining voltage regulation and efficiency.
CO3	Discuss the method to improve the voltage profile of the transmission system.
CO4	Analyses the voltage distribution in insulator strings and cables and methods to improve the same.
CO5	Describe the operation of the different distribution schemes.
CO6	Comprehend Mechanical design of lines and Grounding.

EE6403- DISCRETE TIME SYSTEMS AND SIGNAL PROCESSING

Students will be able to

CO1	Comprehend on classification of signals and systems & their mathematical representation.
CO2	Analyze the discrete time systems.
CO3	Describe about the various transformation techniques & their computation.
CO4	Illustrate about filters and their design for digital implementation.
CO5	Demonstrate about a programmable digital signal processor.
CO6	Explain the quantization effects.

EE6404- MEASUREMENTS AND INSTRUMENTATION

Students will be able to

CO1	Explain about the basic functional elements of instrumentation.
CO2	Discuss the fundamentals of electrical and electronic instruments.
CO3	Compare between various measurement techniques.
CO4	Discuss on the various storage and display devices.
CO5	Describe on the various transducers.
CO6	Demonstrate about the data acquisition systems.

CS6461- OBJECT ORIENTED PROGRAMMING LABORATORY

Students will be able to

CO1	Explain the object-oriented concepts through C++ & JAVA.
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COURSE OUTCOMES (CO)

CO2	Implement C++programme using functions and simple classes for understanding objects, member functions & constructors.
CO3	Compute C++ on compile time and run time polymorphism.
CO4	Execute simple java applications and simple package creation in Java.
CO5	Discuss on the interfaces and threading in Java.
CO6	Comprehend on the exception handling mechanism in java.

EE6411- ELECTRICAL MACHINES LABORATORY - I

Students will be able to

CO1	Comprehend on the open circuit and load characteristics of DC shunt generator and DC compound generator.
CO2	Explain about the Load test on DC shunt, compound motor and series motor.
CO3	Demonstrate the speed control of DC shunt motor and Hopkinson's test on DC motor – generator set.
CO4	Design and implement Load test and Open circuit and short circuit tests on single-phase transformer and three phase transformers.
CO5	Describe on the separation of no-load losses in single phase transformer.
CO6	Discuss about starters and 3-phase transformers connections.

V SEMESTER

EE6501- POWER SYSTEM ANALYSIS

Students will be able to

CO1	Design the power system under steady state operating condition.
CO2	Explain and apply iterative techniques for power flow analysis.
CO3	Describes on Fault analysis concepts on Balanced faults.
CO4	Discuss about Fault analysis concepts on Unbalanced faults.
CO5	Comprehend the importance of stability analysis in power system planning and operation.
CO6	Describe about the Single Machine Infinite Bus (SMIB) system.

EE6502- MICROPROCESSORS AND MICROCONTROLLERS

Students will be able to

CO1	Explain the Architecture of 8085 & 8051.
CO2	Describe the addressing modes & instruction set of 8085 & 8051.
CO3	Discuss the need & use of Interrupt structure 8085 & 8051.
CO4	Develop skill in simple applications development with programming 8085 & 8051
CO5	Explain about the commonly used peripheral / interfacing.
CO6	Develop the Microcontroller programming and applications.

ME6701-POWER PLANT ENGINEERING

Students will be able to

CO1	Explain the layout, construction and working of the components inside a thermal power plant.
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COURSE OUTCOMES (CO)

CO2	Describe about the layout, construction and working of the components inside a Diesel, Gas and Combined cycle power plants.
CO3	Demonstrate the layout, construction and working of the components inside nuclear power plants.
CO4	Illustrate the layout, construction and working of the components inside Renewableenergy power plants.
CO5	Discuss on the power plant economics and environmental hazards and estimate the costs of electrical energy production.
CO6	Comprehend on the applications of power plants.

EE6503- POWER ELECTRONICS

Students will be able to

CO1	Discuss on the different types of power semiconductor devices and their switching.
CO2	Explain about Operation, characteristics and performance parameters of controlled rectifiers.
CO3	Describe about Operation, switching techniques and basics topologies of DC-DC switching regulators.
CO4	Comprehend about Operation of AC voltage controller and various configurations.
CO5	Demonstrate the different modulation techniques of pulse width modulated inverters and to comprehend harmonic reduction methods.
CO6	Explain on the converters for real time applications.

EE6504-ELECTRICAL MACHINES - II

Students will be able to

CO1	Comprehend the construction and performance of salient and non salient type synchronous generators.
CO2	Explain about Principle of operation and performance of synchronous motor.
CO3	Describe about the construction, principle of operation and performance of induction machines.
CO4	Comprehend about the Starting and speed control of three-phase induction motors.
CO5	Demonstrate the construction, principle of operation and performance of single phase induction motor.
CO6	Illustrate on construction, principle of operation Special machines.

IC6501-CONTROL SYSTEMS

Students will be able to

CO1	Explain the use of transfer function models for analysis physical systems and introduce the control system components.
CO2	Comprehend the time response of systems and steady state error analysis.
CO3	Discuss about the open loop and closed-loop frequency responses of systems.
CO4	Describe about the stability analysis and design of compensators.
CO5	Demonstrate about the variable representation of physical systems.
CO6	Explain about the effect of state feedback in control system.



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COURSE OUTCOMES (CO)

EE6511- CONTROL AND INSTRUMENTATION LABORATORY

Students will be able to

CO1	Explain the control theory and apply them to electrical engineering problems.
CO2	Analyse the various types of converters.
CO3	Design the various types of compensators.
CO4	Illustrate the basic concepts of bridge networks.
CO5	Demonstrate the basics of signal conditioning circuits.
CO6	Compute the simulation packages.

GE6674- COMMUNICATION AND SOFT SKILLS LABORATORY

Students will be able to

CO1	Explain about the corporate etiquette -organizing and managing professional events and will comprehend how reading will enhances their communicative competency.
CO2	Discuss to make effective communication and presentations.
CO3	Develop adequate soft skills required for the workplace.
CO4	Discuss about the equipment with Business correspondence.
CO5	Develop all around personalities with a mature outlook to function effectively in different circumstances.
CO6	Develop their confidence and help the attend interviews successfully.

EE6512-ELECTRICAL MACHINES LABORATORY - II

Students will be able to

CO1	Discuss and analyze EMF and MMF methods.
CO2	Analyze the characteristics of V and Inverted V curves.
CO3	Demonstrate about the importance of Synchronous machines.
CO4	Explain about performance of the load test on single and three-phase induction motor.
CO5	Describe on the importance of Induction Machines.
CO6	Comprehend on the separation of losses on induction motor.

VI SEMESTER

EC6651-COMMUNICATION ENGINEERING

Students will be able to

CO1	Comprehend the different methods of analog communication and their significance.
CO2	Explain about the Digital Communication methods for high bit rate transmission.
CO3	Describe about the Concepts of source and line coding techniques for enhancing rating of transmission of minimizing the errors in transmission.
CO4	Discuss about the MAC used in communication systems for enhancing the number of users.
CO5	Explain the various media for digital communication.
CO6	Discuss and analyse, linear and digital electronic circuits



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COURSE OUTCOMES (CO)

EE6601- SOLID STATE DRIVES

Students will be able to

CO1	Describe about the steady state operation and transient dynamics of a motor load system.
CO2	Comprehend and analyze the operation of the converter/chopper fed dc drive, both qualitatively and quantitatively.
CO3	Explain the operation and performance of Induction motor drives.
CO4	Comprehend the operation and performance of Synchronous motor drives.
CO5	Analyze and design the current and speed controllers for a closed loop solid state DC motor drive.
CO6	Explain and apply basic science, circuit theory, Electro-magnetic field theory control theory and apply them to electrical engineering problems.

EE6602- EMBEDDED SYSTEMS

Students will be able to

CO1	Explain and analyze Embedded systems.
CO2	Discuss about the suggestion of suitable embedded system for a given application.
CO3	Comprehend about the operation on various Embedded Development Strategies.
CO4	Summarize the bus Communication in processors.
CO5	Describe on various processor scheduling algorithms.
CO6	Demonstrate basics of Real time operating system.

EE6603-POWER SYSTEM OPERATION AND CONTROL

Students will be able to

CO1	Explain about the overview of power system operation and control.
CO2	Design power-frequency dynamics and to design power-frequency controller.
CO3	Discuss about modeling of reactive power-voltage interaction and the control actions to be implemented for maintaining the voltage profile against varying system load.
CO4	Explain about the economic operation of power system.
CO5	Describe about the SCADA and its application for real time operation and control of power systems.
CO6	Comprehend and analyze power system operation, stability, control and protection.

EE6604-DESIGN OF ELECTRICAL MACHINES

Students will be able to

CO1	Explain about the mmf calculation and thermal rating of various types of electrical machines.
CO2	Design armature and field systems for D.C. machines.
CO3	Design the core, yoke, windings and cooling systems of transformers.
CO4	Discuss about the sketching of the design of stator and rotor of induction machines.
CO5	Describe about the stator and rotor of synchronous machines and their thermal behavior.



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REGULATION 2013

COURSE OUTCOMES (CO)

CO6	Design and analyze electrical apparatus and their application to power system.
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EE6002-POWER SYSTEM TRANSIENTS

Students will be able to

CO1	Discuss about the importance of the study of transients and the causes for transients.
CO2	Explain the generation of switching transients and their control using circuit – theoretical concept.
CO3	Comprehend the mechanism of lighting strokes and the production of lighting surges.
CO4	Illustrate about the propagation, reflection and refraction of travelling waves.
CO5	Explain the impact of voltage transients caused by faults, circuit breaker action, load rejection on integrated power system.
CO6	Describe and analyze power system operation, stability, control and protection.

EE6611- POWER ELECTRONICS AND DRIVES LABORATORY

Students will be able to

CO1	Explain the converter and inverter circuits and apply software for engineering problems.
CO2	Experiment about switching characteristics of the various switches.
CO3	Analyse about AC to DC converter circuits.
CO4	Illustrate about DC to AC circuits.
CO5	Comprehend on AC to AC converters.
CO6	Discuss on the simulation software.

EE6612-MICROPROCESSORS AND MICROCONTROLLERS LABORATORY

Students will be able to

CO1	Explain about programming microprocessors and microcontrollers and explain the requirements.
CO2	Execute program with Simulators/Emulators/open source.
CO3	Demonstrate the basic instructions with 8051 Micro controller execution.
CO4	Discuss about the interface with A/D & D/A and with DC & AC motor.
CO5	Explain and analyse, linear and digital electronic circuits.
CO6	Describe and apply computing platform and software for engineering problems.

EE6613- PRESENTATION SKILLS AND TECHNICAL SEMINAR

Students will be able to

CO1	Explain about the advanced industrial engineering developments.
CO2	Discuss about the various teaching aids such as overhead projectors, power point presentation and demonstrative models.
CO3	Identify and compare technical and practical issues related to the area of seminar.
CO4	Describe about the preparation of a well organized report employing the elements of technical writing and critical thinking.
CO5	Demonstrate on preparation and presentation of technical reports.
CO6	Explain about facing of the placement interviews with confidence.



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VII SEMESTER

EE6701-HIGH VOLTAGE ENGINEERING

Students will be able to

CO1	Comprehend the Transients in power system.
CO2	Illustrate about the Generation and measurement of high voltage.
CO3	Discuss about the High voltage testing.
CO4	Describe about the various types of over voltages in power system.
CO5	Demonstrate the measurement of over voltages.
CO6	Explain about the testing of power apparatus and insulation coordination.

EE6702-PROTECTION AND SWITCHGEAR

Students will be able to

CO1	Explain about the causes of abnormal operating conditions (faults, lightning and switching surges) of the apparatus and system.
CO2	Discuss about the characteristics and functions of relays and protection schemes.
CO3	Discuss on the apparatus protection.
CO4	Describe on static and numerical relays.
CO5	Demonstrate about the function of circuit breakers.
CO6	Comprehend and analyze power system operation, stability, control and protection.

EE6703-SPECIAL ELECTRICAL MACHINES

Students will be able to

CO1	Comprehend on construction, principle of operation and performance of synchronous reluctance motors.
CO2	Demonstrate on construction, principle of operation, control and performance of stepping motors.
CO3	Discuss the construction, principle of operation, control and performance of switched reluctance motors.
CO4	Explain the Construction, principle of operation and performance of permanent magnet synchronous motors.
CO5	Describe about the construction, principle of operation and performance of permanent magnet synchronous motors.
CO6	Design and analyze electrical apparatus and their application to power system.

MG6851-PRINCIPLES OF MANAGEMENT

Students will be able to

CO1	Explain about the basic concepts of management and organizations and evolution of it.
CO2	Discuss about the purpose of planning, planning tools and techniques.
CO3	Describe about nature and purpose of organizing and its type.
CO4	Demonstrate on foundations of individual and group behavior and directing.
CO5	Illustrate about the system and process of controlling.



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COURSE OUTCOMES (CO)

CO6	Comprehend on the evolution of Management, to study the functions and principles of management and to learn the application of the principles in an organization.
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EE6004-Flexible AC Transmission Systems

Students will be able to

CO1	Explain about the reactive power control techniques.
CO2	Describe about the static VAR compensators and their applications.
CO3	Discuss on Thyristor controlled series capacitors.
CO4	Illustrate on STATCOM devices.
CO5	Explain about the concepts of FACTS controllers.
CO6	Comprehend and analyze power system operation, stability, control and protection.

EE6008-MICROCONTROLLER BASED SYSTEM DESIGN

Students will be able to

CO1	Explain about the architecture of PIC microcontroller.
CO2	Discuss about the use of interrupts and timers.
CO3	Demonstrate on the peripheral devices for data communication and transfer.
CO4	Illustrate about the functional blocks of ARM processor.
CO5	Comprehend on the architecture of ARM processors.
CO6	Discuss and apply computing platform and software for engineering problems.

EE6711-POWER SYSTEM SIMULATION LABORATORY

Students will be able to

CO1	Explain about the power system analysis through digital simulation.
CO2	Discuss on Formation of Bus Admittance and Impedance Matrices and Solution of Networks.
CO3	Compute the Parameters and Modelling of Transmission Lines.
CO4	Analyze the fault and load flow.
CO5	Comprehend about the economic dispatch and analyze the electromagnetic transients.
CO6	Describe about the transient stability analysis of Single-Machine Infinite Bus System and the Multi machine Power Systems.

EE6712-COMPREHENSION

Students will be able to

CO1	Describe the basic concepts of electrical and electronics subjects.
CO2	Solve objective type questions in the field of electrical and electronics engineering
CO3	Review, prepare and present technological developments
CO4	Analyze the modern trends in the field of electrical and electronics engineering.
CO5	Answer effectively during technical interviews.
CO6	Participate in group discussion.



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COURSE OUTCOMES (CO)

VIII SEMESTER

EE6801-ELECTRIC ENERGY GENERATION, UTILIZATION AND CONSERVATION

Students will be able to

CO1	Analyze the various concepts behind renewable energy resources.
CO2	Clarify about the energy saving concept by different ways of illumination.
CO3	Illustrate about the different methods of electric heating and electric welding.
CO4	Explain about Solar Radiation and Solar Energy Collectors.
CO5	Describe the concepts of Wind Energy and its utilization.
CO6	Discuss about the handling of the engineering aspects of electrical energy generation and utilization.

EE6009-Power Electronics for Renewable Energy Systems

Students will be able to

CO1	Discuss about the stand alone and grid connected renewable energy systems.
CO2	Explain about the equipment of required skills to derive the criteria for the design of power converters for renewable energy applications.
CO3	Analyze and comprehend the various operating modes of wind electrical generators and solar energy systems.
CO4	Design different power converters namely AC to DC, DC to DC and AC to AC converters for renewable energy systems.
CO5	Develop maximum power point tracking algorithms.
CO6	Comprehend and analyze power system operation, stability, control and protection.

GE6075-PROFESSIONAL ETHICS IN ENGINEERING

Students will be able to

CO1	Describe about Human Values, Moral values and integrity.
CO2	Explain about variety of moral issues, types of inquiry and Moral dilemmas and Moral Autonomy.
CO3	Discuss about Engineering as social experimentation.
CO4	Explain about the Safety and responsibility, rights of engineers in society.
CO5	Comprehend about the Global issues in the society.
CO6	Demonstrate on applying ethics in society, discuss the ethical issues related to engineering and realize the responsibilities and rights in the society.

EE6811- PROJECT WORK

Students will be able to

CO1	Discuss about the current real life Industrial exposure.
CO2	Develop the ability to solve a specific problem right from its identification and literature review till the successful solution of the same.
CO3	Explain about the preparation of project reports and to face reviews and viva voce examination.
CO4	Discuss about the acquiring of their own innovative proto type of ideas.
CO5	Describe about the communication and report effectively project related activities and findings.
CO6	Demonstrate about the working as individual or in a team in development of technical projects.