

**REGULATION 2008****COURSE OUTCOME**

<b>Course Outcomes</b>	<b><u>SEMESTER-I</u></b>
<b>COs</b>	<b>HS2111 Technical English - 1</b>
1	The course is designed in such a way that the students, after completing the course, will be able to speak fluently.
2	Student will be able to write fluently
3	They may also acquire the skills in reading and listening of Technical English
4	Students learn about the logical evolution of thought and content.
5	Because of exposure to basics of English they may acquire skills in technical writing
<b>COs</b>	<b>MA2111 Mathematics-1</b>
1	Seeks to apply mathematical techniques to problems in a wide range of practical
2	Constructs arguments to prove and justify results
3	Manipulates algebraic expressions involving exponential functions
4	Manipulates algebraic expressions involving logarithmic functions
5	Uses techniques of integration to calculate areas and volumes
<b>COs</b>	<b>PH 2111 Engineering physics –I</b>
1	Understand the use of divergence theorem to relate the electric flux density and charge density.
2	Calculate the electric field potential due to discrete, line, surface and volume charge distributions.
3	Calculate static capacitance of for simple conducting systems.
4	Understand the relationship between steady current elements and the magnetic field.

5	Understand the relationship between the electric field and the potential difference and the use of divergence theorem to relate the electric flux density and charge density.
<b>COs</b>	<b>CY 2111 Engineering chemistry –I</b>
1	Students will gain an understanding of oxidation reactions as they relate to engineering applications, such as corrosion.
2	Students will gain an understanding of reduction reactions as they relate to engineering applications, such as corrosion.
3	Students will learn to balance chemical equations, using proper nomenclature.
4	Students will perform laboratory experiments related to solubility and pK.
5	Students will perform laboratory experiments in electrochemist
<b>COs</b>	<b>GE 2111 Engineering graphics</b>
1	Students will able to Identify the different drafting tool machines and computer programs
2	Understand about usage of triangles, protractors, compasses.
3	Understand about usage of , French curves, parallel rulers, T-squares, erasers, erasing shields, templates.
4	Start-up AutoCAD program, create drawing file, recall drawing file.
5	Identify all the components of the computer equipment required to perform computer assisted drawing.
<b>COs</b>	<b>GE 2112 Fundamentals of computer and programming</b>
1	Understand fundamentals of programming such as variables, conditional and iterative execution, methods, etc.
2	Be aware of the important topics of software development
3	Understand the principles of software development
4	Understand fundamentals of object-oriented programming in Java
5	Understand of defining classes, invoking methods, using class libraries, etc.

<b>COs</b>	<b>GE 2115 Computer practice laboratory-I</b>
1	To enable the student to learn the major components of a computer system
2	To Know the correct the efficient ways of solving problems
3	To learn to use office automation tools
4	To learn to program in c
5	Understand about various variable of Program in C
<b>COs</b>	<b>GE 2116 Engineering Practices Lab</b>
1	Design different philosophies for steel structures and the basic steps in the design process
2	Develop problem solving skills, including the ability to convert an open-ended problem statement into a statement of work and/or a set of design specifications
3	Understand the plumbing and carpentry components of residential and industrial buildings
4	Understand about various recent tools in mechanical engineering
5	Students will able to learnt welding and basic machinery
<b><u>SEMESTER-II</u></b>	
<b>COs</b>	<b>HS2161 Technical English – II</b>
1	Students will be able to write effectively for a variety of professional and social settings
2	Students will demonstrate the skills needed to participate in a conversation that builds knowledge collaboratively
3	Students will become active readers
4	To ensure that learners use the electronic media such as internet and supplement the learning materials used in the classroom.
5	To inculcate the habit of reading and writing leading to effective and efficient communication.
<b>COs</b>	<b>MA2161 Mathematics – II</b>

1	Students will be able to apply mathematical techniques to problems in a wide range of practical
2	Students will be able to construct arguments to prove and justify results
3	Students will be able to manipulate algebraic expressions involving logarithmic and exponential functions.
4	To develop the students with fundamentals and basic concepts in vector calculus, ODE, Laplace transform and complex functions.
5	Students will be able to solve problems related to engineering applications by using these techniques.
<b>COs</b>	<b>PH2161 Engineering Physics – II</b>
1	Understand the use of magnetic and semiconducting materials.
2	Know about modern engineering material
3	Understand dielectric materials
4	The students will have the knowledge on physics of materials and that knowledge will be used by them in different engineering and technology applications
5	Understand nano materials
<b>COs</b>	<b>CY2161 Engineering Chemistry – II</b>
1	Students will gain an understanding of oxidation and reduction reactions as they relate to engineering applications, such as corrosion.
2	Students will learn to balance chemical equations, using proper nomenclature.
3	Students will perform laboratory experiments in electrochemistry
4	The student should be conversant with the principles electrochemistry, electrochemical cells, emf and applications of emf measurements.
5	Industrial importance of Phase rule and alloys
<b>COs</b>	<b>EC2151 Electric Circuits and Electron Devices</b>
1	Students understood about the concepts of network theorems,
2	Students understood about the concepts RLC circuits and Semiconductor diodes,

3	Students understood about the concepts Devices and transistor operation
4	Student will be able to obtain basic knowledge on the special diodes operation.
5	Will also gain the application of diodes and transistors in electronics world
<b>COs</b>	<b>GE2152 Basic Civil &amp; Mechanical Engineering</b>
1	Students understood the surveying and civil engineering materials
2	Students understood the building components and structures
3	Students understood power plant engineering
4	Students understood I C engines
5	Students understood refrigeration and air conditioning system
<b>COs</b>	<b>GE2155 Computer Practice Laboratory-II</b>
1	Student will be able to obtain programming skill in UNIX.
2	Student will be able to able to solve problems
3	Student will be able to obtain basic knowledge in shell programming
4	Student will be able to obtain programming skill in C
5	Student will be able to apply the knowledge in real time domain like database creation
<b>COs</b>	<b>GS2165 Physics &amp; Chemistry Laboratory – II</b>
1	Obtain knowledge to solve engineering problems.
2	Be able to design and conduct experiments, as well as to analyze and interpret data
3	Solve problems in acids and titrations
4	Determination of crystallization
5	Analyze Potentiometric Titration
<b>COs</b>	<b>EC2155 Circuits and Devices Laboratory</b>
1	The learner will able to analysis the characteristics of electron devices
2	Realize the various basic circuit theorems
3	Understand the concepts of Transistor operation
4	Will be able to understand the circuit connections
5	Understand the concepts of tuned circuits
<b><u>SEMESTER-III</u></b>	
<b>COs</b>	<b>MA 2211 Transforms and Partial Differential Equations</b>

1	Forming the Fourier series for a given function
2	Forming and solving partial differential equation
3	Transforming the function using Fourier transform
4	Solution of One dimensional wave , heat equation
5	Transforming the function using Z- transform
<b>COs</b>	<b>EC 2201 Electrical Engineering</b>
1	Understands the concepts of various types of electrical machines such as starters and DC machines and functionalities.
2	Understands the concepts of transformers.
3	Understands the concepts of induction motors.
4	Understands the concepts of alternators and special machines.
5	Understands the power system transmission and distribution.
<b>COs</b>	<b>EC 2202 Data Structures and Object Oriented Programming inC++</b>
1	Identify the key principles in object-oriented programming (OOP).
2	Build an object-oriented model by applying object-oriented analysis techniques
3	Apply core OOP principles and techniques as well as advanced features provided by modern programming languages to computer programming.
4	Apply practical knowledge of OOP design and implementation to application development
5	Demonstrate knowledge of the basic principles of data structures, algorithms, programming language concepts and theory and operating systems
<b>COs</b>	<b>EC 2203 Digital Electronics</b>
1	Design combinational and digital circuits.
2	Design simple synchronous circuits including counters and shift registers
3	Use Verilog to produce digital designs suitable for implementation on PLDs.
4	Use PLDs to implement digital logic designs

5	Write simple HDL codes for the circuits.
<b>COs</b>	<b>EC 2204 Signals and systems</b>
1	An ability to analyze characteristics of continuous, discrete signals and systems.
2	An ability to analysis and synthesis continuous & discrete systems
3	An ability to realize various structures of digital filter.
4	Students inculcate the knowledge attained in the signal processing techniques.
5	Develop system functions on the application side like OFDM, MIMO etc.
<b>COs</b>	<b>EC 2205 Electronic Circuits- I</b>
1	The student familiarized with the analysis and design of basic transistor Amplifier circuits.
2	The student familiarized with the analysis and design of basic power supplies.
3	The student will be able to do mini projects using basic semiconductor devices.
4	The students able to design power amplifier circuits.
5	Attain knowledge on Oscillators as a function of generation
<b>COs</b>	<b>EC 2207 Digital Electronics Lab</b>
1	Be able to identify which logic gate is suitable for the design.
2	Get an ability to design digital logic circuits
3	Get an ability to write codes for logical circuits
4	Can design the combinational circuits.
5	Get an idea on the application part of wireless.
<b>COs</b>	<b>EC 2208 Electronic Circuits Lab I</b>
1	The student familiarized with the analysis and design of basic transistor Amplifier circuits.

2	The student familiarized with the analysis and design of basic power supplies.
3	The student will be able to do mini projects using basic semiconductor devices.
4	The students able to design power amplifier circuits.
5	Can design an oscillators for frequency generation.
<b>COs</b>	<b>EC 2209 Data structures and Object Oriented Programming Lab</b>
1	Design array implementation of List Abstract Data Type (ADT)
2	Design Linked list implementation of List ADT
3	Design Search Tree ADT - Binary Search
4	Design stack ADT - Array and linked list implementations
5	Design of sorting
<b><u>SEMESTER-IV</u></b>	
<b>COs</b>	<b>MA 2261 Probability and Random Processes</b>
1	This course aims at providing the necessary basic concepts in random processes.
2	Knowledge of fundamentals and applications of random phenomena
3	Will greatly help in the understanding of topics such as signals & systems,
4	Pattern recognition, voice and image processing.
5	Gather on filtering theory
<b>COs</b>	<b>EC 2251 Electronic Circuits II</b>
1	The method of analyzing of feedback amplifiers
2	To analyze and design LC and RC oscillators, tuned amplifiers
3	The concept and working of wave shaping circuits
4	To design and analyze the functions of multi-vibrators



5	The fundamentals of blocking oscillators and time base generators
<b>COs</b>	<b>EC 2252 Communication Theory</b>
1	An ability to compare various Amplitude modulation and demodulation systems.
2	An ability to compare various Angle modulation and demodulation systems.
3	An ability to analyze noise performance of various receivers.
4	An ability to understand the basics of information theory.
5	Get a detailed information on the analog systems
<b>COs</b>	<b>EC 2253 Electromagnetic Fields</b>
1	An ability to apply knowledge of mathematics, science, and engineering to the analysis
2	Design of electrical systems involving electric and magnetic fields
3	Understand the basics of electromagnetic waves.
4	An ability to identify, formulates, and solves engineering problems in the area of electric and magnetic fields
5	An ability to identify, formulates, and solves engineering problems in the area of electric and magnetic waves.
<b>COs</b>	<b>EC 2254 Linear Integrated Circuits</b>
1	Design simple circuits like amplifiers using Opamps.
2	Design waveform generating circuits
3	Design simple filters circuits for particular application.
4	Gain knowledge in designing stable voltage regulators
5	Comparators are also studied
<b>COs</b>	<b>EC 2255 Control Systems</b>
1	The students understand the concepts of open loop & closed loop system and compensation techniques
2	Gives an idea on the block reduction techniques

3	The students also able to design a compensator for a uncompensated systems.
4	The students experimentally find out the system is stable or not by using MATLAB programs.
5	Helps the students on the domain of stability of system
<b>COs</b>	<b>EC 2257 Electronics circuits II and simulation lab</b>
1	The method of analyzing of feedback amplifiers
2	To analyze and design LC and RC oscillators,
3	To design tuned amplifiers
4	The concept and working of waveshaping circuits
5	Counters and timers operations are also understood by the students
<b>COs</b>	<b>EC 2258 Linear Integrated Circuit Lab</b>
1	To design and analyze the functions of multivibrators
2	The fundamentals of blocking oscillators and time base generators
3	To simulate and verify the functionalities of amplifiers, filters, multivibrators, A/D, D/A converters,
4	CMOS digital circuits using PSpice.
5	Able to experiment the basic concepts in the design of electronic circuits using operational amplifiers and their applications in the processing of analog signals
<b>COs</b>	<b>EC 2259 Electrical Engineering and Control System Lab</b>
1	This lab will enable the students to understand the concepts of working principle of DC machines.
2	Understand the application of DC machine.
3	Students to understand the concepts of working principle of AC machines.
4	Understand the application of AC machine.
5	Understand the principles behind generators
<b><u>SEMESTER -V</u></b>	
<b>COs</b>	<b>EC2301 Digital Communication</b>
1	On successful completion of the module students will get an ability to know the basic concepts of Digital Communication in baseband

2	On successful completion of the module students will get an ability to know the basic concepts of Digital Communication in pass band domains
3	Give an exposure to error control coding techniques.
4	Helps to understand the signal processing concepts
5	Students will gain knowledge on modulation schemes
<b>COs</b>	<b>EC2302 Digital Signal Processing</b>
1	Ability to perform time and frequency domain analysis using the concept of DFT and FFT.
2	Ability to design and analysis of IIR digital filters.
3	Ability to design and analysis of FIR digital filters.
4	Knowledge about various problems due to finite word length effects.
5	An understanding of sampling conversion technique in signal processing and its applications.
<b>COs</b>	<b>EC2303 Computer Architecture and Organization</b>
1	Understand how to apply quantitative trade-off analysis in the design of a computer system.
2	Use a modern hardware description language to model and analyze computer system design tradeoffs.
3	Understand modern memory system design techniques including single and multi-level cache and virtual memory
4	Discuss the basic structure of a digital computer
5	Study the organization of the Control unit, the Arithmetic and Logical unit, the Memory unit and the I/O unit
<b>COs</b>	<b>EC2305 Transmission Lines and Wave guides</b>
1	Students will be able to design various types of filters which are used in communication systems
2	Students understand about the signal propagation at radio frequencies
3	Propagation of signals through lines
4	Students understand about the radio propagation in guided systems.

5	Student understand the need for radio frequency and the matching devices
<b>COs</b>	<b>GE2021 Environmental Science and Engineering</b>
1	Students understood and gained knowledge on environment and various types of eco-systems, pollution, resources.
2	Students got an awareness and sensitivity about the environment and environmental challenges.
3	Students also got an idea to mitigate the environmental problems
4	They analyzed about various environmental policies and how to maintain it
5	Understand the basic eco system
<b>COs</b>	<b>EC2304 Microprocessors and Microcontrollers</b>
1	Students learnt the instruction set of 8086
2	Students gathered n idea on 8051.
3	Students learnt the 8255, 8279 interfacing devices.
4	Students learnt the Assembly language programming of 8086 and 8051.
5	Timing and machine cycle are explained
<b>COs</b>	<b>EC2306 Digital Signal Processing Lab</b>
1	Students will able to implement the processing techniques using the instructions of TMS320C5X
2	Students will able to implement IIR and FIR filter using MATLAB.
3	Signal generation using MATLAB are carried.
4	Helps student do complete their project with the idea gained in this lab.
5	Students understand that this is a basic for FPGA
<b>COs</b>	<b>EC2307 Communication System Lab</b>

1	On successful completion of the module students will be able to know the basic concepts of Digital Communication in baseband
2	On successful completion of the module students will be able to know the basic concepts of Digital Communication in pass band domains
3	Give an exposure to error control coding techniques.
4	Understand the various modulation scheme
5	Can compare the theoretically studied information practically
<b>COs</b>	<b>EC2308 Microprocessors and Microcontrollers Lab</b>
	Students learn the instruction set of 8086 microprocessor
	Students learn the instruction set of 8051 microcontroller.
	Students can do programming in the 8086
	Students can do programming in the 8051
	Can understand the interfacing modules
<b><u>SEMESTER VI</u></b>	
<b>COs</b>	<b>MG2351 Principles of Management</b>
1	Students able to analyze the management concepts.
2	Students able to create a new planning for any work.
3	Student develops and prepare for opportunities.
4	Students able to create an organizational structure.
5	Students will familiarize with various theories and styles of leadership.
<b>COs</b>	<b>EC2351 Measurements and Instrumentation</b>
1	At the end of the syllabus completion the students will learnt the concept of measurement
2	Related instrumentation requirement being a vital ingredient of electronics and communication engineering.
3	Understand the concept of instruments

4	Apply the knowledge of machines and motors practically
5	Students will gain an idea on the operation of iron and coil
<b>COs</b>	<b>EC2352 Computer Networks</b>
1	Apply current industry standards, protocols, and techniques; and keep up with evolving technology to maintain professional proficiency.
2	Gets thorough knowledge in basics of computer communication and networking.
3	Utilize the concepts in higher studies
4	Will be helpful in doing projects in networking domain
5	Get a sound knowledge on networking protocols
<b>COs</b>	<b>EC2353 Antenna and Wave Propagation</b>
1	An ability to design and compare various types of dipole antennas suitable for arrays.
2	An ability to understand aperture type problems in aperture antennas
3	An ability to analyze the applications of special antennas.
4	An ability to analyze and apply various antenna arrays to solve modern engineering problems
5	An ability to understand various factors that influence the propagation of radio waves.
<b>COs</b>	<b>EC2354 VLSI Design</b>
1	Students will understand the concepts of CMOS process technology
2	Will gain on chip design using programmable devices.
3	Students will understand the concepts of Verilog HDL.
4	Students will gather information regarding the circuit design
5	Get the capability in solving the real time circuits
<b>COs</b>	<b>EC2021 Medical Electronics</b>
1	At the end of the syllabus completion the students will able to understand the applications of electronics in diagnostic
2	At the end of the syllabus completion the students will able to understand the applications of electronics in therapeutic area.

3	Can understand the medical measuring instruments
4	Can learn the organism of humans
5	Can be capable of applying the thoughts in module design
<b>COs</b>	<b>EC2356 Computer Networks Lab</b>
1	Students get practical knowledge about Stop and wait, go-back n and selective repeat protocols
2	Students get practical knowledge serial communication
3	Students get practical knowledge parallel communication.
4	Students get knowledge about implementation of routing algorithms
5	Understand the concepts of NS2
<b>COs</b>	<b>EC2357 VLSI Design Lab</b>
1	Students gained knowledge in Verilog HDL tool.
2	Students will be able to use techniques, skills and modern engineering tools necessary for engineering practice
3	Students were able write a source code for any circuits and do synthesis for it.
4	Students were able to get knowledge the factors to be considered in layout design
5	Students were able to estimate power.
<b>COs</b>	<b>GE2321 Communication Skills Lab</b>
1	Apply knowledge of English language in attending higher studies and interviews.
2	Apply knowledge of soft skills in their working environments.
3	Take international examination such as IELTS and TOEFL
4	Make presentations and Participate in Group Discussions.
5	Successfully answer questions in interviews
<b><u>SEMESTER VII</u></b>	
<b>COs</b>	<b>EC2401 Wireless Communication</b>
1	An ability to compare various services and technical challenges.

2	An ability to compare various wireless propagation channels
3	An ability to analyze noise performance of wireless transceivers.
4	An ability to understand signal processing in wireless systems.
	An ability to know about advanced transceiver schemes
<b>COs</b>	<b>EC2402 Optical Communication and Networks</b>
1	Be able to apply knowledge of mathematics, and engineering to calculate the characteristics of optical signals and fibers.
2	Be able to identify, formulate, and solve engineering problems related to the transmission characteristics of optical fibers
3	Learn about the Optical sources and detectors structures and characteristics.
4	Learn about the Optical receivers and to apply the knowledge of mathematics and engineering to measure calculate the characteristics of optical signals.
5	Learn about the optical networks systems.
<b>COs</b>	<b>EC2403 RF and Microwave Engineering</b>
1	Student will become familiar with active & passive microwave devices & components used in Microwave communication systems.
2	Students become familiar with passive microwave components
3	Students gain knowledge about the Microwave semiconductor devices and circuits.
4	Learn about RF filter
5	Understand the mechanism of generation of signal at RF range
<b>COs</b>	<b>GE2022 Total Quality Management</b>
1	Create constancy of purpose for improving products and services.
2	Adopt the new philosophy.



3	Cease dependence on inspection to achieve quality
4	End the practice of awarding business on price alone; instead, minimize total cost by working with a single supplier.
5	The student would be able to apply the tools and techniques of quality management to manufacturing and services processes.
<b>COs</b>	<b>CS2060 High Speed Networks</b>
1	Understand Frame Relay, ATM Protocol and High Speed LANs.
2	Compare different queuing disciplines
3	Understand the effects Congestion in a network.
4	Apply various congestion control algorithms
5	Know the working concepts of QoS protocols
<b>COs</b>	<b>EC2029 Digital Image Processing</b>
1	Able to understand the image processing fundamentals.
2	Able to analyze image enhancement techniques.
3	Able to comprehend the image restoration techniques
4	Able to elucidate image segmentation.
5	Use image compression and segmentation Techniques.
<b>COs</b>	<b>EC2404 Electronics System Design Lab</b>
1	Students were capable of analyze and design system components or processes to satisfy the needs of the society within realistic constraints such as safety and manufacturing.
2	Students were able to design and conduct experiments to interpret data and analyze the results.
3	Apply the theoretical knowledge
4	Students can gain the idea on the application of circuits
5	Can design a basic counters for industrial needs
<b>COs</b>	<b>EC2405 Optical &amp; Microwave Lab</b>
1	Graduate will demonstrate and design and conduct experiments, analyze and interpret data.

2	Graduates will demonstrate and design a system, component or process as per needs and specifications.
3	Students can feel the electromagnetic waves around them using antenna experiments.
4	Understand the concept of light wave
5	Clearly understand the concepts in LED & PD
<b><u>SEMESTER VIII</u></b>	
<b>COs</b>	<b>EC2047 Optoelectronic devices</b>
1	To know the basics of solid state physics and understand the nature and characteristics of light.
2	To understand different methods of luminescence, display devices and laser types and their applications.
3	To learn the principle of optical detection mechanism in different detection devices.
4	To understand different light modulation techniques and the concepts and applications of optical switching.
5	To study the integration process and application of opto electronic integrated circuits in transmitters and receivers.
<b>COs</b>	<b>EC2045 Satellite Communication</b>
1	Overview of satellite systems in relation to other terrestrial systems.
2	Study of satellite orbits and launching.
3	Study of earth segment and space segment components
4	Study of satellite access by various users.
5	Study of DTH and compression standards.
<b>COs</b>	<b>EC2451 Project Work</b>
1	An ability to design, analyze and interpret the data.
2	An ability to use modern engineering tools necessary for the experimental work.

3	On Completion of the project work students will be in a position to take up any challenging practical problems and find solution by formulating proper methodology.
4	Applying knowledge
5	Implementation of new and innovative technology

## COURSE OUTCOME

### REGULATION 2013

<b>Course Outcomes</b>	<b><u>SEMESTER-I</u></b>
<b>COs</b>	<b>HS 6151 Technical English - 1</b>
1	Reading: Students will become accomplished, active readers who appreciate ambiguity and complexity
2	Writing skills and process: Students will be able to write effectively for a variety of professional and social settings
3	Culture and History: Students will gain a knowledge of the major traditions of literatures written in English
4	Students will demonstrate the skills needed to participate in a conversation that builds knowledge collaboratively
5	Listen/view and comprehend different spoken discourses/excerpts in different accents.
<b>COs</b>	<b>MA6151-Mathematics-I</b>
1	Seeks to apply mathematical techniques to problems in a wide range of practical
2	Constructs arguments to prove and justify results
3	Manipulates algebraic expressions involving logarithmic and exponential functions
4	Uses techniques of integration to calculate areas and volumes
5	This course equips students to have basic knowledge and understanding in one fields of materials, integral and differential calculus.
<b>COs</b>	<b>PH6151-Engineering Physics - I</b>

1	Understand the use of divergence theorem to relate the electric flux density and charge density
2	Calculate the electric field potential due to discrete, line, surface and volume charge distributions
3	Calculate static capacitance of for simple conducting systems.
4	Understand the relationship between steady current elements and the magnetic field
5	Understand the relationship between the electric field and the potential difference.
<b>COs</b>	<b>CY6151-Engineering Chemistry – I</b>
1	Students will gain an understanding of oxidation and reduction reactions as they relate to engineering applications, such as corrosion.
2	Students will learn to balance chemical equations, using proper nomenclature.
3	Students will perform laboratory experiments related to solubility and pK.
4	Students will perform laboratory experiments in electrochemist
5	The knowledge gained on polymer chemistry, thermodynamics. spectroscopy, phase rule and nano materials will provide a strong platform to understand the concepts on these subjects for further learning.
<b>COs</b>	<b>GE6152-Engineering Graphics</b>
1	Identify the different drafting tools machines and computer programs available.
2	Use triangles, protractors, compasses, French curves, parallel rulers, T-squares, erasers, erasing shields, templates
3	Start-up AutoCAD program, create drawing file, recall drawing file.
4	Identify all the components of the computer equipment required to perform computer assisted drawing.
5	Demonstrate computer aided drafting.
<b>COs</b>	<b>GE6151- Computer Programming</b>

1	Understand fundamentals of programming such as variables, conditional and iterative execution, methods, etc.
2	Be aware of the important topics and principles of software development
3	Understand fundamentals of object-oriented programming in Java, including defining classes, invoking methods, using class libraries, etc.
4	Write and execute C programs for simple applications
5	Design C Programs for problems.
<b>COs</b>	<b>GE6161-Computer Practice Laboratory – 1</b>
1	Understand fundamentals of programming such as variables, conditional and iterative execution, methods, etc.
2	Understand fundamentals of object-oriented programming in Java, including defining classes, invoking methods, using class libraries, etc.
3	Be aware of the important topics and principles of software development
4	Design and implement C programs for simple applications.
5	Develop recursive programs.
<b>COs</b>	<b>GE6162-Engineering Practices Laboratory</b>
1	Design different philosophies for steel structures and the basic steps in the design process
2	Develop problem solving skills, including the ability to convert an open-ended problem statement into a statement of work and/or a set of design specifications
3	Ability to fabricate carpentry components and pipe connections including plumbing works.
4	Ability to use welding equipments to join the structures
5	Ability to fabricate electrical and electronics circuits
<b>COs</b>	<b>GE 6163- Physics &amp; Chemistry Laboratory I</b>
1	Analyze and determine many physical quantities
2	Determine various determinations and estimations of chemical contents in water

3	The hands on exercises undergone by the students will help them to apply physics principles of optics
4	The hands on exercises undergone by the students will help them to apply physics principles of thermal physics
5	To evaluate engineering properties of materials.
<b><u>SEMESTER-II</u></b>	
<b>COs</b>	<b>HS6251-Technical English – II</b>
1	Students will be able to write effectively for a variety of professional and social settings
2	Students will demonstrate the skills needed to participate in a conversation that builds knowledge collaboratively
3	Students will become active readers
4	Read different genres of texts, infer implied meanings and critically analyse and evaluate them for ideas as well as for method of presentation.
5	Listen/view and comprehend different spoken excerpts critically and infer unspoken and implied meanings.
<b>COs</b>	<b>MA6251-Mathematics – II</b>
1	Students will be able to apply mathematical techniques to problems in a wide range of practical
2	Students will be able to construct arguments to prove and justify results
3	Students will be able to manipulate algebraic expressions involving logarithmic and exponential functions
4	The subject helps the students to develop the fundamentals and basic concepts in vector calculus, ODE, Laplace transform and complex functions.
5	Students will be able to solve problems related to engineering applications by using these techniques.
<b>COs</b>	<b>PH6251-Engineering Physics – II</b>
1	Understand the use of magnetic and semiconducting materials.
2	To Know about modern engineering material
3	Understand dielectric materials

4	The students will have the knowledge on physics of materials and that knowledge will be used by them in different engineering and technology applications
5	Understand nano materials
<b>COs</b>	<b>CY6251-Engineering Chemistry – II</b>
1	Students will gain an understanding of oxidation and reduction reactions as they relate to engineering applications, such as corrosion.
2	Students will learn to balance chemical equations, using proper nomenclature.
3	Students will perform laboratory experiments in electrochemistry
4	The knowledge gained on engineering materials, fuels, energy sources and water treatment techniques will facilitate better understanding of engineering processes
5	Helps in the applications for further learning.
<b>COs</b>	<b>EC6201- Electronic Devices</b>
1	Students understood about the concepts RLC circuits
2	Students will understand about Electric Circuits & Theorems
3	Students will understand different Semiconductor devices
4	Students will understand different transistor operation
5	Use the basic electronic devices
<b>COs</b>	<b>EE 6201- Circuit Theory</b>
1	To introduce electric circuits and its analysis
2	To impart knowledge on solving circuits using network theorems
3	To introduce the phenomenon of resonance in coupled circuits.
4	To educate on obtaining the transient response of circuits.
5	To understand Phasor diagrams and analysis of three phase circuits
<b>COs</b>	<b>GE 6262- Physics and Chemistry Laboratory – II</b>
1	Obtain knowledge to solve engineering problems.
2	Be able to design and conduct experiments, as well as to analyze and interpret data

3	Solve problems in acids and titrations
4	The students will have the ability to test materials by using their knowledge of applied physics principles in optics and
5	Hands-on knowledge in the quantitative chemical analysis of water quality related parameters, corrosion measurement and cement analysis.
<b>COs</b>	<b>GE 6211-Circuits and Devices Laboratory</b>
1	The learner will able to analysis the characteristics of electron devices
2	Realize the various basic circuit theorems
3	Learn the characteristics of basic electronic devices
4	Design RL and RC circuits
5	Verify Thevenin & Norton theorem KVL & KCL, and Super Position Theorems
<b><u>SEMESTER-III</u></b>	
<b>COs</b>	<b>MA 6351-Transforms And Partial Differential Equations</b>
1	Forming the Fourier series for a given function
2	Forming and solving partial differential equation
3	Transforming the function using Fourier transform
4	Solution of One dimensional wave , heat equation
5	Transforming the function using Z- transform
<b>COs</b>	<b>EE 6352-Electrical Engineering</b>
1	Understands the concepts of various types of electrical machines such as starters and DC machines and functionalities.
2	Understands the concepts of transformers.
3	Understands the concepts of induction motors.
4	Understands the concepts of alternators and special machines.
5	Understands the power system transmission and distribution.
<b>COs</b>	<b>EC6301-Data Structures &amp; Object Oriented Programming in C++</b>



1	Identify the key principles in object-oriented programming (OOP).
2	Build an object-oriented model by applying object-oriented analysis techniques
3	Apply core OOP principles and techniques as well as advanced features provided by modern programming languages to computer programming.
4	Apply practical knowledge of OOP design and implementation to application development
5	Demonstrate knowledge of the basic principles of data structures, algorithms, programming language concepts and theory and operating systems
<b>COs</b>	<b>EC 6302-Digital Electronics</b>
1	Design combinational and digital circuits.
2	Design simple synchronous circuits including counters and shift registers
3	Use Verilog to produce digital designs suitable for implementation on PLDs.
4	Use PLDs to implement digital logic designs
5	Write simple HDL codes for the circuits.
<b>COs</b>	<b>EC 6303-Signals &amp; Systems</b>
1	An ability to analyze characteristics of continuous, discrete signals and systems.
2	An ability to analysis and synthesis continuous & discrete systems
3	An ability to realize various structures of digital filter.
4	An ability to realize the Fourier Transforms
5	An ability to understand the Z Transform
<b>COs</b>	<b>EC 6304-Electronic Circuits – I</b>
1	The student familiarized with the analysis and design of basic transistor Amplifier circuits.
2	The student familiarized with the analysis and design of basic power supplies.
3	The student will be able to do mini projects using basic semiconductor devices.

4	The students able to design power amplifier circuits.
5	Design and analyze large signal amplifiers.
<b>COs</b>	<b>EC 6311-Digital Electronics Lab</b>
1	To know the Combinational & Sequential Circuits
2	Get an ability to write codes for logical circuits
3	The student familiarized with the analysis and design of basic transistor Amplifier circuits.
4	The student familiarized with the analysis and design of basic power supplies.
5	The student will be able to do mini projects using basic semiconductor devices.
<b>COs</b>	<b>EC 6312-Data Structures And Object Oriented Programming Lab</b>
1	Design array implementation of List Abstract Data Type (ADT)
2	Design Linked list implementation of List ADT
3	Design Search Tree ADT - Binary Search
4	Design stack ADT - Array and linked list implementations
5	Design of sorting
<b><u>SEMESTER-IV</u></b>	
<b>COs</b>	<b>MA 6451 - Probability and Random Processes</b>
1	This course aims at providing the necessary basic concepts in random processes.
2	Knowledge of fundamentals and applications of random phenomena will greatly help in the understanding of topics such as signals & systems,
3	Pattern recognition, voice and image processing and filtering theory
4	Students will have an exposure of various distribution functions and help in acquiring skills in handling situations involving more than one variable.
5	Able to analyze the response of random inputs to linear time invariant systems.
<b>COs</b>	<b>EC 6401- Electronic Circuits II</b>
1	The method of analyzing of feedback amplifiers

2	To analyze and design LC and RC oscillators, tuned amplifiers
3	The concept and working of wave shaping circuits
4	To design and analyze the functions of multi-vibrators
5	The fundamentals of blocking oscillators and time base generators
<b>COs</b>	<b>EC 6402 - Communication Theory</b>
1	An ability to compare various Amplitude modulation and demodulation systems.
2	An ability to compare various Angle modulation and demodulation systems.
3	An ability to analyze noise performance of various receivers.
4	An ability to understand the basics of information theory.
5	Apply the concepts of Random Process to the design of Communication systems
<b>COs</b>	<b>EC 6403- Electromagnetic Fields</b>
1	An ability to apply knowledge of mathematics, science, and engineering to the analysis
2	Design of electrical systems involving electric and magnetic fields as well as electromagnetic waves.
3	An ability to identify, formulates, and solves engineering problems in the area of electric and magnetic fields and waves.
4	Analyze the relation between the fields under time varying situations.
5	Discuss the principles of propagation of uniform plane waves.
<b>COs</b>	<b>EC 6404- Linear Integrated Circuits</b>
1	Design simple circuits like amplifiers using Opamps.
2	Design waveform generating circuits
3	Design simple filters circuits for particular application.
4	Gain knowledge in designing stable voltage regulators
5	Analyze special function ICs.
<b>COs</b>	<b>EC 6405- Control Systems</b>

1	The students understand the concepts of open loop & closed loop system and compensation techniques
2	The students also able to design a compensator for a uncompensated systems.
3	The students experimentally find out the system is stable or not by using MATLAB programs.
4	Perform time domain and frequency domain analysis of control systems required for stability analysis.
5	Design the compensation technique that can be used to stabilize control systems.
<b>COs</b>	<b>EC 6411 - Circuit and simulation lab</b>
1	The method of analyzing of feedback amplifiers
2	To analyze and design LC and RC oscillators, tuned amplifiers
3	The concept and working of waveshaping circuits
4	Design Bias Circuit for BJT
5	Differentiate Class A and Class B Amplifiers
<b>COs</b>	<b>EC 6412- Linear Integrated Circuit Lab</b>
1	To design and analyze the functions of multivibrators
2	The fundamentals of blocking oscillators and time base generators
3	To simulate and verify the functionalities of amplifiers, filters, multivibrators, A/D, D/A converters,
4	CMOS digital circuits using PSpice.
5	Able to experiment the basic concepts in the design of electronic circuits using operational amplifiers and their applications in the processing of analog signals.
<b>COs</b>	<b>EE6461- Electrical Engineering and Control System Lab</b>
1	This lab will enable the students to understand the concepts of working principle & application of DC machine.
2	Perform experiments to study the load characteristics of DC motors / generators.
3	Design bridge network circuit to measure the values of passive component.
4	Analyse the stability of linear system through simulation software.
5	Obtain transfer function of DC generators.
<b><u>SEMESTER -V</u></b>	

<b>COs</b>	<b>EC6501- Digital Communication</b>
1	On successful completion of the module students will get an ability to know the basic concepts of Digital Communication in baseband
2	On successful completion of the module students will get an ability to know the basic concepts of Digital Communication in pass band domains and to give an exposure to error control coding techniques.
3	Design and implement band pass signaling schemes
4	Analyze the spectral characteristics of band pass signaling schemes and their noise performance
5	Design error control coding schemes
<b>COs</b>	<b>EC6502 – Principles of Digital Signal Processing</b>
1	Ability to perform time and frequency domain analysis using the concept of DFT and FFT.
2	Ability to design and analysis of IIR digital filters.
3	Ability to design and analysis of FIR digital filters.
4	Knowledge about various problems due to finite word length effects.
5	An understanding of sampling conversion technique in signal processing and its applications.
<b>COs</b>	<b>EC6503 -Transmission Lines and Wave guides</b>
1	Students will be able to design various types of filters which are used in communication systems
2	Students understand about the signal propagation at radio frequencies and the propagation of signals through lines
3	Students understand about the radio propagation in guided systems.
4	Explain radio propagation in guided systems.
5	Utilize cavity resonators.
<b>COs</b>	<b>GE6351- Environmental Science and Engineering</b>
1	Students understood and gained knowledge on environment and various types of eco-systems, pollution, resources.

2	Students got an awareness and sensitivity about the environment and environmental challenges.
3	Students also got an idea to mitigate the environmental problems
4	They analyzed about various environmental policies and how to maintain it
5	Development and improvement in standard of living has lead to serious environmental disasters.
<b>COs</b>	<b>EC6504 -Microprocessors and Microcontrollers</b>
1	Students learnt the instruction set of 8086 and 8051.
2	Students learnt the 8255, 8279 interfacing devices.
3	Students learnt the Assembly language programming of 8086 and 8051.
4	Design I/O circuits.
5	Design Memory Interfacing circuits.
<b>COs</b>	<b>EC6511- Digital Signal Processing Lab</b>
1	Students will able to implement the processing techniques using the instructions of TMS320C5X
2	Students will able to implement IIR and FIR filter using MATLAB.
3	Analyze Finite word length effect on DSP systems
4	Demonstrate the applications of FFT to DSP
5	Implement adaptive filters for various applications of DSP
<b>COs</b>	<b>EC6512 Communication System Lab</b>
1	On successful completion of the module students will be able to know the basic concepts of Digital Communication in baseband
2	On successful completion of the module students will be able to know the basic concepts of Digital Communication in pass band domains
3	Give an exposure to error control coding techniques.
4	Apply various channel coding schemes & demonstrate their capabilities towards the improvement of the noise performance of communication system

5	Simulate & validate the various functional modules of a communication system
<b>COs</b>	<b>EC6513 Microprocessors and Microcontrollers Lab</b>
1	Students learn the instruction set of 8086 microprocessor and 8051 microcontroller.
2	Students can do programming in the 8086 and 8051
3	Generate waveforms using Microprocessors
4	Execute Programs in 8051
5	Explain the difference between simulator and Emulator
<b><u>SEMESTER VI</u></b>	
<b>COs</b>	<b>MG6851- Principles of Management</b>
1	Students able to analyze the management concepts.
2	Students able to create a new planning for any work.
3	Students able to create an organizational structure.
4	Students will familiarize with various theories and styles of leadership.
5	Students had an ability to develop controlling process.
<b>COs</b>	<b>CS 6303 Computer Architecture</b>
1	Understand how to apply quantitative trade-off analysis in the design of a computer system.
2	Use a modern hardware description language to model and analyze computer system design tradeoffs.
3	Understand modern memory system design techniques including single and multi-level cache and virtual memory
4	Evaluate performance of memory systems.
5	Understand parallel processing architectures.
<b>COs</b>	<b>CS 6551- Computer Networks</b>
1	Apply current industry standards, protocols, and techniques; and keep up with evolving technology to maintain professional proficiency.

2	Gets thorough knowledge in basics of computer communication and networking.
3	Utilize the concepts in higher studies
4	Identify solution for each functionality at each layer
5	Trace the flow of information from one node to another node in the network
<b>COs</b>	<b>EC6602- Antenna and Wave Propagation</b>
1	An ability to design and compare various types of dipole antennas suitable for arrays.
2	An ability to understand aperture type problems in aperture antennas
3	An ability to analyze the applications of special antennas.
4	An ability to analyze and apply various antenna arrays to solve modern engineering problems
5	An ability to understand various factors that influence the propagation of radio waves.
<b>COs</b>	<b>EC6601- VLSI Design</b>
1	Students will understand the concepts of CMOS process technology and chip design using programmable devices.
2	Students will understand the concepts of Verilog HDL.
3	Explain the basic CMOS circuits and the CMOS process technology.
4	Discuss the techniques of chip design using programmable devices.
5	Model the digital system using Hardware Description Language.
<b>COs</b>	<b>EC6001 - Medical Electronics</b>
1	At the end of the syllabus completion the students will able to understand the applications of electronics in diagnostic
2	At the end of the syllabus completion the students will able to understand the applications of electronics in therapeutic area.
3	Discuss the application of electronics in diagnostic and therapeutic area.
4	Measure biochemical and various physiological information.
5	Describe the working of units which will help to restore normal functioning.



<b>COs</b>	<b>EC6611- Computer Networks Lab</b>
1	Students get practical knowledge about Stop and wait, go-back n and selective repeat protocols, serial and parallel communication.
2	Students get knowledge about implementation of routing algorithms
3	Program using sockets.
4	Implement and compare the various routing algorithms
5	Use simulation tool.
<b>COs</b>	<b>EC6612- VLSI Design Lab</b>
1	Students gained knowledge in Verilog HDL tool.
2	Students will be able to use techniques, skills and modern engineering tools necessary for engineering practice
3	Students were able write a source code for any circuits and do synthesis for it.
4	Students were able to get knowledge the factors to be considered in layout design and estimation of corresponding parameters.
5	Design, Simulate and Extract the layouts of Analog IC Blocks using EDA tools.
<b>COs</b>	<b>GE6674- Communication Skills Lab</b>
1	Apply knowledge of English language in attending higher studies and interviews.
2	Apply knowledge of soft skills in their working environments.
3	Take international examination such as IELTS and TOEFL
4	Make presentations and Participate in Group Discussions.
5	Successfully answer questions in interviews
<b><u>SEMESTER VII</u></b>	
<b>COs</b>	<b>EC6702- Optical Communication and Networks</b>
1	Be able to apply knowledge of mathematics, and engineering to calculate the characteristics of optical signals and fibers.
2	Be able to identify, formulate, and solve engineering problems related to the transmission characteristics of optical fibers

3	Learn about the Optical sources and detectors structures and characteristics.
4	Learn about the Optical receivers and to apply the knowledge of mathematics and engineering to measure calculate the characteristics of optical signals. Learn about the optical networks systems.
<b>COs</b>	<b>EC6701- RF and Microwave Engineering</b>
1	Student will become familiar with active & passive microwave devices & components used in Microwave communication systems.
2	Students become familiar with passive microwave components
3	Students gain knowledge about the Microwave semiconductor devices and circuits.
4	Generate Microwave signals and design microwave amplifiers.
5	Measure and analyze Microwave signal and parameters.
<b>COs</b>	<b>EC6703- EMBEDDED AND REAL TIME SYSTEMS</b>
1	Learn the architecture and programming of ARM processor.
2	Be familiar with the embedded computing platform design and analysis.
3	Be exposed to the basic concepts of real time Operating system.
4	Learn the system design techniques and networks for embedded systems
5	Model real-time applications using embedded-system concepts
<b>COs</b>	<b>IT 6005-Digital Image Processing</b>
1	Able to understand the image processing fundamentals.
2	Able to analyze image enhancement techniques.
3	Able to comprehend the image restoration techniques
4	Able to elucidate image segmentation.
5	Represent features of images.
<b>COs</b>	<b>EC6711- EMBEDDED AND REAL TIME SYSTEMS Lab</b>

1	Learn the working of ARM processor
2	Understand the Building Blocks of Embedded Systems
3	Learn the concept of memory map and memory interface
4	Know the characteristics of Real Time Systems
5	Write programs to interface memory, I/Os with processor
<b>COs</b>	<b>EC6712- Optical &amp; Microwave Lab</b>
1	Graduate will demonstrate and design and conduct experiments, analyze and interpret data.
2	Graduates will demonstrate and design a system, component or process as per needs and specifications.
3	Test microwave and optical components.
4	Analyse the mode characteristics of fiber
5	Analyse the radiation of pattern of antenna.
<b>COs</b>	<b>EC 6009- Advanced Computer Architecture</b>
1	Understand the micro-architectural design of processors
2	Learn about the various techniques used to obtain performance improvement and power savings in current processors
3	Evaluate performance of different architectures with respect to various parameters
4	Analyze performance of different ILP techniques
5	Identify cache and memory related issues in multi-processors
<b>COs</b>	<b>EC6014- COGNITIVE RADIO</b>
1	Know the basics of the software defined radios.
2	Learn the design of the wireless networks based on the cognitive radios
3	Understand the concepts of wireless networks and next generation networks

4	Design the wireless networks based on the cognitive radios
5	Explain the concepts behind the wireless networks and next generation networks
<b><u>SEMESTER VIII</u></b>	
<b>COs</b>	<b>GE6757- Total Quality Management</b>
1	Create constancy of purpose for improving products and services.
2	Adopt the new philosophy.
3	Cease dependence on inspection to achieve quality
4	End the practice of awarding business on price alone; instead, minimize total cost by working with a single supplier.
5	The student would be able to apply the tools and techniques of quality management to manufacturing and services processes
<b>COs</b>	<b>EC6801 - Wireless Communication</b>
1	An ability to compare various services and technical challenges.
2	An ability to compare various wireless propagation channels
3	An ability to analyze noise performance of wireless transceivers.
4	An ability to understand signal processing in wireless systems.
5	An ability to know about advanced transceiver schemes
<b>COs</b>	<b>EC 6802- Wireless Networks</b>
1	To study about fundamentals of 3G Services, its protocols and applications.
2	To study about evolution of 4G Networks, its architecture and applications.
3	Conversant with the latest 3G/4G and WiMAX networks and its architecture.
4	Design and implement wireless network environment for any application using latest wireless protocols and standards.
5	Implement different type of applications for smart phones and mobile devices with latest network strategies

<b>COs</b>	<b>GE6075- Professional Ethics in Engineering</b>
1	To enable the students to create an awareness on Engineering Ethics and Human Values
2	To instill Moral and Social Values and Loyalty and to appreciate the rights of others.
3	Upon completion of the course, the student should be able to apply ethics in society, discuss the ethical issues related to engineering
4	Realize the responsibilities and rights in the society
5	Understand the global issues
<b>COs</b>	<b>EC6811- Project Work</b>
1	An ability to design, analyze and interpret the data.
2	An ability to use modern engineering tools necessary for the experimental work.
3	On Completion of the project work students will be in a position to take up any challenging practical problems and find solution by formulating proper methodology.
4	Applying knowledge
5	Implementation of new and innovative technology