PSN COLLEGE OF ENGINEERING AND TECHNOLOGY

(An Autonomous Institution Affiliated to Anna University, Chennai)

Melathediyoor, Tirunelveli - 627 152

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEEING

COURSE OUTCOMES

Regulation 2018

Course Name: (501001/TECHNICAL ENGLISH)	
CO	**COURSE OUTCOMES**
CO1	Write cohesively and coherently and flawlessly avoiding grammatical errors
CO2	Listen/view and comprehend different Spoken discourses/excerpts in different accents
CO3	Communicate with one or many listeners' using appropriate communicative strategies
CO4	Read different genres of texts adopting various reading strategies
CO5	Enable writing skills to write comprehend passages, report and paragraph.
Course Name: (501002/ELEMENTARY MATHEMATICS FOR ENGINEERS)	
CO	**COURSE OUTCOMES**
CO1	Find the Eigen values and Eigen vectors by matrix methods
CO2	Understand different types of sequences of series and their convergence.
CO3	Know the concepts of differentiation and integration and applications of indefinite integral.
CO4	Form and solve the inequalities by LPP and solve transportation problems.
CO5	Understand the concepts of three dimension and form the equations of tangent plane, cone.
Course Name: (501003/APPLIED PHYSICS I)	
CO	**COURSE OUTCOMES**
CO1	Understand the properties of different types of metals
CO2	Gain knowledge about conductivity of different types of materials
CO3	Study about magnetism property of the materials
CO4	Know the applications of sound waves in engineering & medicine
CO5	Understand the application of laser in engineering & medicine
Course Name: (501004/ APPLIED CHEMISTRY I)	
CO	**COURSE OUTCOMES**
CO1	Do water Treatment for domestic & industrial purpose
CO2	Study different kinds of advanced materials and their applications
CO3	Study different kinds of polymers & their applications
CO4	Basics of thermo dynamics and its concept
CO5	Familiar with name materials & their applications in different fields
Course Name: (501005/ ENGINEERING GRAPHICS)	
CO	**COURSE OUTCOMES**

CO1	Perform free hand sketching of basic geometrical shapes and multiple views of objects
CO2	Draw orthographic projections of lines, planes and solids
CO3	Obtain development of surfaces
CO4	Prepare isometric and perspective views of simple solids
CO5	Perform free hand sketching of isometric projection
Course Name: (501006/ FUNDAMENTALS OF COMPUTERS AND PYTHON PROGRAMMING)	
CO	**COURSE OUTCOMES**
CO1	Know fundamental knowledge on basics of computers and Number System
CO2	Work on MS-Office
CO3	Write, compile and debug simple programs in Python
CO4	Understand the concept of functions in Python
CO5	Use different Compound data types in Python
Course Name: (501101 / APPLIED PHYSICS & CHEMISTRY LAB - I)	
CO	**COURSE OUTCOMES**
CO1	Gain practical knowledge by applying the experimental methods to correlate with physics and chemistry theory
CO2	Gain working knowledge of fundamental Physics and chemistry
CO3	Apply the design process to engineering application
CO4	Use modern engineering techniques and tools, including software and laboratory instrumentation.
CO5	Gain knowledge about polymerization
Course Name: (501102/ COMPUTER LAB)	
CO	**COURSE OUTCOMES**
CO1	Create and edit their own documents
CO2	Create and edit sheets and presentations
CO3	Understand the functions of Pton
CO4	Write their own programs to solve problems by using Python
CO5	Write a Python script to perform Matrix addition
Course Name: (501103/ WORKSHOP PRACTICE)	
CO	**COURSE OUTCOMES**
CO1	Apply the knowledge of pipeline connections to household fittings and industrial buildings
CO2	Prepare the different joints in roofs, doors, windows and furniture.
CO3	Perform the various welding processes and know about its applications
CO4	Produce a tray and funnel using sheet metal
CO5	Prepare square fitting and “V” fitting
Course Name: (501007/ Business Communication and Presentation Skills)	

CO	COURSE OUTCOMES
CO1	Communicate with one or many listeners' by using effective business communication.
CO2	Create formal reports and proposals cohesively and creatively and flawlessly.
CO3	Understand basic communicative mannerisms, cultural factors and emotional intelligence
CO4	Develop and deliver powerful presentation and confidence in public speaking
CO5	Produce resumes and cover letters
Course Name: (501008/ ENGINEERING MATHEMATICS – I)	
CO	COURSE OUTCOMES
CO1	Find the optimal value o by partial differentiation and to find area and volume by integrals
CO2	Apply Jacobian, divergence, curl in Engineering
CO3	Solve line, path and surface integrals
CO4	Solve ordinary differential equations by various methods
CO5	Distinguish analytic functions and their properties
Course Name: (501009/ APPLIED PHYSICS II)	
CO	COURSE OUTCOMES
CO1	Find the energy of small particle
CO2	Find the structure of different material in different temperature
CO3	Study different types of fiber optics used in communication systems
CO4	Gain knowledge on the thermal properties of different types of materials
CO5	Study the engineering applications of magnetic materials
Course Name: (501010/ APPLIED CHEMISTRY II)	
CO	COURSE OUTCOMES
CO1	Know the Principles & applications of electro chemistry
CO2	Understand about corrosion & its protection techniques
CO3	Gain Knowledge about materials used in energy production
CO4	To study the properties of different kinds of alloys & its application
CO5	Understand various instrumental techniques for sample processing
Course Name: (501011/ ENGINEERING MECHANICS)	
CO	COURSE OUTCOMES
CO1	Illustrate the vectorial and scalar representation of forces and moments
CO2	Evaluate the properties of surfaces and solids
CO3	Analyze the different type of motion
CO4	Determine the friction and the effects by the laws of friction
CO5	Calculate dynamic forces exerted in rigid body
Course Name: (501012/ PROGRAMMING IN C)	
CO	COURSE OUTCOMES

CO1	Have fundamental knowledge on C language
CO2	Design programs involving decision structures, loops and functions
CO3	Define small functions for solving complex applications
CO4	Write, compile and debug programs in C language using Arrays
CO5	Understand the concept of Structure and Union
Course Name: (501013/BASIC ENGINEERING)	
CO	**COURSE OUTCOMES**
CO1	Explain the usage of construction material and proper selection of construction materials and also measure distances and area by surveying
CO2	Understand the basics of Energy Sources and Power Generation
CO3	Acquire the knowledge about various manufacturing processes
CO4	Solve simple circuits and express the concept of fundamentals of circuits
CO5	Express the function of semiconductor devices and develop the truth tables of logic gates
Course Name: (501104/APPLIED PHYSICS & CHEMISTRY LAB II)	
CO	**COURSE OUTCOMES**
CO1	Gain practical knowledge by applying the experimental methods to correlate with physics and chemistry theory
CO2	Apply the various procedures and techniques for the experiments
CO3	Apply the various procedures and techniques for the experiments
CO4	Develop basic communication skills through working in groups in performing the laboratory experiments and by interpreting the results.
CO5	Use the different measuring devices and meters to record the data with precision
Course Name: (501105/C PROGRAMMING LAB)	
CO	**COURSE OUTCOMES**
CO1	Solve simple problems using C' Language
CO2	Execute programs using control statements
CO3	Handle arrays in C' Programs
CO4	Write functions and to solve some complicated problems in C
CO5	Study about the concept of Structures and Unions
Course Name: (501106/BASIC ELECTRICAL AND ELECTRONICS LAB)	
CO	**COURSE OUTCOMES**
CO1	Design House wiring system
CO2	Measure the various Electrical Quantities in a circuit
CO3	Perform the troubleshooting of electrical equipment
CO4	Check the status of Semiconductor devices
CO5	Check the Functioning of Logic Gates

Course Name: (501014/ENGINEERING MATHEMATICS II)	
CO	**COURSE OUTCOMES**
CO1	Find the Fourier series for a function defined on closed interval.
CO2	Formulate and solve PDE of first order
CO3	Formulate and solve PDE of higher order
CO4	Choose an appropriate method to solve complex integration
CO5	Identify problem evaluation techniques in theory of equation
Course Name: (504001/ELECTRIC CIRCUITS AND NETWORKS (PRACTICAL COMPONENT))	
CO	**COURSE OUTCOMES**
CO1	Analyse the complex circuits using mesh current and nodal voltage method
CO2	Solve the complex circuits using network theorems
CO3	Derive the steady state and transient response of RL, RC and RLC circuits
CO4	Illustrate the concept of Resonance and coupled circuits
CO5	Solve the balance and unbalanced load condition in three phase circuits
Course Name: (504002/ELECTRICAL MACHINES –I)	
CO	**COURSE OUTCOMES**
CO1	Recite and describe the basic principles of Electro mechanical Energy Conversion
CO2	Interpret the concept of DC generators and their characteristics
CO3	Discuss the concept of DC motor and their characteristics
CO4	Categorize the methods of testing and speed control of DC motor
CO5	Describe the working of transformer and classify the transformer and also evaluate the efficiency of transformer by solving problems
Course Name: (504003/ELECTROMAGNETIC FIELD THEORY)	
CO	**COURSE OUTCOMES**
CO1	Able to recite and discuss the fundamentals of vector fields
CO2	Able to illustrate the concept of Electric field and solve the problems
CO3	Able to define laws of magnetic field and calculate its parameters
CO4	Able to discuss the behavior of electric and magnetic fields in materials
CO5	Able to derive Maxwell's , Electromagnetic waves equation and illustrate the behavior of electromagnetic waves
Course Name: (504004/ELECTRONICS DEVICES AND CIRCUITS)	
CO	**COURSE OUTCOMES**
CO1	Analyse the characteristics of the p-n junction diodes
CO2	Analyse the characteristics of transistors
CO3	Explain their understanding about the behavior of power control devices

CO4	Explain the functioning of optoelectronic devices
CO5	Design diode based circuits for the given specifications
Course Name: (504005/MEASUREMENTS & INSTRUMENTATION	
CO	**COURSE OUTCOMES**
CO1	Compare different types of instruments-their working principles, advantages and disadvantages.
CO2	Explain the operating principles of various analog meters
CO3	Classify the transformer and compare their performance and also discuss about magnetic measurements
CO4	Identify different Bridge circuits and categorize the uses and summarize their functions
CO5	Identify the transducers, describe their operating principle and discuss about data acquisition system
Course Name: (501801/ ENVIRONMENTAL STUDIES)	
CO	**COURSE OUTCOMES**
CO1	Understand the different environmental systems
CO2	Know about biodiversity
CO3	Understand different environmental pollution
CO4	Study and understand the natural resources
CO5	Understand social issues
Course Name: (504101/ELECTRICAL MACHINES - I LABORATORY)	
CO	**COURSE OUTCOMES**
CO1	Justify the characteristics of various generators depending on their type of field excitation
CO2	Perform the experiment for speed control of different types of DC Motors
CO3	Perform test on Motor-Generator Set
CO4	Demonstrate different types of testing in transformer
CO5	Develop the Simulation Model of dc machines
course name: (504102/ELECTRONIC DEVICES AND CIRCUITS LABORATORY)	
CO	**COURSE OUTCOMES**
CO1	Operate electronic test equipment and hardware/software tools to create transistor based circuits by applying the knowledge on them with an understanding of their limitations and impact on society, environment
CO2	Troubleshoot transistor based circuits by applying the knowledge on them
CO3	Work as part of a team and as individual effectively in designing simple circuits
CO4	Communicate the technical information related to designed electronic circuits by means of oral and written reports
CO5	Follow the safety procedures and ethics in designing simple circuits

Course Name: (504103/Measurements and Instrumentation Laboratory)	
CO	**COURSE OUTCOMES**
CO1	Justify the operating principle and characteristics of various sensors
CO2	Apply the procedure to measure the electrical quantities using measuring instruments
CO3	Determine the electrical parameters using different types of Bridges
CO4	Demonstrate the function of Transducers and wattmeter
CO5	Perform the calibration test for various meters
Course Name: (501109/CAREER SKILL DEVELOPMENT TRAINING – I)	
CO	**COURSE OUTCOMES**
CO1	Acquire knowledge on English Grammar
CO2	Attain knowledge about analytical skills
CO3	Gain knowledge on logical reasoning.
CO4	Facilitate to set their career goals
CO5	Make motivational speeches
Course Name: (501020/ ENGINEERING MATHEMATICS – III)	
CO	**COURSE OUTCOMES**
CO1	Apply Laplace transform in Engineering
CO2	Evaluate the Fourier transform of continuous functions
CO3	Solve difference equation by Z- Transform
CO4	Apply PDE in Engineering
CO5	Understand the concept of logics
Course Name: (504006/ ELECTRICAL MACHINES –II)	
CO	**COURSE OUTCOMES**
CO1	Explain the working principle and characteristics of alternators
CO2	Classify AC motors and describe the characteristics and Tests on Induction motor.
CO3	List the starters and discuss the starting and speed control methods of 3 phase induction motor
CO4	Explain the operating principle and starting methods of Synchronous motor
CO5	List the types and discuss the principle and testing of Single phase induction motor.
Course Name: (504007/ CONTROL SYSTEM (PRACTICAL COMPONENT))	
CO	**COURSE OUTCOMES**
CO1	Develop the transfer function of electrical and Mechanical systems
CO2	Describe about test signal, type, order of system and Analyze the steady state error.
CO3	Analyze the stability of the system using bode plot and polar plot
CO4	Design the compensators and Analyze the stability of systems
CO5	Form the state transition matrix and check the controllability and observability
Course Name: (504008/ TRANSMISSION AND DISTRIBUTION)	

CO	COURSE OUTCOMES
CO1	Explain the fundamentals of transmission system
CO2	Calculate the value of Transmission line parameters
CO3	Design and analyze the performance of Transmission lines
CO4	Discuss the functions of insulators and cables
CO5	Explain the features of Distribution Systems
Course Name: (504009/ CONVENTIONAL AND NON-CONVENTIONAL ENERGY SOURCES)	
CO	**COURSE OUTCOMES**
CO1	Describe the operation of thermal and hydro power plant and its application
CO2	Explain the operation of nuclear and gas power plant and its application
CO3	Explain the function of wind and ocean based power generation and its application
CO4	Discuss the importance and function of solar and geothermal based power generation
CO5	Describe the operation of Biomass and other renewable power generation and its application
COURSE NAME: (504010/ LINEAR INTEGRATED AND DIGITAL LOGIC CIRCUITS)	
CO	**COURSE OUTCOMES**
CO1	Acquire knowledge in IC fabrication procedure
CO2	Understand and acquire knowledge on the Applications of Op-amp
CO3	Understand Functional blocks and the applications of special ICs
CO4	Study various number systems and simplify the logical expressions
CO5	Design combinational and sequential Circuits
Course Name: (504104/ ELECTRICAL MACHINES - II LABORATORY)	
CO	**COURSE OUTCOMES**
CO1	Identify various parts of an electrical machine
CO2	Calculate the equivalent circuit parameters of induction motor
CO3	Conduct experiments on Ac Machines to draw the characteristics
CO4	Determine the regulation of Alternators and compare their performance
CO5	Perform test on synchronous Machine and determine the Direct and quadrature axis reactance
COURSE NAME: (504105/ LINEAR INTEGRATED AND DIGITAL CIRCUITS LABORATORY)	
CO	**COURSE OUTCOMES**
CO1	Understand the integrator and differentiator
CO2	Understand the characteristics of IC 555
CO3	Design and implement 4-bit shift registers
CO4	Design and implement counters using specific counter IC
CO5	Design and implement the Mux and De-Mux
Course Name: (501113/ CAREER SKILL DEVELOPMENT TRAINING – II)	

CO	COURSE OUTCOMES
CO1	Increase their skill of listening, writing and speaking
CO2	Increase their personality development, mannerisms Skill and Attitude
CO3	Increase their interpersonal relationship
CO4	Increase their knowledge of verbal and nonverbal reasoning
CO5	Increase their experience of group discussion and mock interviews
Course Name: (504011/ POWER SYSTEM ANALYSIS)	
CO	**COURSE OUTCOMES**
CO1	Model the power system under steady state operating condition
CO2	Understand and apply iterative techniques for power flow analysis
CO3	Model and carry out short circuit studies on power system
CO4	Acquire knowledge on Fault analysis
CO5	Model and understand various power system components and carry out power flow, short circuit and stability studies
Course Name: (504012/ POWER ELECTRONICS)	
CO	**COURSE OUTCOMES**
CO1	Understand the different types of power semi-conductor devices and their switching characteristics
CO2	Study the operation- characteristics and performance parameters of controlled rectifiers and their real time applications
CO3	Learn the operation- switching techniques, the real time applications and basic topologies of DC-DC switching regulators
CO4	Study the different modulation techniques of pulse width modulated inverters and the harmonic reduction methods and the inverters real time applications
CO5	Attain the knowledge about the operation of AC voltage controller, real time application and Matrix converters
COURSE NAME: (504013/ DESIGN OF ELECTRICAL MACHINES)	
CO	**COURSE OUTCOMES**
CO1	Understand basics of design considerations for rotating and static electrical machines
CO2	Design single and three phase transformer
CO3	Design armature and field of DC machines
CO4	Design stator and rotor of induction motor
CO5	Design and analyze synchronous machines
Course Name: (504014/ OBJECT ORIENTED PROGRAMMING)	
CO	**COURSE OUTCOMES**
CO1	Develop Java programs using OOP principles
CO2	Develop Java programs with the concepts inheritance and interfaces
CO3	Build Java applications using exceptions and I/O streams

CO4	Develop Java applications with threads and generics classes
CO5	Develop interactive Java programs using swings
Course Name: (503015/ DIGITAL SIGNAL PROCESSING)	
CO	**COURSE OUTCOMES**
CO1	Understand about signals and systems
CO2	Perform frequency transforms for the signals
CO3	Design IIR filters
CO4	Design FIR filters
CO5	Design finite word length effects in digital filters
Course Name: (501802/VALUE EDUCATION AND HUMAN RIGHTS)	
CO	**COURSE OUTCOMES**
CO1	Understand duties and responsibilities
CO2	Recognize the salient values for life
CO3	Study about the concept of human rights
CO4	Study the history of human rights and rule of law
CO5	Gain good knowledge about the about the Indian business legislation
Course Name: (504106/ OBJECT ORIENTED PROGRAMMING LABORATORY)	
CO	**COURSE OUTCOMES**
CO1	Gain the basic knowledge on Object Oriented concepts
CO2	Develop applications using Object Oriented Programming Concepts
CO3	Implement features of object oriented programming to solve real world problems
CO4	Learn simple applications of java
CO5	Study exception handling mechanism in java
Course Name: (504107/ POWER ELECTRONICS LABORATORY)	
CO	**COURSE OUTCOMES**
CO1	Attain practical knowledge in the operation of switching devices
CO2	Able to study the characteristics of power electronics devices
CO3	Measure the various waveform of AC-DC half and full converters
CO4	Acquire the knowledge on simulation software
CO5	Understand the concept of DC-DC converter and chopper
Course Name: (501115/ CAREER SKILL DEVELOPMENT TRAINING – III)	
CO	**COURSE OUTCOMES**
CO1	To excel the talents of students to face their career challenges and built confidence
CO2	To enable the students to speak and write in English without making any mistakes
CO3	Students will examine the world of work, assess their interests and abilities, and make realistic career decisions

CO4	Students acquire knowledge on English Grammar, Analytical & Logical reasoning
CO5	Students will be facilitated to set their career goals
Course Name: (504015/INDUSTRIAL AUTOMATION)	
CO	**COURSE OUTCOMES**
CO1	Understand the fundamentals of PLC and its applications in the electrical engineering discipline
CO2	Write PLC programs using ladder diagrams
CO3	Understand about SCADA system fundamentals
CO4	Understand about SCADA system applications
CO5	Learn the fundamentals of Distributed Control Systems
Course Name: (504016/POWER SYSTEM OPERATION AND CONTROL	
CO	**COURSE OUTCOMES**
CO1	Ability to understand the day-to-day operation of electric power system
CO2	Ability to analyze the control actions to be implemented on the system to meet the minute-to-minute variation of system demand
CO3	Ability to understand the significance of power system operation and control
CO4	Ability to acquire knowledge on real power-frequency interaction
CO5	Ability to design SCADA and its application for real time operation
Course Name: (504107/MICRO PROCESSOR AND MICRO CONTROLLER)	
CO	**COURSE OUTCOMES**
CO1	Acquire knowledge in Addressing modes & instruction set of 8085 & 8051
CO2	Study the need & use of Interrupt structure 8085 & 8051
CO3	Understand the importance of Interfacing
CO4	Explain the architecture of Microprocessor and Microcontroller
CO5	Develop the Microprocessor and Microcontroller based applications
Course Name: (504018/SOLID STATE DRIVES)	
CO	**COURSE OUTCOMES**
CO1	Express the stable steady, state operation and transient dynamics of a motor, load system.
CO2	Express the operation of the converter / chopper fed DC drive and to solve simple problems.
CO3	Express the operation of both classical and modern induction motor drives
CO4	Design current and speed controllers for a closed loop solid state DC motor drive
CO5	Express the function of solid state DC motors drives, induction motor drives & synchronous motor drives
Course Name: (504108/MICRO PROCESSOR AND MICRO CONTROLLER LABORATORY)	
CO	**COURSE OUTCOMES**
CO1	Write ALP Programmes for fixed and Floating Point and Arithmetic
CO2	Interface different I/Os with processor

CO3	Generate waveforms using Microprocessors
CO4	Execute Programs in 8051
CO5	Explain the difference between simulator and Emulator
Course Name: (504109/ENGLISH LANGUAGE LAB FOR ENGINEERS)	
CO	**COURSE OUTCOMES**
CO1	Communicate using right pronunciation
CO2	Communicate with one or many listeners' using appropriate communicative strategies
CO3	Write cohesively and coherently and flawlessly avoiding grammatical errors
CO4	To acquire through knowledge in Technical writing skills
CO5	To acquire knowledge to enhance communication skills
Course Name: (504110/POWER SYSTEM SIMULATION LABORATORY – I	
CO	**COURSE OUTCOMES**
CO1	Explain the fundamentals of transmission system
CO2	Calculate the value of Transmission line parameters
CO3	Ability to model and carry out short circuit studies on power system
CO4	Ability to acquire knowledge on Fault analysis
CO5	Ability to model and understand various power system components and carry out power flow, short circuit and stability studies
Course Name: (CAREER SKILL DEVELOPMENT TRAINING – IV)	
CO	**COURSE OUTCOMES**
CO1	To excel the talents of students to face their career challenges and built confidence
CO2	To enable the students to speak and write in English without making any mistakes
CO3	Students will examine the world of work, assess their interests and abilities, and make realistic career decisions
CO4	Students can develop interview and presentation skills
CO5	To fulfill the upcoming needs of the corporate world.
Elective – I	
Course Name: (504201/PRINCIPLES OF MANAGEMENT)	
CO	**COURSE OUTCOMES**
CO1	Study the evolution of Management, to study the functions and principles of management
CO2	Learn the organizational environment, Ethics and social responsibility
CO3	Study the vital framework namely planning of the management
CO4	Identify and apply appropriate management techniques for managing contemporary organizations
CO5	Learn the design theory to include the new concepts and practices of design entrepreneurship and organizational change.

Course Name: (504202/PROFESSIONAL ETHICS IN ENGINEERING)	
CO	**COURSE OUTCOMES**
CO1	Study the awareness on Engineering Ethics providing basic knowledge about engineering Ethics, Variety of moral issues and Moral dilemmas, Professional Ideals and Virtues
CO2	Get the basic familiarity about Engineers as responsible Experimenters, Research Ethics, Codes of Ethics, Industrial Standards
CO3	Inculcate knowledge and exposure on Safety and Risk, Risk Benefit Analysis
CO4	Get an idea about the Collective Bargaining, Confidentiality, Professional, Employee, Intellectual Property Rights
CO5	Acquire knowledge about various roles of engineers in variety of global issues and able to apply ethical principles to resolve situations that arise in their professional lives
Course Name: (504203/COMPUTER NETWORKS)	
CO	**COURSE OUTCOMES**
CO1	Identify the components required to build different types of networks
CO2	Identify solution for each functionality at each layer
CO3	Trace the flow of information from one node to another node in the network
CO4	Learn about the application layer
CO5	Choose the required functionality at each layer for given application
Course Name: (504204/FUNDAMENTALS OF NANO TECHNOLOGY)	
CO	**COURSE OUTCOMES**
CO1	Familiarize about the science of nanomaterials
CO2	Demonstrate the preparation of nanomaterials
CO3	Develop knowledge in applications of nanomaterial
CO4	Study the optical properties of nanomaterial
CO5	Learn the magnetic properties of nanomaterial
Course Name: (504205/POWER QUALITY)	
CO	**COURSE OUTCOMES**
CO1	Learn the basic concepts to measure the quality of power supply
CO2	Express the concept of voltages sags, swell and harmonics
CO3	Get knowledge in over voltages and protection scheme applied
CO4	Express the effect of harmonic and harmonic reduction techniques.
CO5	Express the necessity of power quality monitoring
Elective – II	
Course Name: (504206/BIO MEDICAL INSTRUMENTATION)	
CO	**COURSE OUTCOMES**
CO1	Familiarize the physiology of the heart, lung, blood circulation and respiration & introduce

	various transducers and measurement systems used in biomedical applications.
CO2	Get awareness of electrical safety of medical equipment.
CO3	Know the latest ideas on devices of non - electrical devices.
CO4	Understand the important and modern methods of imaging techniques.
CO5	Gain latest knowledge of medical assistance / techniques and therapeutic equipment.
Course Name: (504207/TOTAL QUALITY MANAGEMENT)	
CO	**COURSE OUTCOMES**
CO1	Prioritize quality goals based on customer expectations & competition
CO2	Identify improvement areas based on cost of poor quality
CO3	Organize for quality and development of quality culture through small group activities
CO4	Develop a thinking towards Quality systems and Thinking
CO5	Acknowledge the importance of both internal and external customer
Course Name: (504208/MICROCONTROLLER BASED SYSTEM DESIGN)	
CO	**COURSE OUTCOMES**
CO1	Expose the fundamentals of microcontroller based system design
CO2	Review 8-bit microcontrollers
CO3	Implement assembly and c-program of ARM microcontrollers.
CO4	Design of basic circuits for ARM microcontroller.
CO5	Design interfacing circuits for ARM microcontroller.
Course Name: (504209/POWER SYSTEM DYNAMICS)	
CO	**COURSE OUTCOMES**
CO1	To develop dynamic modeling of a synchronous machine.
CO2	To describe the modeling of excitation and speed governing system.
CO3	To analyze the small signal stability without controllers
CO4	To analyze the small signal stability with controllers
CO5	To explain the methods to enhance the small signal stability of the power system
Course Name: (504210/FLEXIBLE AC TRANSMISSION SYSTEMS)	
CO	**COURSE OUTCOMES**
CO1	Understand the operations of different FACTS devices.
CO2	Select the controllers for different Contingencies.
CO3	Analyze the different FACTS devices in different stability conditions.
CO4	Select an appropriate FACTS device for a particular application.
CO5	Expose the modelling and analysis of the power control methods
Open Electives	
Course Name: (504901/PLC AND SCADA)	
CO	**COURSE OUTCOMES**

CO1	Understand the fundamentals of PLC and its applications in the electrical engineering discipline
CO2	Write PLC programs using ladder diagrams
CO3	Understand about SCADA system fundamentals and architecture
CO4	Explain about SCADA communication techniques and protocols
CO5	Understand about SCADA system applications and economics
Course Name: (504902/AUTOMOTIVE ELECTRICAL SYSTEMS)	
CO	**COURSE OUTCOMES**
CO1	Describe the basics concepts of automobile systems.
CO2	Explain the aspects of starting systems.
CO3	Distinguish the types of lighting system, charging system.
CO4	Explain the various process of ignition system.
CO5	Demonstrate the electrical equipment and accessories
Course Name: (504903/ENERGY MANAGEMENT)	
CO	**COURSE OUTCOMES**
CO1	Learn about the need for energy management and auditing process.
CO2	Know about basic concepts of materials and energy balance.
CO3	Understand the energy management in thermal utilities.
CO4	Know the concepts of compressed air system and its efficiency improvement.
CO5	Learn about the concept of lighting systems, light sources and various forms of cogeneration.