MAHENDRA INSTITUTE OF TECHNOLOGY

(Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai)
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DEPARTMENT OF AUTOMOBILE ENGINEERING

REGULATION & SEMESTE	**2017 - I**
SUBJECT CODE & NAME:	HS8151 - Communicative English
CO'S	**COURSE OUTCOMES**
CO1	Students will acquire wide knowledge in all the four skills such as listening, speaking, reading and writing
CO2	Students will be able to write effectively for a variety of professional and social settings.
CO3	Students will be able to share ideas and concepts in proper pronunciation, structure, appropriate use and style of the English Language as well as the application areas of English communication
CO4	Students will be able to prepare, organize, and deliver an engaging oral presentation.
CO5	Students will become active readers who can articulate their own interpretations with an awareness and curiosity for other perspectives.

SUBJECT CODE & NAME:	MA8151 -Engineering Mathematics - I
CO'S	**COURSE OUTCOMES**
	Student will be able,
CO1	To apply both the limit definition and rules of differentiation to differentiate functions.
CO2	To apply Differentiation in Maxima and Minima problems
CO3	To Evaluate integrals both by using Riemann's and the fundamental theorem of calculus
CO4	To compute multiple integrals, area, volume, integrals in polar co ordinates in addition to change of order and change of variables
CO5	To evaluate the integrals using techniques of integration, such as substitution, partial fractions and integration by parts

SUBJECT CODE & NAME:	PH8151 - Engineering Physics
CO'S	**COURSE OUTCOMES**
	Student will be able,
CO1	Understand the elastic behavior and theraml properties of materials.
CO2	Understand the properties and applications of wave and fiber optics
CO3	Understand thermal properties of the material.
CO4	Understand Quantum mechanical behavior of the material
CO5	Understand the crystal structure and growing methods of crystal

SUBJECT CODE & NAME:	CY8151 - Engineering Chemistry
CO'S	**COURSE OUTCOMES**
	Student will be able,
CO1	To Know and develop innovative methods to produce soft water for boiler feed by various treatment process.
CO2	Explain role of adsorption phenomena and various catalytic types and its key properties
CO3	Students able to know about significance and properties of alloy making and its application on phase diagram.
CO4	To explain about analysis and manufacture of various types of fuel.
CO5	To Know about the importance and application of energy sources and energy storage devices.

SUBJECT CODE & NAME:	GE8151 - Problem Solving and Python Programming
CO'S	**COURSE OUTCOMES**
	Student will be able,
CO1	Develop algorithmic solutions to simple computational problems
CO2	Read, write, execute by hand simple Python programs.
CO3	Structure simple Python programs for solving problems.
CO4	Decompose a Python program into functions.
CO5	Represent compound data using Python lists, tuples, dictionaries
CO6	Read and write data from/to files in Python Programs.
SUBJECT CODE & NAME:	GE8152 - Engineering Graphics
CO'S	**COURSE OUTCOMES**
	Student will be able to,
CO1	Perform Freehand Sketching Of Basic Geometrical Constructions And Multiple Views Of Objects and conic sections.
CO2	Develop Orthographic Projections Of Lines And Plane Surfaces
CO3	Draw projections of solids
CO4	Draw projections of development of surfaces
CO5	Visualize and to project isometric and perspective sections of simple solids

SUBJECT CODE & NAME:	GE8161- Problem Solving and Python Programming Laboratory
CO'S	**COURSE OUTCOMES**
	Student will be able to,
CO1	Write, test, and debug simple Python programs.
CO2	Implement Python programs with conditionals and loops.

CO3	Develop Python programs step-wise by defining functions and calling them.
CO4	Use Python lists, tuples, dictionaries for representing compound data.
CO5	Read and write data from/to files in Python.

SUBJECT CODE & NAME:	BS8161-Physics and Chemistry Laboratory
CO'S	**COURSE OUTCOMES**
CO1	Student will have knowledge to Analyse the particle size & accptance andle using laser.
CO2	Student will be able to Apply the principle of ultasonic interferometer
CO3	Student will be able to understand the priciples of spectrometer grating
CO4	Students can Analyse the thermal conductivity of a bad conductor
CO5	Student will be able to Apply the elastic behavior of material

REGULATION & SEMESTE	**2017 - II**
SUBJECT CODE & NAME:	HS8251 - Technical English
CO'S	**COURSE OUTCOMES**
	Student will be able to,
CO1	Read various types of texts adapting different reading strategies
CO2	Write letters and reports effectively in formal and informal situations.
CO3	Speak confidently and communicate with others effectively in order to improve their interview skills.
CO4	Use the language perfectly without grammatical errors and by using a wide range of vocabulary.
CO5	Use the technical information properly according to business situations.
SUBJECT CODE & NAME:	MA8251- Engineering Mathematics - II
CO'S	**COURSE OUTCOMES**
	Student will be able to,
CO1	To understand the concept of Eigen values and Eigen vectors, diagonalization of Matrix, symmetric matrices,positive definite matrices and similar matrices
CO2	To evaluate Gradient, Divergence and Curl of a Vector point functions and related identities.
CO3	To evaluate a Line,Surface and Volume integrals by using Gauss, Stokes and Green's Theorems and their verification.
CO4	To understand the concept ofAnalytic functions,conformal mapping and Complex integration
CO5	To understand the concept of Laplace Transform and inverse transform of simple functions, properties, various related theorems and application to differential equations with constant coe

SUBJECT CODE & NAME:	PH8251 - Materials Science
CO'S	**COURSE OUTCOMES**

	Student will be able to,
CO1	Understand the phase diagrams.
CO2	Understand the properties,preparation and applications of ferrous alloys
CO3	Understand the mechanical properties materials .
CO4	Understand properties and applications of the magnetic,dielectric and super conducting materials
CO5	Understand the properties,prepartion methods and applications of new materials

SUBJECT CODE & NAME:	BE8253 Basic Electrical, Electronics and InstrumentationEngineering
CO'S	**COURSE OUTCOMES**
	Student will be able to,
CO1	Understand electric circuits and working principle of electrical machines
CO2	understanding the concept of various electronic devices
CO3	choose appropriate instruments for electrical measurements for a specific appliocation

SUBJECT CODE & NAME:	GE8291 Environmental Science and Engineering
CO'S	**COURSE OUTCOMES**
	Student will be able to,
CO1	To Know about the Scope and important of Environmental Science and values of Biodiversity.
CO2	Students will capable to identify Problems related to various Environmental Pollutions and its Control & Prevention.
CO3	Students will understand the Natural resources and sensible use of resources for sustainable lifestyles
CO4	To acquire the knowledge about social problems related to energy and the environmental production.
CO5	To know about the importance of population explosion & family welfare programme and application of information technology in environment.

SUBJECT CODE & NAME:	GE8292 Engineering Mechanics
CO'S	**COURSE OUTCOMES**
	Student will be able to,
CO1	Illustrate the statics of particles in equilibrium
CO2	Analyse the rigid body in equilibrium
CO3	Evaluate the properties of surfaces and solids
CO4	Calculate dynamic forces exerted in rigid body
CO5	Determine the friction and its effects, rigid body dynamics

SUBJECT CODE & NAME:	GE8261 Engineering Practices Laboratory
CO'S	**COURSE OUTCOMES**
	Student will be able to,
CO1	Fabricate carpentry components and pipe connections including plumbing works.
CO2	Use welding equipments to join the structures.
CO3	Carry out the basic machining operations
CO4	Make the sheet metal models
CO5	Illustrate on centrifugal pump, Air conditioner, operations of smithy, foundary and fittings
CO6	Carry out basic home electrical works and appliances
CO7	Measure the electrical quantities
CO8	Elaborate on the components, gates, soldering practices.

SUBJECT CODE & NAME:	BE8261 Basic Electrical, Electronics and Instrumentation Engineering Laboratory
CO'S	**COURSE OUTCOMES**
	Student will be able to,
CO1	Ability to determine the speed characteristic of different electrical machines
CO2	Ability to design simple circuits involving diodes and transistors
CO3	Ability to use operational amplifiers
REGULATION & SEMESTE	**2017 - III**
SUBJECT CODE & NAME:	ME8391 - ENGINEERING THERMODYNAMICS
COS	**COURSE OUTCOMES**
CO1	To hepls to enrich the basic knowledge of thermodynamics
CO2	To deals about laws with applicatons
CO3	To deals about properties of pure substance and staem power cycle with help of mollier charts & steam table
CO4	To deals with relation of idel and real gases
CO5	To deals with mixtures of gases ratio with help of psychometry chart
SUBJECT CODE & NAME:	. CE8395-FLUID MECHANICS AND MACHINERY
COS	**COURSE OUTCOMES**
CO1	To enrich the knowledge in fuid properties& characteristic
CO2	To deals with boundary layer concepts
CO3	To come to the concepts of dimensional analysis of fluids

CO4	To outcome is to know the working of pumps and its type
CO5	To brings the knowledge of turbine and its efficiency

SUBJECT CODE & NAME:	AT8301 -SPARK IGNITION ENGINES
COS	**COURSE OUTCOMES**
CO1	To gives the knowledge in SI engines working
CO2	To enrich the knowledge in fuel system
CO3	To explores detail about combustion in SI engines
CO4	To gives liquid and gaseous fluid for SI engines
CO5	To deals with emmision form SI engines

SUBJECT CODE & NAME:	. CE8395 -Strength of Materials for Mechanical Engineers
COS	**COURSE OUTCOMES**
CO1	To helps to understand the deformation of solids
CO2	To helps to understand the beam
CO3	To explores the knowledge in shafts
CO4	To come to know the deflection of beams using various method
CO5	To outcome is stresses in cylinder and sphere

SUBJECT CODE & NAME:	ME8392 -MANUFACTURING TECHNOLOGY
COS	**COURSE OUTCOMES**
CO1	To comes to knoe about the casting
CO2	To understand the welding concepts
CO3	To comes to know about the concepts of machining in machines
CO4	To concepts of Plastics
CO5	To outcome is metallurgy processes
SUBJECT CODE & NAM	MA8253- Transforms and Partial Differential Equations
COS	**COURSE OUTCOMES**
	Students shall be able
CO1	To understand how to solve the given standard partial differential equations
CO2	To Solve the differential equations by using Fourier series analysis which place vital role in Engineering applications
CO3	To Appreciate the Physical significance of Fourier series techniques in solving one and two dimensional heat flow problems and one dimensional wave equations

CO4	To understand the mathematical principles on transforms and partial differential equations would provide them the ability to formulate and solve some of the physical problems of Engineering.
CO5	To apply the Effective mathematical tools for the solutions of partial differential equations by using Z-Transform Techniques for discrete time systems

SUBJECT CODE & NAME:	**CE8381 Strength of materials Fluid Mechanics and Machinery Laboratory**
COS	**COURSE OUTCOMES**
CO1	Ability to use the measurement equipments for flow measurement
CO2	Ability to do performance trust on different fluid machinery
CO3	Perform different destructive testing
CO4	Characteristic materials
CO5	Ability to perform different destructive testing
CO6	Ability to characteristic materials

SUBJECT CODE & NAME:	**ME8381 COMPUTER AIDED MACHINE DRAWING LABORATORY**
COS	**COURSE OUTCOMES**
CO1	To introduce the students the Indian standard code of practice for engineering drawing and general symbols and abbreviation used on the drawing.
CO2	To provide hands on experience to develop 2D and 3D models of engineering components.
CO3	Ability to develop engineering drawing for the industrial component using Indian Standard code of practice

SUBJECT CODE & NAME:	**HS8381 - Interpersonal Skills Lab**	
COS	**COURSE OUTCOMES**	**Students will be able to :**
CO1	Listen and respond appropriately.	
CO2	Participate in group discussions.	
CO3	Make effective presentations.	
CO4	Participate confidently and appropriately in conversations both formal and informal.	
CO5	Lead the team confidently by acquiring excellent leadership skills.	

REGULATION & SEMESTE	**2017 - IV**
SUBJECT CODE & NAME:	MA8452-STATISTICS AND NUMERICAL METHODS
COS	**COURSE OUTCOMES**
CO1	Apply the concept of testing of hypothesis for small and large samples in real life problems.

CO2	Apply the basic concepts of classifications of design of experiments in the field of agriculture.
CO3	Appreciate the numerical techniques of interpolation in various intervals and apply the numerical techniques of differentiation and integration for engineering problems.
CO4	Understand the knowledge of various techniques and methods for solving first and second order ordinary differential equations.
CO5	Solve the partial and ordinary differential equations with initial and boundary conditions by using certain techniques with engineering applications
SUBJECT CODE & NAME:	AT8401-COMPRESSION IGNITION ENGINES
COS	**COURSE OUTCOMES**
CO1	Upon completion of this course, the students can be able to understand the various systems and its operations.
CO2	Upon completion of this course, the students can be able to understand the various systems and its diesel injection system
CO3	The students can be able to understand the various systems and its combustion in CI engines
CO4	Upon completion of this course, the students can be able to understand the various systems and alternative fuels used in CI engines.
CO5	Upon completion of this course, the students can be able to understand the various systems and liquid and gaseous fuels.
SUBJECT CODE & NAME:	ME8491-ENGINEERING METALLURGY
COS	**COURSE OUTCOMES**
CO1	Explain alloys and phase diagram, Iron-Iron carbide diagram and steel classification.
CO2	Explain isothermal transformation, continuous cooling diagrams and different heat treatment processes.
CO3	Summarize the mechanism of plastic deformation and testing mechanical properties.
CO4	Clarify the effect of alloying elements on ferrous and non-ferrous metals.
CO5	Differentiate different non-mettalic materials
SUBJECT CODE & NAME:	EC8396-ELECTRONICS AND MICROPROCESSORS
COS	**COURSE OUTCOMES**
CO1	To enable the students to understand the fundamental concepts of Semi Conductors
CO2	To enable the students to understand the fundamental concepts of Transistors & Rectifiers.
CO3	To enable the students to understand the fundamental concepts Digital Electronics
CO4	Ability to perform performing on 8085 Microprocessor to control devices

CO5	Ability to use microcontroller and programming
SUBJECT CODE & NAME:	AT8402-AUTOMOTIVE CHASSIS
COS	**COURSE OUTCOMES**
CO1	The students will understand the constructional, working principle of steering system
CO2	The students will understand the constructional, working principle of drive line
CO3	The students will understand the constructional, working principle of rear axle wheels & rims
CO4	The students will understand the constructional, working principle of suspension system
CO5	The students will understand the constructional, working principle of brake system
SUBJECT CODE & NAME:	PR8451-MECHANICS OF MACHINES
COS	**COURSE OUTCOMES**
CO1	Understand the principles in the formation of mechanisms and their kinematics
CO2	Understand the construction features of Gears and Gear Trains.
CO3	Understand the effect of friction in different machine elements.
CO4	Understand the importance of Governors and Gyroscopic effects.
CO5	Understand the importance of vibration.
SUBJECT CODE & NAME:	AT8411-AUTOMOTIVE COMPONENTS LABORATORY
COS	**COURSE OUTCOMES**
CO1	Ability to dismantle and assemble the automobile components
CO2	To train the Students to know the details of different components, dismantling and assembling them.
SUBJECT CODE & NAME:	EC8382-ELECTRONICS AND MICROPROCESSORS LABORATORY
COS	**COURSE OUTCOMES**
CO1	To supplement the theoretical knowledge with practical use of electronic components and programming and control using micro-processors
CO2	Ability to perform speed characteristic of different electronics and microprocessor machine

REGULATION & SEMESTE	2017 - V
SUBJECT CODE & NAME:	ME8593-DESIGN OF MACHINE ELEMENTS
COS	**COURSE OUTCOMES**
CO1	Explain the influence of steady and variable stresses in machine component design.
CO2	Apply the concepts of design to shafts, keys and couplings
CO3	Apply the concepts of design to temporary and permanent joints.
CO4	Apply the concepts of design to energy absorbing members, bearings and connecting rod.
CO5	Apply the concepts of design to bearings.
SUBJECT CODE & NAME:	AT8501-AUTOMOTIVE TRANSMISSION
COS	**COURSE OUTCOMES**
CO1	To know about the working principle of clutch & gear box
CO2	To know about the working principle of hydrodynamic transmission
CO3	To know about the working principle of epicyclic gearboxs & used automatic transmission
CO4	To know about the working principle of automatic transmission applications
CO5	To know about the working principle of hydrostatic & electric drive
SUBJECT CODE & NAME:	AT8502-AUTOMOTIVE ELECTRICAL AND ELECTRONICS SYSTEMS
COS	**COURSE OUTCOMES**
CO1	To enrich the knowledge in batteries and starting system in automobile vehicle
CO2	To enrich the knowledge in batteries charging system lighting & accessories in automobile vehicle
CO3	To enrich the knowledge in electronic ignition & injection system in automobile vehicle
CO4	To learn about sensors and microprocessors in automobuiles
CO5	to learn about the safety systems in automobile
SUBJECT CODE & NAME:	AT8503-VEHICLE DESIGN AND DATA CHARACTERISTICS
COS	**COURSE OUTCOMES**

CO1	The students can able to understand the basic design principle of vehicle, able to draw the performance curves pertain to engine and chassis
CO2	To enrich the knowledge in resistance to vehicle motion
CO3	Students have to collect important technical specifications of an automobile from Automobile Journals and keeping this, as a guide, they have to calculate and tabulate various vehicle performance parameters and design parameters and to draw curves using these data
CO4	Students have to collect important technical specifications of an automobile from Automobile Journals and keeping this, as a guide, they have to calculate and tabulate various vehicle performance parameters and design parameters and to draw curves using these data
CO5	To learn about the gear ratio and problems in vehicle perfomance
SUBJECT CODE & NAME:	AT8504-AUTOMOTIVE FUELS AND LUBRICANTS
COS	**COURSE OUTCOMES**
CO1	At the end of the course, the student can understand the importance of manufacture of fuels & lubricants
CO2	To enrich the knowledge in theory of lubrication
CO3	To enrich the knowledge lubricants properties & perfomance
CO4	To learn about the testing methods of fuels
CO5	To learn about the flame propogations and mechanism of combustions of fuels
SUBJECT CODE & NAME:	AT8511-AUTOMOTIVE ELECTRICAL AND ELECTRONICS LABORATORY
COS	**COURSE OUTCOMES**
CO1	To introduce the testing procedure for electrical and electronics system in automobile.
CO2	Ability to rectify and faults in electrical and electronics systems and maintain the same.
SUBJECT CODE & NAME:	AT8512-AUTOMOTIVE FUELS AND LUBRICANTS LABORATORY
COS	**COURSE OUTCOMES**
CO1	To study the characteristics of the fuels and Lubricants used in automobile
CO2	Ability to characteristic and chase the fuels and Lubricantes for the automobiles
SUBJECT CODE & NAME:	HS8581- PROFESSIONAL COMMUNICATION
COS	**COURSE OUTCOMES**
CO1	Make effective presentations
CO2	Participate confidently in Group Discussions

SUBJECT CODE & NAME:	GE8077- TOTAL QUALITY MANAGEMENT
COS	**COURSE OUTCOMES**
CO1	To facilitate the importance of Total Quality of Management
CO2	To know about the principles of TQM
CO3	To know about & implementation of Tools & techniques of TQM
CO4	To know about & implementation of Tools & techniquesII of TQM
CO5	To know about the quality management sysytem based on ISO
REGULATION & SEMESTE	**2017 - V**
SUBJECT CODE & NAME:	AT8601-AUTOMOTIVE ENGINE COMPONENTS DESIGN
COS	**COURSE OUTCOMES**
CO1	Upon completion of the course, students will be able to impart knowledge in automotive engine. The detailed concept, construction and principle of operation of engine and various engine components
CO2	Upon completion of the course, students will be able to impart knowledge in automotive engine. The detailed concept, construction and principle of operation of design of cylinder, pistor & connecting rod
CO3	Upon completion of the course, students will be able to impart knowledge in automotive engine. The detailed concept, construction and principle of operation of design of crankshaft
CO4	Upon completion of the course, students will be able to impart knowledge in automotive engine. The detailed concept, construction and principle of operation of design of flywheels
CO5	Upon completion of the course, students will be able to impart knowledge in automotive engine. The detailed concept, construction and principle of operation of design of valves & valve train
SUBJECT CODE & NAME:	AT8602-AUTOMOTIVE CHASSIS COMPONENTS DESIGN
COS	**COURSE OUTCOMES**
CO1	At the end of the course, the student can able to design the automotive components like frame & chasis
CO2	At the end of the course, the student can able to design the automotive components like front axle & steering system.
CO3	At the end of the course, the student can able to design the automotive components like clutch
CO4	At the end of the course, the student can able to design the automotive components like gearbox
CO5	At the end of the course, the student can able to design the automotive like driveline components
SUBJECT CODE & NAME:	AT8603-TWO AND THREE WHEELERS
COS	**COURSE OUTCOMES**

CO1	The students can able to understand the various subsystem of two and three wheeler and also know about the power units in automobile
CO2	The students can able to understand the various subsystem of two and three wheeler and also know about the fuel & ignition systems
CO3	The students to know and understand the constructional details operating characteristics and vehicle design aspects
CO4	The students to know and understand the constructional details operating characteristics and vehicle brakes & wheels
CO5	To implement the Case study of automobile vehicle
SUBJECT CODE & NAME:	AT8604-VEHICLE DYNAMICS
COS	**COURSE OUTCOMES**
CO1	To know about the application of basic concepts of vibrations
CO2	To know about the application of basic concepts of forces and moments in tires
CO3	To know about the analysis of vibrations
CO4	To know about the longitudinal dynamics and control in vehicle components
CO5	To know about the lateral dynamics and control in vehicle components
SUBJECT CODE & NAME:	AT8611-COMPUTER AIDED ENGINE AND CHASSIS DESIGN LABORATORY
COS	**COURSE OUTCOMES**
CO1	Ability to use the drafty and modeling software for automobile components design
CO2	To familarise the students to use modeling software to model engine components and chassis design
SUBJECT CODE & NAME:	AT8612-TWO AND THREE WHEELERS LABORATORY
COS	**COURSE OUTCOMES**
CO1	Ability to assemble the engine components and conduct performance test on two and three wheelers.
CO2	To train the students to dismatle and assemble the gear box, steering system etc.,
REGULATION & SEMESTE	**2017 - VII**
SUBJECT CODE & NAME:	AT8701-ENGINE AND VEHICLE MANAGEMENT SYSTEM
COS	**COURSE OUTCOMES**
CO1	I unit deals with role of electronics in automobile

CO2	II unit deals with act of sensors in automobile
CO3	III unit deals with SI engine management
CO4	IV unit deals with CI engine management
CO5	V unit deals with Anti breaking System
SUBJECT CODE & NAME:	ME8692-FINITE ELEMENT ANALYSIS
COS	**COURSE OUTCOMES**
CO1	I unit deals with role of FEA in engineering
CO2	II unit deals with one dimensional problems
CO3	III unit deals with two dimensional problrms
CO4	IV unit deals with two dimwnsional vector variable problems
CO5	V unit deals with Isoparametric formulation
SUBJECT CODE & NAME:	AT8702-VEHICLE MAINTENANCE
COS	**COURSE OUTCOMES**
CO1	I unit deals with maintenance of workshop
CO2	II unit deals with engine sub system maintenance
CO3	III unit deals with transmission and drive line maintenance
CO4	IV unit deals with steering & brake
CO5	V unit deals with AC maintenance in automobile
SUBJECT CODE & NAME:	AT8711-ENGINE PERFORMANCE AND EMISSION TESTING LABORATORY
COS	**COURSE OUTCOMES**
CO1	To conduct performance test and emission test on the IC engines
CO2	Ability to control the emission and use of different equipments to conduct performance test.
SUBJECT CODE & NAME:	AT8712-VEHICLE MAINTENANCE LABORATORY
COS	**COURSE OUTCOMES**

CO1	To train the structures in identifying the fault and rectification.
CO2	Ability to identify the faults and knowledge on maintenance

REGULATION & SEMESTE	**2017 - VIII**
SUBJECT CODE & NAME:	AT8801-VEHICLE BODY ENGINEERING
COS	**COURSE OUTCOMES**
CO1	To enhance the knowledge in structure of car body
CO2	To enhance the knowledge in structure of bus body
CO3	To enhance the knowledge in commercial vehicle
CO4	Toenhance the knowledge in drag force
CO5	To enhance the knowledge in body repair
SUBJECT CODE & NAME:	AT8811-PROJECT WORK
COS	**COURSE OUTCOMES**
CO1	To develop the ability to solve a specific problem right from its identification and literature review till the successful solution of the same. To train the students in preparing project reports and to face reviews and viva voce examination
CO2	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.

DEPARTMENT OF BIOMEDICAL ENGINEERING

REGULATION & SEMESTE	**2017- I**
SUBJECT CODE & NAME:	HS8151 Communicative English
COS	**COURSE OUTCOMES**
CO1	Students will acquire wide knowledge in all the four skills such as listening, speaking, reading and writing
CO2	Students will be able to write effectively for a variety of professional and social settings.
CO3	Students will be able to share ideas and concepts in proper pronunciation, structure, appropriate use and style of the English Language as well as the application areas of English communi
CO4	Students will be able to prepare, organize, and deliver an engaging oral presentation

CO5	Students will become active readers who can articulate their own interpretations with an awareness and curiosity for other perspectives.

SUBJECT CODE & NAME:	MA8151 Engineering Mathematics - I
COS	**COURSE OUTCOMES**
CO1	To apply both the limit definition and rules of differentiation to differentiate functions.
CO2	To apply Differentiation in Maxima and Minima problems
CO3	To Evaluate integrals both by using Riemann's and the fundamental theorem of calculus
CO4	To compute multiple integrals, area, volume, integrals in polar co ordinates in addition to change of order and change of variables
CO5	To evaluate the integrals using techniques of integration, such as substitution, partial fractions and integration by parts

SUBJECT CODE & NAME:	PH8151 Engineering Physics
COS	**COURSE OUTCOMES**
CO1	Student will have knowledge to apply the elastic behavior of material.
CO2	Student will be able to Understand the properties and applications of wave and fiber optics
CO3	Student will be able to anlyse thermal properties of the material.
CO4	Student will be able to Understand Quantum mechanical behavior of the material
CO5	Student will be able to Understand the crystal structure and growing methods of crystal

SUBJECT CODE & NAME:	CY8151 Engineering Chemistry
COS	**COURSE OUTCOMES**
CO1	Able to Know and develop innovative methods to produce soft water for boiler feed by various treatment process.
CO2	Able to Explain role of adsorption phenomena and various catalytic types and its key properties
CO3	

CO4	Able to Explain about analysis and manufacture of various types of fuel.
CO5	Able to The importance and application of energy sources and energy storage devices.

SUBJECT CODE & NAME:	GE8151 Problem Solving and Python Programming
COS	**COURSE OUTCOMES**
CO1	Able to Develop algorithmic solutions to simple computational problems
CO2	Able to Read, write, execute by hand simple Python programs.
CO3	Able to Structure simple Python programs for solving problems.
CO4	Able to Decompose a Python program into functions.
CO5	Able to Represent compound data using Python lists, tuples, dictionaries
CO6	Able to Read and write data from/to files in Python Programs.

SUBJECT CODE & NAME:	GE8152 Engineering Graphics
COS	**COURSE OUTCOMES**
CO1	Able to Perform Freehand Sketching Of Basic Geometrical Constructions And Multiple Views Of Objects and conic sections.
CO2	Able to Develop Orthographic Projections Of Lines And Plane Surfaces
CO3	Able to Draw projections of solids
CO4	Able to Draw projections of development of surfaces
CO5	Able to Visualize and to project isometric and perspective sections of simple solids

SUBJECT CODE & NAME:	GE8161 Problem Solving and Python Programming Laboratory
COS	**COURSE OUTCOMES**
CO1	

CO2	Able to Implement Python programs with conditionals and loops.
CO3	Able to Develop Python programs step-wise by defining functions and calling them.
CO4	Able to Use Python lists, tuples, dictionaries for representing compound data.
CO5	Able to Read and write data from/to files in Python.

SUBJECT CODE & NAME:	BS8161 Physics and Chemistry Laboratory
COS	**COURSE OUTCOMES**
CO1	Student will have knowledge to Analyse the particle size & accptance andle using laser.
CO2	Student will be able to Apply the principle of ultasonic interferometer
CO3	Student will be able to understand the priciples of spectrometer grating
CO4	Students can Analyse the thermal conductivity of a bad conductor
CO5	Student will be able to Apply the elastic behavior of material

REGULATION & SEMESTE	**2017- II**
SUBJECT CODE & NAME:	HS8251 Technical English
COS	**COURSE OUTCOMES**
CO1	Read various types of texts adapting different reading strategies
CO2	Write letters and reports effectively in formal and informal situations.
CO3	Speak confidently and communicate with others effectively in order to improve their interview skills.
CO4	Use the language perfectly without grammatical errors and by using a wide range of vocabulary.
CO5	Use the technical information properly according to business situations.

SUBJECT CODE & NAME:	MA8251 Engineering Mathematics - II

COS	COURSE OUTCOMES
CO1	To understand the concept of Eigen values and Eigen vectors, diagonalization of Matrix, symmetric matrices,positive definite matrices and similar matrices
CO2	To evaluate Gradient, Divergence and Curl of a Vector point functions and related identities.
CO3	To evaluate a Line,Surface and Volume integrals by using Gauss, Stokes and Green's Theorems and their verification.
CO4	To understand the concept ofAnalytic functions,conformal mapping and Complex integration
CO5	To understand the concept of Laplace Transform and inverse transform of simple functions, properties, various related theorems and application to differential equations with constant coe

SUBJECT CODE & NAME:	PH8253 Physics for Electronics Engineering
COS	**COURSE OUTCOMES**
CO1	students can Understand the Electrical properties of conducting materials.
CO2	students can Understand the properties and applications of semiconducting materials .
CO3	students can apply the properties and applications of the magnetic materials and dielectric material
CO4	students can able to Understand the properties and applications of optical materials
CO5	students can apply the properties and applications of nano electronic device

SUBJECT CODE & NAME:	BM8251 Engineering Mechanics for Biomedical Engineers
COS	**COURSE OUTCOMES**
CO1	Use scalar and vector analytical techniques for analysing forces in statically determinate structures
CO2	Apply fundamental concepts of kinematics and kinetics of particles to the analysis of simple, practical problems

SUBJECT CODE & NAME:	BM8201 Fundamentals of Bio Chemistry
COS	**COURSE OUTCOMES**
CO1	

CO2	Clinical application of Biochemistry

SUBJECT CODE & NAME:	EC8251 Circuit Analysis
COS	**COURSE OUTCOMES**
CO1	Develop the capacity to analyze electrical circuits, apply the circuit theorems in real time
CO2	Design and understand and evaluate the AC and DC circuits

SUBJECT CODE & NAME:	GE8261 Engineering Practices Laboratory
COS	**COURSE OUTCOMES**
CO1	Fabricate carpentry components and pipe connections including plumbing works.
CO2	Use welding equipments to join the structures.
CO3	Carry out the basic machining operations
CO4	Make the sheet metal models
CO5	Illustrate on centrifugal pump, Air conditioner, operations of smithy, foundary and fittings
CO6	Carry out basic home electrical works and appliances
CO7	Measure the electrical quantities
CO8	Elaborate on the components, gates, soldering practices.

SUBJECT CODE & NAME:	BM8211 Bio Chemistry Laboratory
COS	**COURSE OUTCOMES**
CO1	Understand the Biochemistry laboratory functional components
CO2	Understand the basics principle of preparation of buffers.
CO3	

CO4	Understand the basics knowledge of Biochemical parameter and their interpretation in Blood sample.
CO5	Have a sound knowledge of separation technology of proteins and aminoacids

REGULATION & SEMESTE	**2017- III**
SUBJECT CODE & NAME:	MA8352 Linear Algebra and Partial Differential Equations
COS	**COURSE OUTCOMES**
CO1	To explain the fundamental concepts of advanced algebra and their role in model mathematics and applied contexts.
CO2	To demonstrate accurate and efficient use of advanced algebraic techniques
CO3	To demonstrate their mastery by solving non-trivial problems related to the concepts and by proving simple theorems about the statements proven by the text.
CO4	To solve various types of Partial Differential Equations
CO5	To solve Engineering problems using Fourier series.

SUBJECT CODE & NAME:	EC8352 Signals and Systems
COS	**COURSE OUTCOMES**
CO1	To be able to determine if a given system is linear/causal/stable
CO2	Capable of determining the frequency components present in a deterministic signal
CO3	Capable of characterizing LTI systems in the time domain and frequency domain
CO4	To be able to compute the output of an LTI system in the time and frequency domains

SUBJECT CODE & NAME:	BM8351 Anatomy and Human Physiology
COS	**COURSE OUTCOMES**
CO1	Students would be able to explain basic structure and functions of cell
CO2	

CO3	Students would be able to explain interconnect of various systems

SUBJECT CODE & NAME:	BM8301 Sensors and Measurements
COS	**COURSE OUTCOMES**
CO1	Able to Measure various electrical parameters with accuracy, precision, resolution
CO2	Able to Select appropriate active or passive transducer for measurement of physical phenomenon
CO3	Able to Select appropriate light sensors for measurement of physical phenomenon.
CO4	Able to Use AC and DC bridges for relevant parameter measurement.
CO5	Able to Employ Multimeter, CRO and different types of recorders for appropriate measurement.

SUBJECT CODE & NAME:	EC8353 Electron Devices and Circuits
COS	**COURSE OUTCOMES**
CO1	Able to Explain the structure and working operation of basic electronic devices.
CO2	Able to identify and differentiate both active and passive elements
CO3	Able to Analyze the characteristics of different electronic devices such as diodes and transistors
CO4	Able to Choose and adapt the required components to construct an amplifier circuit.
CO5	Able to Employ the acquired knowledge in design and analysis of oscillators

SUBJECT CODE & NAME:	BM8302 Pathology and Microbiology
COS	**COURSE OUTCOMES**
CO1	Analyze structural and functional aspects of living organisms.
CO2	Explain the function of microscope
CO3	

CO4	Describe methods involved in treating the pathological diseases.

SUBJECT CODE & NAME:	BM8311 Pathology and Microbiology Laboratory
COS	**COURSE OUTCOMES**
CO1	Student can perform practical experiments on tissue processing, cryoprocessing, staining Processes etc.

SUBJECT CODE & NAME:	BM8312 Devices and Circuits Laboratory
COS	**COURSE OUTCOMES**
CO1	Analyze the characteristics of basic electronic devices
CO2	Design RL and RC circuits
CO3	Verify Thevinin & Norton theorem KVL & KCL, and Super Position Theorems

SUBJECT CODE & NAME:	BM8313 Human Physiology Laboratory
COS	**COURSE OUTCOMES**
CO1	Identification and enumeration of blood cells
CO2	Enumeration of haematological parameters
CO3	Analysis of special sensory organs test
REGULATION & SEMESTE	**2017- IV**
SUBJECT CODE & NAME:	MA8391 PROBABILITY AND STATISTICS
COS	**COURSE OUTCOMES**
CO1	This course aims at providing the required skill to apply the statistical tools in engineering problems.
CO2	

CO3	To introduce the basic concepts of two dimensional random variables.
CO4	To acquaint the knowledge of testing of hypothesis for small and large samples which plays an important role in real life problems.
CO5	To introduce the basic concepts of classifications of design of experiments which plays very
SUBJECT CODE & NAME:	BM8401 MEDICAL PHYSICS
COS	**COURSE OUTCOMES**
CO1	To study principles and effects of ionizing and non-ionizing radiation in human body
CO2	To discuss the physics of the senses
CO3	To explore the effects of radiation in matter and how isotopes are produced
CO4	To understand various detectors for detecting the presence of ionizing radiation.
SUBJECT CODE & NAME:	EE8452 Basics of Electrical Engineering
COS	**COURSE OUTCOMES**
CO1	To introduce the fundamental concepts of electrical circuits connections with load.
CO2	To understand the basic theory, operational characteristics of AC and DC machines
CO3	To study the operating principles of measuring instrument for V, I, energy, power.
CO4	To create awareness on the methods for electrical safety, load protection.
CO5	To observe the electricity supply sources based on classical and standalone systems.
SUBJECT CODE & NAME:	EC8453 LINEAR INTEGRATED CIRCUITS
COS	**COURSE OUTCOMES**
CO1	To introduce the basic building blocks of linear integrated circuits
CO2	

CO3	To introduce the theory and applications of analog multipliers and PLL
CO4	To learn the theory of ADC and DAC
CO5	To introduce the concepts of waveform generation and introduce some special function ICs
SUBJECT CODE & NAME:	EC8393 FUNDAMENTALS OF DATA STRUCTURES IN C
COS	**COURSE OUTCOMES**
CO1	To learn the features of C
CO2	To learn the linear and non-linear data structures
CO3	To explore the applications of linear and non-linear data structures
CO4	To learn to represent data using graph data structure
CO5	To learn the basic sorting and searching algorithms
SUBJECT CODE & NAME:	EC8392 DIGITAL ELECTRONICS
COS	**COURSE OUTCOMES**
CO1	To present the Digital fundamentals, Boolean algebra and its applications in digital systems
CO2	To familiarize with the design of various combinational digital circuits using logic gates
CO3	To introduce the analysis and design procedures for synchronous and asynchronous sequential circuits
CO4	To explain the various semiconductor memories and related technology
CO5	To introduce the electronic circuits involved in the making of logic gates
SUBJECT CODE & NAME:	EC8381 FUNDAMENTALS OF DATA STRUCTURES IN C LABORATORY
COS	**COURSE OUTCOMES**
CO1	

CO2	To apply linear and non-linear data structures in problem solving.
CO3	To learn to implement functions and recursive functions by means of data structures
CO4	To implement searching and sorting algorithms
SUBJECT CODE & NAME:	BM8411 INTEGRATED CIRCUITS LABORATORY
COS	**COURSE OUTCOMES**
CO1	To expose the students to linear and integrated circuits
CO2	To understand the basics of linear integrated circuits and available ICs
CO3	To understand characteristics of operational amplifier.
CO4	To apply operational amplifiers in linear and nonlinear applications.
CO5	To acquire the basic knowledge of special function IC.
CO6	To use SPICE software for circuit design
REGULATION & SEMESTE	**2017- V**
SUBJECT CODE & NAME:	EC8394 Analog and Digital Communication
COS	**COURSE OUTCOMES**
CO1	Understand analog and digital communication techniques.
CO2	Learn data and pulse communication techniques.
CO3	Be familiarized with source and Error control coding.
CO4	Gain knowledge on multi-user radio communication.

SUBJECT CODE & NAME:	BM8501 Biocontrol Systems
COS	**COURSE OUTCOMES**

CO1	To understand the concept behind feedback and continuum in various systems and subsystems.
CO2	To analyse the systems in time and frequency domain and to understand the concept of stability
CO3	To apply mathematical modelling principles in understanding the various fundamental biological systems
CO4	To analyse biological system models using MATLAB

SUBJECT CODE & NAME:	BM8502 Biomedical Instrumentation
COS	**COURSE OUTCOMES**
CO1	To Illustrateorigin of bio potentials and its propagations
CO2	To understand the different types of electrodes and its placement for various recordings
CO3	To design bio amplifier for various physiological recordings
CO4	To learn the different measurement techniques for non-physiological parameters.
CO5	To Summarizedifferent biochemical measurements.

SUBJECT CODE & NAME:	EC8553 Discrete Time Signal Processing
COS	**COURSE OUTCOMES**
CO1	To Learn the Discrete Fourier Transform,properties of DFT and application to linear Filtering.
CO2	To Understand the Characteristics of digital filter,design digital IIR and FIR filters and apply these filters to filter undesirable signals in various frequency bands
CO3	To understand the effects of finite precision representation on digital filters
CO4	To understand the fundamental concepts of multi rate signal processing and its applications
CO5	To introduce the concepts of adaptive filters and its application to communication engineering
SUBJECT CODE & NAME:	BM8072 Biomaterials
COS	**COURSE OUTCOMES**

CO1	Learn characteristics and classification of Biomaterials
CO2	Understand Different Metals,Ceramics and its nanomaterials Characteristics as Biomaterials
CO3	Learn polymeric materials and its combinations that could be used as a tissue replacement implants
CO4	Get familiarized with the concepts of Nano Science and Technology
CO5	Understand the concept of biocompatibility and the methods for biomaterials testing

SUBJECT CODE & NAME:	OBT553 FUNDAMENTALS OF NUTRITION
COS	**COURSE OUTCOMES**
CO1	The course aims to develop the knowledge of students in the basic area of Food Chemistry.
CO2	This is necessary for effective understanding of food processing and technology subjects.
CO3	This course will enable students to appreciate the similarities and complexities of the chemical components in foods.

SUBJECT CODE & NAME:	EC8562 DIGITAL SIGNAL PROCESSING LABORATORY
COS	**COURSE OUTCOMES**
CO1	To perform basic signal processing operations such as Linear Convolution, Circular Convolution, Auto Correlation, Cross Correlation and Frequency analysis in MATLAB
CO2	To implement FIR and IIR filters in MATLAB and DSP Processor
CO3	To study the architecture of DSP processor
CO4	To design a DSP system to demonstrate the Multi-rate and Adaptive signal processing concepts

SUBJECT CODE & NAME:	BM8511 BIO MEDICAL INSTRUMENTATION LABORATORY
COS	**COURSE OUTCOMES**
CO1	To provide hands-on training on designing of bio signal acquisition system and measurement of physiological parameters, biochemical parameters.

SUBJECT CODE & NAME:	HS8381 INTERPERSONAL SKILLS/LISTENING&SPEAKING
COS	**COURSE OUTCOMES**
CO1	Equip students with the English language skills required for the successful undertaking of academic studies with primary emphasis on academic speaking and listening skills.
CO2	Provide guidance and practice in basic general and classroom conversation and to engage in specific academic speaking activities.
CO3	improve general and academic listening skills
CO4	Make effective presentations

REGULATION & SEMESTE	2017- VI
SUBJECT CODE & NAME:	EC8691 MICROPROCESSORS AND MICROCONTROLLERS
COS	**COURSE OUTCOMES**
CO1	To understand the Architecture of 8086 microprocessor.
CO2	To learn the design aspects of I/O and Memory Interfacing circuits.
CO3	To interface microprocessors with supporting chips.
CO4	To study the Architecture of 8051 microcontroller.
CO5	To design a microcontroller based system

SUBJECT CODE & NAME:	BM8601 DIAGNOSTIC AND THERAPEUTIC EQUIPMENT- I
COS	**COURSE OUTCOMES**
CO1	Understand the devices for measurement of parameters related to cardiology.
CO2	Illustrate the recording and measurement of EEG
CO3	Demonstrate EMG recording unit and its uses.
CO4	Explain diagnostic and therapeutic devices related to respiratory parameters.
CO5	

SUBJECT CODE & NAME:	BM8651 BIOMECHANICS
COS	**COURSE OUTCOMES**
CO1	Explain the principles of mechanics.
CO2	Discuss the mechanics of physiological systems.
CO3	Explain the mechanics of joints.
CO4	Illustrate the mathematical models used in the analysis of biomechanical systems

SUBJECT CODE & NAME:	GE8291 ENVIRONMENTAL SCIENCE AND ENGINEERING
COS	**COURSE OUTCOMES**
CO1	To study the nature and facts about environment.
CO2	To finding and implementing scientific, technological, economic and political solutions to environmental problems.
CO3	To study the interrelationship between living organism and environment.
CO4	To appreciate the importance of environment by assessing its impact on the human world; envision the surrounding environment, its functions and its value.
CO5	To study the dynamic processes and understand the features of the earth′s interior and surface.
CO6	To study the integrated themes and biodiversity, natural resources, pollution control and waste management

SUBJECT CODE & NAME:	MD8091 HOSPITAL MANAGEMENT
COS	**COURSE OUTCOMES**
CO1	To understand the fundamentals of hospital administration and management.
CO2	To know the market related research process
CO3	To explore various information management systems and relative supportive services.
CO4	

SUBJECT CODE & NAME:	BM8002 ARTIFICIAL ORGANS AND IMPLANTS
COS	**COURSE OUTCOMES**
CO1	To have an overview of artificial organs & transplants
CO2	To describe the principles of implant design with a case study
CO3	To explain the implant design parameters and solution in use
CO4	To study about various blood interfacing implants
CO5	To study about soft tissue replacement and hard tissue replacement

SUBJECT CODE & NAME:	EC8681 MICROPROCESSORS AND MICROCONTROLLERS LABORATORY
COS	**COURSE OUTCOMES**
CO1	To Introduce ALP concepts, features and Coding methods
CO2	Write ALP for arithmetic and logical operations in 8086 and 8051
CO3	Differentiate Serial and Parallel Interface
CO4	Interface different I/Os with Microprocessors
CO5	Be familiar with MASM

SUBJECT CODE & NAME:	BM8611 DIAGNOSTIC AND THERAPEUTIC EQUIPMENT LABORATORY
COS	**COURSE OUTCOMES**
CO1	To demonstrate recording and analysis of different Bio potentials
CO2	To examine different therapeutic modalities.

SUBJECT CODE & NAME:	BM8612 MINI PROJECT

COS	COURSE OUTCOMES
CO1	To develop skills to formulate a technical project.
CO2	To estimate the ability of the student in transforming the theoretical knowledge studied so far into a working model of a Biomedical/ Electronics/ Mechatronic/ Instrumentation system.
CO3	To teach use of new tools, algorithms and techniques required to carry out the projects.
CO4	To give guidance on the various procedures for validation of the product and analyze the cost effectiveness.
CO5	For enabling the students to gain experience in organization and implementation of a small project and thus acquire the necessary confidence to carry out main project in the final year.
CO6	To provide guidelines to prepare technical report of the project.

REGULATION & SEMESTE	2017- VII
SUBJECT CODE & NAME:	BM8701 DIAGNOSTIC AND THERAPEUTIC EQUIPMENT – II
COS	COURSE OUTCOMES
CO1	Understand the devices used in ICU and principles of Telemetry.
CO2	Describe types of diathermy and its uses
CO3	Demonstrate applications of ultrasound in medicine
CO4	Explain extracorporeal devices used in critical care
CO5	Discuss the importance of patient safety against electrical hazard

SUBJECT CODE & NAME:	EC8093 DIGITAL IMAGE PROCESSING
COS	COURSE OUTCOMES
CO1	To become familiar with digital image fundamentals
CO2	To get exposed to simple image enhancement techniques in Spatial and Frequency domain.
CO3	To learn concepts of degradation function and restoration techniques.
CO4	

CO5	To become familiar with image compression and recognition methods

SUBJECT CODE & NAME:	BM8702 RADIOLOGICAL EQUIPMENTS
COS	**COURSE OUTCOMES**
CO1	To understand the generation of X-ray and its uses in imaging
CO2	To describe the principle of Computed Tomography.
CO3	To know the techniques used for visualizing various sections of the body.
CO4	To learn the principles of different radio diagnostic equipment in Imaging
CO5	To discuss the radiation therapy techniques and radiation safety.

SUBJECT CODE & NAME:	BM8703 REHABILITATION ENGINEERING
COS	**COURSE OUTCOMES**
CO1	To understand the rehabilitation concepts and Rehabilitation team members for future development and applications.
CO2	To study various Principles of Rehabilitation Engineering.
CO3	To understand different types of Therapeutic Exercise Technique.
CO4	To understand the tests to assess the hearing loss, development of electronic devices to compensate for the loss and various assist devices for visually and auditory impaired.
CO5	To study the various orthotic devices and prosthetic devices to overcome orthopedic problems.

SUBJECT CODE & NAME:	CS8081 INTERNET OF THINGS
COS	**COURSE OUTCOMES**
CO1	To understand Smart Objects and IoT Architectures
CO2	To learn about various IOT-related protocols
CO3	

CO4	To understand data analytics and cloud in the context of IoT
CO5	To develop IoT infrastructure for popular applications

SUBJECT CODE & NAME:	OPY751 CLINICAL TRIALS
COS	**COURSE OUTCOMES**
CO1	To highlight the epidemiologic methods, study design, protocol preparation
CO2	To gain knowledge in the basic bio-statistical techniques involved in clinical research.
CO3	To describe the principles involved in ethical, legal and regulatory issues in clinical trials.

SUBJECT CODE & NAME:	EC8762 DIGITAL IMAGE PROCESSING LABORATORY
COS	**COURSE OUTCOMES**
CO1	To practice the basic image processing techniques.
CO2	To compute magnitude and phasor representation of images.
CO3	To understand the concepts of image restoration and segmentation.
CO4	To explore the applications of image processing techniques.

SUBJECT CODE & NAME:	MD8751 HOSPITAL TRAINING
COS	**COURSE OUTCOMES**
CO1	Observe medical professionals at work in the wards and the roles of Allied Health Professionals;
CO2	Provide access to healthcare Professionals to get a better understanding of their work;
CO3	Demonstrate patient-care in a hospital setting.

REGULATION & SEMESTE	**2017- VIII**

SUBJECT CODE & NAME:	BM8077 HOSPITAL WASTE MANAGEMENT
COS	**COURSE OUTCOMES**
CO1	Understand the hazardous materials used in hospital and its impact on health
CO2	Understand various waste disposal procedures and management.

SUBJECT CODE & NAME:	GE8073 FUNDAMENTALS OF NANOSCIENCE
COS	**COURSE OUTCOMES**
CO1	To learn about basis of nanomaterial science, preparation method, types and application

SUBJECT CODE & NAME:	BM8811 PROJECT WORK
COS	**COURSE OUTCOMES**
CO1	Able to understand, analyze any challenging practical problems and find solution by formulating proper methodology.

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

REGULATION & SEMESTE	2017 - I
SUBJECT CODE & NAME:	HS8151 - Communicative English
COS	**COURSE OUTCOMES**
CO1	Students will acquire wide knowledge in all the four skills such as listening, speaking, reading and writing
CO2	Students will be able to write effectively for a variety of professional and social settings.
CO3	Students will be able to share ideas and concepts in proper pronunciation, structure, appropriate use and style of the English Language as well as the application areas of English communication
CO4	Students will be able to prepare, organize, and deliver an engaging oral presentation.
CO5	Students will become active readers who can articulate their own interpretations with an awareness and curiosity for other perspectives.

SUBJECT CODE & NAME:	MA8151 -Engineering Mathematics - I
COS	**COURSE OUTCOMES**
CO1	Stdent will be able to use both the limit definition and rules of differentiation to differentiate functions.
CO2	Student will able to apply Differentiation to solve Maxima and Minima problems
CO3	Student will able to Evaluate integrals both by using Riemann's and by using the fundamental theorem of calculus
CO4	Student will able to apply integration to compute multiple integrals, area, volume, integrals in polar co ordinates in addition to change of order and change of variables
CO5	Student will able to evaluate the integrals using techniques of integration, such as substitution, partial fractions and integration by parts

SUBJECT CODE & NAME:	PH8151 - Engineering Physics
COS	**COURSE OUTCOMES**
CO1	Understand the elastic behavior and theraml properties of materials.
CO2	Understand the properties and applications of wave and fiber optics
CO3	Understand thermal properties of the material.
CO4	Understand Quantum mechanical behavior of the material
CO5	Understand the crystal structure and growing methods of crystal

SUBJECT CODE & NAME:	CY8151 - Engineering Chemistry
COS	**COURSE OUTCOMES**
CO1	To Know and develop innovative methods to produce soft water for boiler feed by various treatment process.
CO2	Explain role of adsorption phenomena and various catalytic types and its key properties
CO3	Students able to know about significance and properties of alloy making and its application on phase diagram.
CO4	To explain about analysis and manufacture of various types of fuel.
CO5	To Know about the importance and application of energy sources and energy storage devices.

SUBJECT CODE & NAME:	GE8151 - Problem Solving and Python Programming
COS	**COURSE OUTCOMES**
CO1	Student will able to develop algorithmic solutions to simple computational problems.
CO2	Student will able to demonstrate programs using simple Python statements and expressions.
CO3	Student will able to Explain control flow and function concept in python for solving problems.
CO4	Student will able to use Python data structures lists, tuples & dictionaries for representing compound data
CO5	Student will able to Explain files, exception, modules and packages in Python for solving problems.

SUBJECT CODE & NAME:	GE8152 - Engineering Graphics
COS	**COURSE OUTCOMES**
CO1	Perform Freehand Sketching Of Basic Geometrical Constructions And Multiple Views Of Objects and conic sections.
CO2	Develop Orthographic Projections Of Lines And Plane Surfaces
CO3	Draw projections of solids
CO4	Draw projections of development of surfaces
CO5	Visualize and to project isometric and perspective sections of simple solids

SUBJECT CODE & NAME:	GE8161- Problem Solving and Python Programming Laboratory
COS	**COURSE OUTCOMES**
CO1	Student will able to develop solutions to simple computational problems using Python programs
CO2	Student will able to solve problems using conditionals and loops in Python
CO3	Student will able to develop Python programs by defining functions and calling them
CO4	Student will able to use Python lists, tuples and dictionaries for representing compound data

CO5	Student will able to Develop Python programs using files

SUBJECT CODE & NAME:	BS8161-Physics and Chemistry Laboratory
COS	**COURSE OUTCOMES**
CO1	The students will be out fitted with hands on knowledge in the ETDA Method water hardness.
CO2	The students will be find out in the alkality ions present the water .
CO3	To student will be analysis of mixer of acid.
CO4	Analyse the thermal conductivity of a bad conductor
CO5	Apply the elastic behavior of material

REGULATION & SEMESTE	**2017 - II**
SUBJECT CODE & NAME:	HS8251 - Technical English
COS	**COURSE OUTCOMES**
CO1	Students will be able to Read various types of texts adapting different reading strategies
CO2	Students will be able to Write letters and reports effectively in formal and informal situations.
CO3	Students will be able to Speak confidently and communicate with others effectively in order to improve their interview skills.
CO4	Students will be able to Use the language perfectly without grammatical errors and by using a wide range of vocabulary.
CO5	Students will be able to Use the technical information properly according to business situations.

SUBJECT CODE & NAME:	MA8251 - Engineering Mathematics -II
COS	**COURSE OUTCOMES**
CO1	Understand the concept of Eigen values and Eigen vectors, diagonalization of Matrix, symmetric matrices, positive definite matrices and similar matrices
CO2	Student will able to evaluate Gradient, Divergence and Curl of a Vector point functions and related identities.

CO3	Student will able to evaluate Evaluation of line, Surface and volume integrals using Gauss, Stokes and Green's Theorems and their verification.
CO4	Understand the concept ofAnalytic functions and conformal mapping and Complex integration
CO5	Understand the concept of Laplace Transform and inverse transform of simple functions, properties, various related theorems and application to differential equations with constant coefficients

SUBJECT CODE & NAME:	PH8252 - Physics for Information Science
COS	**COURSE OUTCOMES**
CO1	Understand the Electrical properties of conducting materials.
CO2	Understand the properties and applications of semiconducting materials
CO3	Understand properties and applications of the magnetic materials.
CO4	Understand the properties and applications of optical materials
CO5	Understand the properties and applications of nano electronic device.

SUBJECT CODE & NAME:	BE8255 - Basic Electrical, Electronics and Measurement Engineering
COS	**COURSE OUTCOMES**
CO1	Student will Able to verify basic laws and theorems of electrical circuits.
CO2	Student will Able to design simple electronic circuits using diodes and transistors.
CO3	Student will Able to determine the performance characteristics of different electrical machines.
CO4	Student will Able to use operational amplifiers.
CO5	Student will Able to calibrate different measuring instruments.

SUBJECT CODE & NAME:	GE8291 Environmental Science and Engineering
COS	**COURSE OUTCOMES**
CO1	To Know about the Scope and important of Environmental Science and values of Biodiversity.

CO2	Students will capable to identify Problems related to various Environmental Pollutions and its Control & Prevention.
CO3	Students will understand the Natural resources and sensible use of resources for sustainable lifestyles
CO4	To acquire the knowledge about social problems related to energy and the environmental production.
CO5	To know about the importance of population explosion & family welfare programme and application of information technology in environment.

SUBJECT CODE & NAME:	CS8251 - Programming in C
COS	**COURSE OUTCOMES**
CO1	Student will able to develop simple real time applications in C.
CO2	Student will able to implement applications of matrix operations using arrays and string operations.
CO3	Student will able to develop and implement applications of computation of Sine series, Scientific calculator in C using functions and Sorting of names using pointers.
CO4	Student will able to develop applications in C using structures such as student databases and employee details.
CO5	Student will able to design applications of telephone directory using random access file processing and count the number of account holders using sequential file prodcessing.

SUBJECT CODE & NAME:	GE8261 - Engineering Practices Laboratory
COS	**COURSE OUTCOMES**
CO1	Fabricate carpentry components and pipe connections including plumbing works.
CO2	Use welding equipments to join the structures.
CO3	Carry out the basic machining operations
CO4	Make the sheet metal models
CO5	Illustrate on centrifugal pump, Air conditioner, operations of smithy, foundary and fittings
CO6	Carry out basic home electrical works and appliances
CO7	Measure the electrical quantities
CO8	Elaborate on the components, gates, soldering practices.

SUBJECT CODE & NAME:	CS8261 - C Programming Laboratory
COS	**COURSE OUTCOMES**
CO1	Student will able to develop C programs for simple applications making use of basic constructs
CO2	Student will able to develop C programs for arrays and strings such as applications of matrix operations.
CO3	Student will able to develop C programs involving functions, recursion, pointers, and structures such as computation of Sine series, Scientific calculator in C and Sorting of names.
CO4	Student will able to design applications of telephone directory using random access file processing.
CO5	Student will able to design applications of count the number of account holders using sequential file prodcessing.

REGULATION & SEMESTE	2017 - III
SUBJECT CODE & NAME:	MA8351 - Discrete Mathematics
COS	**COURSE OUTCOMES**
CO1	Students will be able to understand the concepts needed to test the logic of a program.
CO2	Students will be able to understanding in identifying structures on many levels
CO3	Students will be able to analyse a class of functions which transform a finite set into another finite set which relates to input and output functions in computer science
CO4	Students will be able to Know the aware of the counting principles
CO5	Students will be able to exposed the concepts and properties of algebraic structures such as groups, rings and fields.

SUBJECT CODE & NAME:	CS8351 - Digital Principles and System Design
COS	**COURSE OUTCOMES**
CO1	To design digital circuits using simplified Boolean functions
CO2	To analyze and design combinational circuits
CO3	To analyze and design synchronous and asynchronous sequential circuits

CO4	To understand Programmable Logic Devices
CO5	To write HDL code for combinational and sequential circuits

SUBJECT CODE & NAME:	CS8391 - Data Structures
COS	**COURSE OUTCOMES**
CO1	students will be able to learn and implement concepts of ADT, List ADT and its types.
CO2	students will implement Stack ADT, Queue ADT and its applications.
CO3	students can able to learn and implement Tree ADT and its Traversals.
CO4	students will be able to learn and implement Graph ADT, Traversals and its applications.
CO5	student will be able to analyze different sorting algorithms and understand importance of Hashing.

SUBJECT CODE & NAME:	CS8392 - Object Oriented Programming
COS	**COURSE OUTCOMES**
CO1	Students able to understand the basics of OOP and fundamental concepts of Java programming.
CO2	Students able to understand the different types of Inheritance and the Interface concepts
CO3	Students able to define exceptions and use I/O streams
CO4	Students will have the ability to develop a java application with threads and generics classes
CO5	Students able to develop a java application with threads and generics classes.

SUBJECT CODE & NAME:	EC8395 - Communication Engineering
COS	**COURSE OUTCOMES**
CO1	Students will be able to analyze and understand analog communication techniques
CO2	Students will be able to analyze and understand pulse communication techniques.

CO3	Students will be able to analyze and understand digital communication techniques.
CO4	Students will be able to analyse and understand source and error control coding techniques.
CO5	Students will be able to analyse and understand spread spectrum and multi user radio communications.

SUBJECT CODE & NAME:	CS8381 - Data Structure Laboratory
COS	**COURSE OUTCOMES**
CO1	students will be able to implement Linear Data structure operations.
CO2	student can able to decide appropriate Data structures for diiferent problems.
CO3	students will be able to implement Tree operations and its Traversal.
CO4	students will be able to implement Graphs, its Traversals and Applications.
CO5	students will implement searching and different sorting algorithms.

SUBJECT CODE & NAME:	CS8383 - Object Oriented Programming Laboratory
COS	**COURSE OUTCOMES**
CO1	Student can develop and implement Java programs for simple applications that make use of classes and objects
CO2	Student can develop and implement Java programs for applications that make use of packages and interfaces
CO3	Student can develop and implement Java programs with arraylist and exception handling
CO4	Student can develop and implement Java programs with multithreading and file processing
CO5	Student can design applications using generic programming and event handling

SUBJECT CODE & NAME:	CS8382 - Digital System Laboratory
COS	**COURSE OUTCOMES**
CO1	Implement simplified combinational circuits using basic logic gates

CO2	Implement combinational circuits using MSI devices
CO3	Able to understasnd the implementation of Sequential Circuits
CO4	Able to undersatnd the Implementation of synchronous and Asynchronous counters.
CO5	Simulate combinational and sequential circuits using HDL

SUBJECT CODE & NAME:	HS8381 - Interpersonal skills/Listening &Speaking
COS	**COURSE OUTCOMES**
CO1	Students will be able to Listen and respond appropriately.
CO2	Students will be able to Participate in group discussions.
CO3	Students will be able to Make effective presentations.
CO4	Students will be able to Participate confidently and appropriately in conversations both formal and informal.
CO5	Students will be able to Lead the team confidently by acquiring excellent leadership skills.

REGULATION & SEMESTE	**2017 - IV**
SUBJECT CODE & NAME:	MA8402 - Probability and Queueing Theory
COS	**COURSE OUTCOMES**
CO1	Understand the fundamental knowledge of the concepts of probability and have knowledge of standard distributions which can describe real life phenomenon.
CO2	Understand the basic concepts of one and two dimensional random variables and apply in engineering applications.
CO3	Apply the concept of random processes in engineering disciplines.
CO4	Acquire skills in analyzing queueing models.
CO5	Understand and characterize phenomenon which evolve with respect to time in a probabilistic manner

SUBJECT CODE & NAME:	CS8491 - Computer Architecture

COS	COURSE OUTCOMES
CO1	Students should be able to Understand the basics structure of computers, operations and instructions.
CO2	Students should be able to Design arithmetic and logic unit.
CO3	Students should be able to Understand pipelined execution and design control unit.
CO4	Students should be able to Understand parallel processing architectures.
CO5	Students should be able to Understand the various memory systems and I/O communication.

SUBJECT CODE & NAME:	CS8492 - Database Management Systems
COS	**COURSE OUTCOMES**
CO1	Students will be able to Classify the modern and futuristic database applications based on size and complexity.
CO2	Students will be able to Map ER model to Relational model to perform database design effectively.
CO3	Students will be able to Write queries using normalization criteria and optimize queries.
CO4	Students will be able to Compare and contrast various indexing strategies in different database systems.
CO5	Students will be able to Appraise how advanced databases differ from traditional databases.

SUBJECT CODE & NAME:	CS8451 - Design and Analysis of Algorithms
COS	**COURSE OUTCOMES**
CO1	Students will be able to examine mathematically the notion of algorithm, asymptotic notations, and algorithmic efficiency with properties.
CO2	Students will be able to inspect the time and space complexity of the algorithms designed using brute force and divide and conquer methods
CO3	Students will be able to inspect the time and space complexity of the algorithms designed using dynamic programming and Greedy techniques
CO4	Stuents can examine various iterative improvement technique
CO5	Students will be able to identify the limitations of algorithm power.

SUBJECT CODE & NAME:	CS8493 - Operating Systems
COS	**COURSE OUTCOMES**
CO1	Student can understand basic concepts, structure and functions of OS.
CO2	Student can understand to design various Scheduling algorithms, deadlock, prevention and avoidance algorithms.
CO3	Student can able to compare and contrast various memory management schemes.
CO4	Student can able to design and implement a prototype file systems.
CO5	Students can understand the performance of administrative tasks on Linux Servers.

SUBJECT CODE & NAME:	CS8494 Software Engineering
COS	**COURSE OUTCOMES**
CO1	Students can Identify the key activities in managing a software project.
CO2	Students can understand the Concepts of requirements engineering and Analysis Modeling.
CO3	Students can Apply systematic procedure for software design and deployment.
CO4	Students can able to learn Compare and contrast the various testing and maintenance.
CO5	Students can Manage project schedule, estimate project cost and effort required.

SUBJECT CODE & NAME:	CS8481 - Database Management Systems Laboratory
COS	**COURSE OUTCOMES**
CO1	Students will be able to Use typical data definitions and manipulation commands.
CO2	Students will be able to Design applications to test Nested and Join Queries
CO3	Students will be able to Implement simple applications that use Views
CO4	Students will be able to Implement applications that require a Front-end Tool
CO5	Students will be able to Critically analyze the use of Tables, Views, Functions and Procedures

SUBJECT CODE & NAME:	CS8461 - Operating Systems Laboratory
COS	**COURSE OUTCOMES**
CO1	Students will be able to understand the basic concepts of OS and function of OS
CO2	Students will be able to understand the concept of process & threads, analyze scheduling algorithms and concept of deadlocks
CO3	Students will be able to compare and contrast various memory management schemes.
CO4	Students will be able to understand the functionality of file systems.
CO5	Students will be able to Perform administrative tasks on Linux Servers, Compare iOS and Android Operating Systems.

SUBJECT CODE & NAME:	HS8461 - Advanced Reading and Writing
COS	**COURSE OUTCOMES**
CO1	Students will be able to Write different types of essays
CO2	Students will be able to Write winning job applications.
CO3	Students will be able to Read and evaluate texts critically.
CO4	Students will be able to Display critical thinking in various professional contexts.

REGULATION & SEMESTE	2017 - V
SUBJECT CODE & NAME:	MA8551 - Algebra and Number Theory
COS	**COURSE OUTCOMES**
CO1	Students will be able to Apply the basic notions of groups, rings, fields which will then be used to solve related problems.
CO2	Students will be able to Explain the fundamental concepts of advanced algebra and their role in modern mathematics and applied contexts.
CO3	Students will be able to Demonstrate accurate and efficient use of advanced algebraic techniques.
CO4	Students will be able to Demonstrate their mastery by solving non - trivial problems related to the concepts, and by proving simple theorems about the, statements proven by the text.

CO5	Students will be able to Apply integrated approach to number theory and abstract algebra, and provide a firm basis for further reading and study in the subject.

SUBJECT CODE & NAME:	CS8591 - Computer Networks
COS	**COURSE OUTCOMES**
CO1	Students will be able to understand the basic layers, performance and its functions in computer networks.
CO2	Students can Understand the basics of how data flows from one node to another.
CO3	Students can analyze and design routing algorithms.
CO4	Students will be able to design protocols for various functions in the network.
CO5	Students will be able to understand the working of various application layer protocols.

SUBJECT CODE & NAME:	EC8691 - Microprocessors and Microcontrollers
COS	**COURSE OUTCOMES**
CO1	Students will be able to Understand and execute programs based on 8086 microprocessor.
CO2	Students will be able to Design Memory Interfacing circuits.
CO3	Students will be able to Design and interface I/O circuits.
CO4	Students will be able to Design and implement 8051 microcontroller based systems.
CO5	Students will be able to interfacing microcontrollers

SUBJECT CODE & NAME:	CS8501 - Theory of Computation
COS	**COURSE OUTCOMES**
CO1	Students can outline the concept of Mathematical proof and Finite Automata
CO2	The student will be able to design minimized finite automata and Context Free Grammars ,Derivation trees
CO3	The student will be able to design Pushdown Automata and Context Free Grammars ,Derivation trees

CO4	The student will be able to derive Normal forms of CFG and design Turing Machines.
CO5	The student will be understand the concepts of the tactable and intactable problems ,recursive enumerable languages is recursive enumerable

SUBJECT CODE & NAME:	CS8592 - Object Oriented Analysis and Design
COS	**COURSE OUTCOMES**
CO1	Students can able to analyse, design, document the requirements through use case driven approach
CO2	Students can able to identify, analyse, and model structural and behavioural concepts of the system.
CO3	Students can able to develop,explore the conceptual model into various scenarios and applications
CO4	Students can construct projects using UML diagrams
CO5	Students can apply the concepts of architectural design for deploying the code for software.

SUBJECT CODE & NAME:	OMD552 - Hospital Waste Management
COS	**COURSE OUTCOMES**
CO1	Students will be able to know about Healthcare hazard control and accidents.
CO2	Students will be able to understand Biomedical waste management and their importance.
CO3	Students will be able to Learn Hazardous Materials and Standards to Safeguard from them.
CO4	Students will be able to Know about Facility Requirements and their safety for an Institute
CO5	Students will be able to Learn the Infection control and Patient Safety

SUBJECT CODE & NAME:	EC8681 - Microprocessors and Microcontrollers Laboratory
COS	**COURSE OUTCOMES**
CO1	Students will be able to Write ALP Programmes for fixed and Floating Point and Arithmetic operations
CO2	Students will be able to Interface different I/Os with processor

CO3	Students will be able to Generate waveforms using Microprocessors
CO4	Students will be able to Execute Programs in 8051
CO5	Students will be able to Explain the difference between simulator and Emulator

SUBJECT CODE & NAME:	CS8582 - Object Oriented Analysis and Design Laboratory
COS	**COURSE OUTCOMES**
CO1	Students can able to outline the problem statement for a given problem
CO2	Students can able to construct USE CASE model to identify the classes and functionality of the system
CO3	Students can show the objects interaction for all the system functionality
CO4	Students can develop code from system design
CO5	Students can examine the developed code using testing strategies

SUBJECT CODE & NAME:	CS8581 - Networks Laboratory
COS	**COURSE OUTCOMES**
CO1	Students will be able to implement various protocols using TCP and UDP.
CO2	Students will be able to compare the performance of different transport layer protocols.
CO3	Students will be able to use simulation tools to analyze the performance of various network protocols.
CO4	Students will be able to analyze various routing algorithms.
CO5	Students will be able to implement error correction codes.

REGULATION & SEMESTE	**2017 - VI**
SUBJECT CODE & NAME:	CS8651 - Internet Programming
COS	**COURSE OUTCOMES**

CO1	Students can able to Construct a website using HTML and Cascading Style Sheets
CO2	Students can able to Build a Dynamic web page with validation using Java Script Objects and by applying different event handling mechanisms
CO3	Students can able to Develop Server side Programs using Servlets and JSP.
CO4	Students can able to Construct simple web pages in PHP and to represent data in XML format.
CO5	Students can able to Use AJAX and web services to develop interactive web application.

SUBJECT CODE & NAME:	CS8691 - Artificial Intelligence
COS	**COURSE OUTCOMES**
CO1	Students will be able to Use appropriate search algorithms for any AI problem
CO2	Students will be able to Represent a problem using first order and predicate logic
CO3	Students will be able toProvide the apt agent strategy to solve a given problem
CO4	Students will be able to Design software agents to solve a problem
CO5	Students will be able to Design applications for NLP that use Artificial Intelligence.

SUBJECT CODE & NAME:	CS8601 - Mobile Computing
COS	**COURSE OUTCOMES**
CO1	Students will be able to understand the basic concepts of mobile computing.
CO2	Students will be able to learn the Basics of Mobile Telecommunication Systems.
CO3	Students will be able to understand the functionality of MAC, network layer and Identify a routing protocol for a given Ad hoc network.
CO4	Students will be able to understand the functionality of Transport and Application layers.
CO5	Students will be able to develop a mobile application using android/blackberry/ios/Windows SDK.

SUBJECT CODE & NAME:	CS8602 - Compiler Design

COS	COURSE OUTCOMES
CO1	Student will be able to understand the major phases of compilation and tounderstand the knowledge of Lex tool & YAAC tool
CO2	Students will be develop the parsers and experiment the knowledge of different parsers design without automated tools
CO3	Students will be able to construct the intermediate code representations and generation
CO4	Students will be able to convert source code for a novel language into machine code for a novel computer
CO5	Students will be able to apply for various optimization techniques for dataflow analysis

SUBJECT CODE & NAME:	CS8603 - Distributed Systems
COS	COURSE OUTCOMES
CO1	Students can understand the foundations of distributed systems.
CO2	Students can able to learn issues related to clock Synchronization and the need for global state in distributed systems.
CO3	Students can able to learn distributed mutual exclusion and deadlock detection algorithms.
CO4	Students can understand the significance of agreement, fault tolerance and recovery protocols in Distributed Systems.
CO5	Students can able to learn the characteristics of peer-to-peer and distributed shared memory systems.

SUBJECT CODE & NAME:	GE8075 - Intellectual Property Rights
COS	COURSE OUTCOMES
CO1	Students can able to manage Intellectual Property portfolio to enhance the value of the firm.
CO2	Students can able to get an idea about IPR, registration and its enforcement.
CO3	Students can able to understand Digital Products And Law

SUBJECT CODE & NAME:	CS8661 - Internet Programming Laboratory
COS	COURSE OUTCOMES

CO1	Students can able to Construct Web pages using HTML/XML and style sheets.
CO2	Student can able to Build dynamic web pages with validation using Java Script objects and by applying different event handling mechanisms.
CO3	Students can able to Develop dynamic web pages using server side scripting.
CO4	Students can able Use PHP programming to develop web applications.
CO5	Students can able Construct web applications using AJAX and web services.

SUBJECT CODE & NAME:	CS8662 - Mobile Application Development Laboratory
COS	**COURSE OUTCOMES**
CO1	Students will be able to Develop mobile applications using GUI and Layouts.
CO2	Students will be able to Develop mobile applications using Event Listener.
CO3	Students will be able to Develop mobile applications using Databases.
CO4	Students will be able to Develop mobile applications using RSS Feed, Internal/External Storage, SMS, Multi-threading and GPS.
CO5	Students will be able to Analyze and discover own mobile app for simple needs.

SUBJECT CODE & NAME:	CS8611 - Mini Project
COS	**COURSE OUTCOMES**
CO1	Students will be able to do simple Simualtion process and small application work.
CO2	On Completion of the Mini project work students will be in a position to take challenging practical problems and can identify simple solution by solving proper methodology.

SUBJECT CODE & NAME:	HS8581 - Professional Communication
COS	**COURSE OUTCOMES**
CO1	The student will be able to Acquire wide knowledge in all the four skills such as listening, speaking, reading and writing.
CO2	The student will be able to Develop their performance in interviews, group discussions and other recruitment exercises.

CO3	The student will be able to Improve their soft skills and interpersonal skills to excel in the career as well as in National and International Competitive exams.
CO4	The student will be able to Design their resume in an effective way and write excellent letters and reports in formal situations.
CO5	The student will be able to Lead the team confidently by acquiring excellent leadership skills.

REGULATION & SEMESTE	**2017 - VII**
SUBJECT CODE & NAME:	MG8591 - Principles of Management
COS	**COURSE OUTCOMES**
CO1	The student will be able to have clear understanding of managerial functions like planning, organizing, staffing, leading & controlling
CO2	The student will be able to have clear understanding of same basic knowledge on international aspect of management

SUBJECT CODE & NAME:	CS8792 - Cryptography and Network Security
COS	**COURSE OUTCOMES**
CO1	Students will be able to apply GCD, primality, Fermat's, Euler's and Chinese remainder theorems.
CO2	Students will be able to understand the operations of classical and modern cryptographic algorithms.
CO3	Students will be able to Perform MAC and hashing.
CO4	Students will be able to Familiar with authentication schemes, firewalls, intrusion detection and viruses.
CO5	Students will be able to learn security services of E-Mail, IP and Web Security.

SUBJECT CODE & NAME:	CS8791 - Cloud Computing
COS	**COURSE OUTCOMES**
CO1	Students will be able to Articulate the main concepts, key technologies, strengths and limitations of cloud computing.
CO2	Students will be able to Learn the key and enabling technologies that help in the development of cloud.
CO3	Students will be able to Develop the ability to understand and use the architecture of compute and storage cloud, service and delivery models.

CO4	Students will be able to Explain the core issues of cloud computing such as resource management and security.
CO5	Students will be able to install and use current cloud technologies choose the appropriate technologies, algorithms and approaches for implementation and use of cloud.

SUBJECT CODE & NAME:	OME752 - Supply Chain Management
COS	**COURSE OUTCOMES**
CO1	Students will be able to understand Role of Logistics and Supply chain Management
CO2	Students will be able to understand the framework and scope of supply chain networks and functions.
CO3	Students will be able to understand the Logistics in Supply Chain.
CO4	Students will be able to explain Sourcing and Coordination in Supply Chain
CO5	Students will be able to understand Supply Chain and Information Technology

SUBJECT CODE & NAME:	IT8075 - Software Project Management
COS	**COURSE OUTCOMES**
CO1	Students will be able to Understand Project Management principles while developing software.
CO2	Students will be able to Gain extensive knowledge about the basic project management concepts, framework and the process models.
CO3	Students will be able to Obtain adequate knowledge about software process models and software effort estimation techniques.
CO4	Students will be able to Estimate the risks involved in various project activities and Define the checkpoints, project reporting structure, project progress and tracking mechanisms using project management principles.
CO5	Students will be able to Learn staff selection process and the issues related to people management

SUBJECT CODE & NAME:	CS8083 - Multi-core Architectures and Programming
COS	**COURSE OUTCOMES**
CO1	Students will be able to Describe multicore architectures and identify their characteristics and challenges.
CO2	Students will be able to Identify the issues in programming Parallel Processors.

CO3	Students will be able to Write programs using OpenMP and MPI.
CO4	Students will be able to Design parallel programming solutions to common problems.
CO5	Students will be able to Compare and contrast programming for serial processors and programming for parallel processors.

SUBJECT CODE & NAME:	CS8711 - Cloud Computing Laboratory
COS	**COURSE OUTCOMES**
CO1	Students will be able to Configure various virtualization tools such as Virtual Box, VMware workstation.
CO2	Students will be able to Design and deploy a web application in a PaaS environment.
CO3	Students will be able to Learn how to simulate a cloud environment to implement new schedulers.
CO4	Students will be able to Install and use a generic cloud environment that can be used as a private cloud.
CO5	Students will be able to Manipulate large data sets in a parallel environment.

SUBJECT CODE & NAME:	IT8761 - Security Laboratory
COS	**COURSE OUTCOMES**
CO1	Students will be able to Develop code for classical Encryption Techniques to solve the problems.
CO2	Students will be able to Build cryptosystems by applying symmetric and public key encryption algorithms.
CO3	Students will be able to Construct code for authentication algorithms.
CO4	Students will be able to Develop a signature scheme using Digital signature standard.
CO5	Students will be able to Demonstrate the network security system using open source tools

REGULATION & SEMESTE	**2017 - VIII**
SUBJECT CODE & NAME:	GE8076 - Professional Ethics in Engineering
COS	**COURSE OUTCOMES**

CO1	Students will be able to understand human values and engineering ethics.
CO2	Students will be able to apply ethics in society, discuss the ethical issues related to engineering and realize the responsibilities and rights in the society.
CO3	Students will be able to realize the global issues.

SUBJECT CODE & NAME:	CS8080 - Information Retrieval Techniques
COS	**COURSE OUTCOMES**
CO1	Students will be able to Use an open source search engine framework and explore its capabilities
CO2	Students will be able to understand Modeling and Retrieval Evaluation
CO3	Students will be able to Apply appropriate method of classification or clustering.
CO4	Students will be able to Design and implement innovative features in a search engine.
CO5	Students will be able to Design and implement a recommender system.

SUBJECT CODE & NAME:	CS8811 Project Work
COS	**COURSE OUTCOMES**
CO1	Student will able to Identify project goals, constraints, deliverables, performance criteria, control needs, and resource requirements.
CO2	Student can analyze and categorize executable project modules after considering risks and a position to take up any challenging practical problems and find solution by formulating proper methodology.
CO3	Student will be able to choose efficient tools for designing project modules.
CO4	Student can able to combine all the modules through effective team work after efficient testing.
CO5	Student can elaborate the completed task and compile the project report.

SUBJECT CODE & NAME:	CS8075 - Data Warehousing and Data Mining
COS	**COURSE OUTCOMES**
CO1	Students will be able to Design a Data warehouse system and perform business analysis with OLAP tools.

CO2	Students will be able to Apply suitable pre-processing and visualization techniques for data analysis
CO3	Students will be able to Apply frequent pattern and association rule mining techniques for data analysis
CO4	Students will be able to Apply appropriate classification and clustering techniques for data analysis
CO5	Students will be able to Develop skill in selecting the appropriate data mining algorithm for solving practical problem

SUBJECT CODE & NAME:	CS8081 - Internet of Things
COS	**COURSE OUTCOMES**
CO1	Students will be able to explain the concept of IoT.
CO2	Students will be able to analyze various protocols for IoT.
CO3	Students will be able to design a PoC of an IoT system using Rasperry Pi/Arduino
CO4	Students will be able to apply data analytics and use cloud offerings related to IoT.
CO5	Students will be able to analyze applications of IoT in real time scenario
DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING	
REGULATION & SEMESTE	**2017 - I**
SUBJECT CODE & NAME:	**HS8151 - Communicative English**
COS	COURSE OUTCOMES
CO1	Students will acquire wide knowledge in all the four skills such as listening, speaking, reading and writing
CO2	Students will be able to write effectively for a variety of professional and social settings.
CO3	Students will be able to share ideas and concepts in proper pronunciation, structure, appropriate use and style of the English Language as well as the application areas of English communication
CO4	Students will be able to prepare, organize, and deliver an engaging oral presentation.
CO5	Students will become active readers who can articulate their own interpretations with an awareness and curiosity for other perspectives.
SUBJECT CODE & NAME:	**MA8151 -Engineering Mathematics - I**
COS	COURSE OUTCOMES

CO1	To apply both the limit definition and rules of differentiation to differentiate functions.
CO2	To apply Differentiation in Maxima and Minima problems
CO3	To Evaluate integrals both by using Riemann's and the fundamental theorem of calculus
CO4	To compute multiple integrals, area, volume, integrals in polar co ordinates in addition to change of order and change of variables
CO5	To evaluate the integrals using techniques of integration, such as substitution, partial fractions and integration by parts
SUBJECT CODE & NAME:	**PH8151 - Engineering Physics**
COS	COURSE OUTCOMES
CO1	Student will have knowledge to apply the elastic behavior of material.
CO2	Student will be able to Understand the properties and applications of wave and fiber optics
CO3	Student will be able to anlyse thermal properties of the material.
CO4	Student will be able to Understand Quantum mechanical behavior of the material
CO5	Student will be able to Understand the crystal structure and growing methods of crystal
SUBJECT CODE & NAME:	**CY8151 - Engineering Chemistry**
COS	COURSE OUTCOMES
CO1	Know and develop innovative methods to produce soft water for boiler feed by various treatment process.
CO2	Explain role of adsorption phenomena and various catalytic types and its key properties
CO3	Significance and properties of alloy making and its application on phase diagram.
CO4	Explain about analysis and manufacture of various types of fuel.
CO5	The importance and application of energy sources and energy storage devices.
SUBJECT CODE & NAME:	**GE8151 - Problem Solving and Python Programming**
COS	COURSE OUTCOMES
CO1	Student will able to develop algorithmic solutions to simple computational problems.
CO2	Student will able to demonstrate programs using simple Python statements and expressions.
CO3	Student will able to Explain control flow and function concept in python for solving problems.
CO4	Student will able to use Python data structures lists, tuples & dictionaries for representing compound data

CO5	Student will able to Explain files, exception, modules and packages in Python for solving problems.
SUBJECT CODE & NAME:	**GE8152 - Engineering Graphics**
COS	COURSE OUTCOMES
CO1	Student will able to perform Freehand Sketching Of Basic Geometrical Constructions And Multiple Views Of Objects and conic sections.
CO2	Student will able to develop Orthographic Projections Of Lines And Plane Surfaces
CO3	Student will able to draw projections of solids
CO4	Student will able to draw projections of development of surfaces
CO5	Student will able to visualize and to project isometric and perspective sections of simple solids
SUBJECT CODE & NAME:	**GE8161- Problem Solving and Python Programming Laboratory**
COS	COURSE OUTCOMES
CO1	Student will able to develop solutions to simple computational problems using Python programs
CO2	Student will able to solve problems using conditionals and loops in Python
CO3	Student will able to develop Python programs by defining functions and calling them
CO4	Student will able to use Python lists, tuples and dictionaries for representing compound data
CO5	Student will able to Develop Python programs using files
SUBJECT CODE & NAME:	**BS8161-Physics and Chemistry Laboratory**
COS	COURSE OUTCOMES
CO1	Student will have knowledge to Analyse the particle size & accptance andle using laser.
CO2	Student will be able to Apply the principle of ultasonic interferometer
CO3	Student will be able to understand the priciples of spectrometer grating
CO4	Students can Analyse the thermal conductivity of a bad conductor
CO5	Student will be able to Apply the elastic behavior of material
REGULATION & SEMESTE	**2017 - II**
SUBJECT CODE & NAME:	**HS8251 -Technical English**

COS	COURSE OUTCOMES
CO1	Read various types of texts adapting different reading strategies
CO2	Write letters and reports effectively in formal and informal situations.
CO3	Speak confidently and communicate with others effectively in order to improve their interview skills.
CO4	Use the language perfectly without grammatical errors and by using a wide range of vocabulary.
CO5	Use the technical information properly according to business situations.
SUBJECT CODE & NAME:	**MA8251 -Engineering Mathematics - II**
COS	COURSE OUTCOMES
CO1	To understand the concept of Eigen values and Eigen vectors, diagonalization of Matrix, symmetric matrices,positive definite matrices and similar matrices
CO2	To evaluate Gradient, Divergence and Curl of a Vector point functions and related identities.
CO3	To evaluate a Line,Surface and Volume integrals by using Gauss, Stokes and Green's Theorems and their verification.
CO4	To understand the concept ofAnalytic functions,conformal mapping and Complex integration
CO5	To understand the concept of Laplace Transform and inverse transform of simple functions, properties, various related theorems and application to differential equations with constant coefficients
SUBJECT CODE & NAME:	**PH8253 -Physics for Electronics Engineering**
COS	COURSE OUTCOMES
CO1	students can Understand the Electrical properties of conducting materials.
CO2	students can Understand the properties and applications of semiconducting materials .
CO3	students can apply the properties and applications of the magnetic materials and dielectric material
CO4	students can able to Understand the properties and applications of optical materials
CO5	students can apply the properties and applications of nano electronic device
SUBJECT CODE & NAME:	**BE8252 -Basic Civil and Mechanical Engineering**
COS	COURSE OUTCOMES
CO1	Able to understand the Civil and Mechanical Engineering components of Projects
CO2	Able to explain the usage of construction material and proper selection of construction materials
CO3	Able to measure distances and area by surveying

CO4	Able to identify the components used in power plant cycle and to demonstrate working principles of petrol and diesel engine
CO5	Able to elaborate the components of refrigeration and Air conditioning cycle
SUBJECT CODE & NAME:	**EE8251 -Circuit Theory**
COS	COURSE OUTCOMES
CO1	Able to to analyse electrical circuits
CO2	Able to apply network theorems.
CO3	Able to analyze transients.
CO4	Able to understand the three phase circuits.
CO5	Able to understand the resonance and coupled circuits
SUBJECT CODE & NAME:	**GE8291 -Environmental Science and Engineering**
COS	COURSE OUTCOMES
CO1	About the Scope and important of Environmental Science and values of Biodiversity.
CO2	Capable to identify Problems related to various Environmental Pollutions and its Control & Prevention.
CO3	Understand the Natural resources and sensible use of resources for sustainable lifestyles
CO4	To acquire the knowledge about social problems related to energy and the environmental production.
CO5	To know about the importance of population explosion & family welfare programme and application of information technology in environment.
SUBJECT CODE & NAME:	**GE8261 -Engineering Practices Laboratory**
COS	COURSE OUTCOMES
CO1	Able to use welding equipments to join the structures and fabricate carpentry components and pipe connections including plumbing works
CO2	Able to design the models using sheet metal works and to Carry out the basic machining operations
CO3	Able to Illustrate on centrifugal pump, Air conditioner, operations of smithy, foundary and fittings
CO4	Able to Measure the electrical quantities and Carry out basic home electrical works and appliances
CO5	Able to Elaborate on the components, gates, soldering practices
SUBJECT CODE & NAME:	**EE8261-Electric Circuits Laboratory**

COS	COURSE OUTCOMES
CO1	Able to verify kirchoff's laws, finding out the currents and voltages using mesh and nodal analysis to make a comparison with theoretical values..
CO2	Able to reduce the given complex circuit to simple circuit by applying theorems and can verify the theoretical and practical outputs
CO3	Able to analyze transient response of RL, RC and RLC circuits.
CO4	Able to simulate different forms of three phase circuits.
CO5	Able to calculate the resonant frequency.
REGULATION & SEMESTE	**2017 - III**
SUBJECT CODE & NAME:	**MA8353 -Transforms and Partial Differential Equations**
COS	COURSE OUTCOMES
CO1	To understand how to solve the given standard partial differential equations
CO2	To Solve the differential equations by using Fourier series analysis which place vital role in Engineering applications
CO3	To Appreciate the Physical significance of Fourier series techniques in solving one and two dimensional heat flow problems and one dimensional wave equations
CO4	To understand the mathematical principles on transforms and partial differential equations would provide them the ability to formulate and solve some of the physical problems of Engineering.
CO5	To apply the Effective mathematical tools for the solutions of partial differential equations by using Z-Transform Techniques for discrete time systems
SUBJECT CODE & NAME:	**EE8351 -Digital Logic Circuits**
COS	COURSE OUTCOMES
CO1	Able to solve number systems and simplify the mathematical expressions using Boolean functions
CO2	Able to implement synchronous sequential circuits.
CO3	Able to implement combinational circuits and asynchronous sequential circuits.
CO4	Able to list the memory devices.
CO5	Able to demonstrate digital simulation techniques for development.
SUBJECT CODE & NAME:	**EE8391 -Electromagnetic Theory**
COS	COURSE OUTCOMES
CO1	Able to explain the basic science, circuit theory, Electromagnetic field theory.
CO2	Able to describe the basic mathematical concepts related to electromagnetic vector fields, electrostatics, electrical potential and energy density

CO3	Able to describe the concepts of magnetostatics.
CO4	Able to explain concepts of Faraday's law, induced emf ,Maxwell's equations.
CO5	Able to apply electromagnetic waves and Pointing vector to solve the electrical engineering problems.
SUBJECT CODE & NAME:	**EE8301 -Electrical Machines - I**
COS	COURSE OUTCOMES
CO1	Able to discuss magnetic circuits and magnetic materials
CO2	Able to explain the constructional details, the principle of operation, prediction of performance, the methods of testing the transformers and three phase transformer connections.
CO3	Able to summarize principles of electrical machine.
CO4	Able to explain the working principles of DC machine.
CO5	Able to estimate the various losses taking place in D.C. Motor
SUBJECT CODE & NAME:	**EC8353 -Electron Devices and Circuits**
COS	COURSE OUTCOMES
CO1	Able to explain the structure and operation of the basic electronic devices
CO2	Able to compare different types of amplifiers.
CO3	Able to compare different types of Oscillators
CO4	Able to design the basic electronic devices
CO5	Able to apply electronic devices for engineering practice.
SUBJECT CODE & NAME:	**ME8792 -Power Plant Engineering**
COS	COURSE OUTCOMES
CO1	Able to describe different types of power plant and its functions and to discuss their flow lines and issues related to them.
CO2	Able to discuss different types of renewable resources and issues related to them.
CO3	Able to solve energy and economic related issues in power sectors.
CO4	Able to discuss different types of non renewable resources and issues related to them.
CO5	Able to describe gas and diesel power plants.

SUBJECT CODE & NAME:	EC8311 -Electronics Laboratory
COS	COURSE OUTCOMES
CO1	Able to explain the structure and operation of the basic electronic devices
CO2	Able to compare different types of amplifiers.
CO3	Able to compare different types of Oscillators
CO4	Able to design the basic electronic devices
CO5	Able to apply electronic devices for engineering practice.
SUBJECT CODE & NAME:	EE8311 -Electrical Machines Laboratory - I
COS	COURSE OUTCOMES
CO1	Able to compute performance characteristics by conducting suitable test on Transformers
CO2	Able to analyze performance characteristics of DC motor.
CO3	Able to demonstrate the speed control test on DC motor
CO4	Able to compute the speed control of DC generator.
CO5	Able to predetermine the performance of dc machines.
REGULATION & SEMESTE	2017- IV
SUBJECT CODE & NAME:	MA8491 -Numerical Methods
COS	COURSE OUTCOMES
CO1	To solve the systems of linear algebraic equations by using Gauss Elimination
CO2	To understand the concepts of numerical interpolation and approximation of functions.
CO3	To analyze the difference between integration and differention concepts
CO4	To understand the concept of interpolation of errors in numerical methods..
CO5	To understand the concept of numerically integrate partial differential equations for initial boundary value problems

SUBJECT CODE & NAME:	EE8401 - Electrical Machines - II
COS	COURSE OUTCOMES
CO1	Able to describe the Construction, operation and performance of salient and non – salient type synchronous generators.

CO2	Able to describe the Construction, operation and performance of synchronous motors.
CO3	Able to describe the Construction, operation and performance of induction machines
CO4	Able to compare different Starting and speed control methods.
CO5	Able to explain the Construction, operation and performance of single phase induction motors and special machines

SUBJECT CODE & NAME:	**EE8402-Transmission and Distribution**
COS	COURSE OUTCOMES
CO1	Able to explain the structure of power system and the operation of varioius types of power plants.
CO2	Able to compute transmission line parameters
CO3	Able to explain the different types of insulators, cables and different distribution schemes
CO4	Able to analyze the voltage distribution in insulator strings and cables and methods to improve the same
CO5	Able to compare the different types of distribution system.

SUBJECT CODE & NAME:	**EE8403-Measurements and Instrumentation**
COS	COURSE OUTCOMES
CO1	Able to describe the basic laws governing the operation of the instruments, relevant charrcteristics and their standards
CO2	Able to Understand the principles and working of various electrical and electronics instruments
CO3	Able to explain the Comparision methods of measurements using various bridges and grounding techniques
CO4	Able to use storage, display devices, various transducers in real time application
CO5	Able to understand the various type of transducer working and elements of elements of data acquisition system

SUBJECT CODE & NAME:	**EE8451-Linear Integrated Circuits and Applications**
COS	COURSE OUTCOMES
CO1	Able to acquire knowledge in IC fabrication procedure
CO2	Able to analyze the characteristics of Op-Amp
CO3	Able to understand the importance of Signal analysis using Op-amp based circuits
CO4	Able to use Functional blocks and the applications of special ICs like Timers, PLL circuits, regulator Circuits
CO5	Able to understand and acquire knowledge on the Applications of Op-amp

SUBJECT CODE & NAME:	IC8451 - Control Systems
COS	COURSE OUTCOMES
CO1	Able to Understand the use of transfer function models for analysis physical systems and understand the control system components
CO2	Able to Determine Transient and Steady State behavior of systems using standard test signals
CO3	Able to acquire the knowledge in frequency response of control system and compensators
CO4	Able to Analyse the stability of the system and design of compensators
CO5	Able to Understand state variable representation of physical systems and the effect of state feedback
SUBJECT CODE & NAME:	EE8411 - Electrical Machines Laboratory - II
COS	COURSE OUTCOMES
CO1	Able to calculate the regulation of three phase alternator by EMF, MMF,ZPF and ASA methods.
CO2	Able to calculate the negative sequence and zero sequence impedance of alternators.
CO3	Able to practice the test on synchronous motor to draw V and Inverted V curves.
CO4	Able to conduct the suitable test on three0phase induction motor, single phase induction motor and find the performance.
CO5	Able to conduct speed control of three phase induction motor by v/f method

SUBJECT CODE & NAME:	EE8461 - Linear and Digital Integrated Circuits Laboratory
COS	COURSE OUTCOMES
CO1	Able to understand and implement Boolean Functions.
CO2	Able to understand the importance of code conversion
CO3	Able to Design and implement 4-bit shift registers
CO4	Able to acquire knowledge on Application of Op-Amp
CO5	Able to Design and implement counters using specific counter IC

SUBJECT CODE & NAME:	EE8412 - Technical Seminar
COS	COURSE OUTCOMES
CO1	Able to prepare and present technical reports

CO2	Able to use various teaching aids such as over head projectors, power point presentation and demonstrative models
CO3	Ability to face the placement interviews

REGULATION & SEMESTE	**2017 - V**
SUBJECT CODE & NAME:	**EE8501 - Power System Analysis**
COS	COURSE OUTCOMES
CO1	Able to discuss various aspects of power system.
CO2	Able to analyze the power system under steady state operating condition
CO3	Able to use numerical methods to solve the power flow problem.
CO4	Able to analyze the system under faulted conditions.
CO5	Able to analyze the transient behavior of power system when it is subjected to a fault.

SUBJECT CODE & NAME:	**EE8551 - Microprocessors and Microcontrollers**
COS	COURSE OUTCOMES
CO1	Able to describe the architecture and the concepts of 8085 microprocessor
CO2	Able to develop simple assembly language programming (ALP) using 8085 microprocessor
CO3	Able to describe the architecture, memory organization, data & I/O transfer and interrupt concepts of 8051 microcontroller
CO4	Able to compare 8085 and 8051
CO5	Able to manipulate simple applications using 8051 microcontroller

SUBJECT CODE & NAME:	**EE8552 - Power Electronics**
COS	COURSE OUTCOMES
CO1	Able to compare different types of power semiconductor devices and their switching characteristics.
CO2	Able to explain the operation, characteristics and performance parameters of controlled converters
CO3	Able to compare different modulation techniques of pulse width modulated inverters.
CO4	Able to discuss the operation of control circuits to HVDC, UPS and tap changing transformer.
CO5	Able to explain the operation, characteristics and performance parameters of DC-DC choppers

SUBJECT CODE & NAME:	EE8591-Digital Signal Processing
COS	COURSE OUTCOMES
CO1	Able to classify signals and systems & their mathematical representation.
CO2	Able to analyse the discrete time systems, various transformation techniques & their computation
CO3	Able to design and implement digital filters
CO4	Able to analyse programmable digital signal processor & quantization effects
CO5	Able to explain code optimization of high level programming language code

SUBJECT CODE & NAME:	CS8392-Object Oriented Programming
COS	COURSE OUTCOMES
CO1	Able to design finite automata for different kinds of real time problems.
CO2	Able to design regular expression and languages for real time problems.
CO3	Able to design and implement context free and push down automata for different types of problems.
CO4	Able to explain properties and different kinds of form of context free language.
CO5	Able to design turing machine for real time problems. Explain P and NP classes.

SUBJECT CODE & NAME:	CS8383-object Oriented Programming Laboratory
COS	COURSE OUTCOMES
CO1	Able to Implement a function of symbol table in C programming language.
CO2	Able to Design and implement one-pass & two-pass assembler.
CO3	Able to Design and implement single-pass and two- pass macro processor .
CO4	Able to Implement and operation of linker and loader.
CO5	Able to Implement structure and operations of text editor.

SUBJECT CODE & NAME:	EE8511 - Control and Instrumentation Laboratory
COS	COURSE OUTCOMES
CO1	Able to apply control engineering tools using both analog and digital techniques.
CO2	Able to apply Laplace transform, transfer functions, modeling RLC circuit, block diagrams for simulation and control.

CO3	Able to Design experiments to measure system parameters
CO4	Able to Design a Lead, lag and lead-lag compensator.
CO5	Able to simulate first and second order system using matlab

SUBJECT CODE & NAME:	**HS8581 - Professional Communication**
COS	COURSE OUTCOMES
CO1	Acquire wide knowledge in all the four skills such as listening, speaking, reading and writing.
CO2	Develop their performance in interviews, group discussions and other recruitment exercises.
CO3	Improve their soft skills and interpersonal skills to excel in the career as well as in National and International Competitive exams.
CO4	Design their resume in an effective way and write excellent letters and reports in formal situations.
CO5	Lead the team confidently by acquiring excellent leadership skills.

REGULATION & SEMESTE	**2017 - VI**
SUBJECT CODE & NAME:	**EE8601 - Solid State Drives**
COS	COURSE OUTCOMES
CO1	Able to understand the stable steady-state operation and transient dynamics of a motor-load system.
CO2	Able to study and analyze the operation of the converter / chopper fed dc drive and to solve simple problems
CO3	Able to study and understand the operation of both classical and modern induction motor drives.
CO4	Able to understand the differences between synchronous motor drive and induction motor drive and to learn the basics of permanent magnet synchronous motor drives.
CO5	Able to analyze and design the current and speed controllers for a closed loop solid-state DC motor drive and simulation using a software package.

SUBJECT CODE & NAME:	**EE8691 - Embedded Systems**
COS	COURSE OUTCOMES
CO1	Able to introduce the Building Blocks of Embedded System
CO2	Able to describe and Educate in Various Embedded Development Strategies
CO3	Able to Design and Introduce Bus Communication in processors, Input/output interfacing.
CO4	Able to impart knowledge in Various processor scheduling algorithms.
CO5	Able to describe the Basics of Real time operating system and example tutorials to discuss on one real-time operating system tool

SUBJECT CODE & NAME:	EE8602 - Protection and Switchgear
COS	COURSE OUTCOMES
CO1	Able to discuss the causes of abnormal operating conditions and the protection schemes equipped for it.
CO2	Able to analyze the characteristics and functions of different types of electromagnetic relays.
CO3	Able to understand the concepts of protection of apparatus used in power system.
CO4	Able to understand the concepts of numerical protection and characteristics of static relays.
CO5	Able to explain the construction and working of different types of circuit breakers.
SUBJECT CODE & NAME:	GE8075- Intellectual property Rights
COS	COURSE OUTCOMES
CO1	Able to manage Intellectual Property portfolio
CO2	Able to enhance the value of the firm
CO3	Able to understand digital products and law associated to it
CO4	Able to understand enforcement of IPRs

SUBJECT CODE & NAME:	EE8005 - Special Electrical Machines
COS	COURSE OUTCOMES
CO1	Able to explain the construction, principle of operation and performance of synchronous reluctance motors.
CO2	Able to analyze the construction, principle of operation and performance of stepper motors.
CO3	Able to discuss the construction, principle of operation, control and performance of switched reluctance motors.
CO4	Able to discuss the construction, principle of operation, control and performance of permanent magnet brushless D.C. motors
CO5	Able to explain the construction, principle of operation, control and performance of permanent magnet synchronous motors.
SUBJECT CODE & NAME:	EE8661 - Power Electronics and Drives Laboratory
COS	COURSE OUTCOMES
CO1	Able to describe the characteristics of SCR,TRIAC, MOSFET and IGBT
CO2	Able to analyze characteristics of AC to DC fully controlled converter, half-controlled converter and choppers

CO3	Able to analyze characteristics of single phase and three phase IGBT PWM inverter
CO4	Able to draw characteristics of resonant converter and cycloconverter.
CO5	Able to draw characteristics of Ac voltage controller

SUBJECT CODE & NAME:	**EE8681 - Microprocessors and Microcontrollers Laboratory**
COS	COURSE OUTCOMES
CO1	Able to develop simple assembly language programs using 8085 microprocessor.
CO2	Able to to configure interface with 8085 with I/O and serial communication
CO3	Able to develop simple applications with 8051 using basic instructions, I/O programming and motor control
CO4	Able to analyse the integration of motors with 8085 micro controllers
CO5	Able to interface various devices.

SUBJECT CODE & NAME:	**EE8611 - Mini Project**
COS	COURSE OUTCOMES
CO1	Able to develop their own innovative prototype of ideas.
CO2	Able to find solution by formulating proper methodology
CO3	Able to take up their final year project work
REGULATION & SEMESTE	**2017 - VII**
SUBJECT CODE & NAME:	**EE8701 - High Voltage Engineering**
COS	COURSE OUTCOMES
CO1	Understand breakdown phenomena in gases and to elucidate the concepts used for the generation of high voltages and currents.
CO2	Elucidate the concepts used for the measurement of high voltages and currents and design corresponding circuits.
CO3	Understand high voltage testing techniques of Power apparatus and causes of over voltage in Power systems.
CO4	Design the layout of Gas Insulated substations and to know the concepts of insulation coordination.
CO5	Design and maintenance of insulator, bushing and circuit breaker

SUBJECT CODE & NAME:	**EE8702 - Power System Operation and Control**

COS	COURSE OUTCOMES
CO1	To discuss the overview of power system operation and control.
CO2	Design and model power-frequency dynamics and to design power-frequency controller.
CO3	Describe the model reactive power-voltage interaction and the control actions to be implemented for maintaining the voltage profile against varying system load.
CO4	Able to study the economic operation of power system.
CO5	Able to teach about SCADA and its application for real time operation and control of power systems.

SUBJECT CODE & NAME:	**EE8703- Renewable Energy Systems**
COS	COURSE OUTCOMES
CO1	Able to create awareness about renewable Energy Sources and technologies
CO2	Able to get adequate inputs on a variety of issues in harnessing renewable Energy
CO3	Able to recognize current and possible future role of renewable energy sources
CO4	Able to explain the various renewable energy resources and technologies and their applications
CO5	Able to understand basics about biomass and solar energy

SUBJECT CODE & NAME:	**EE8010 - Power System Transients**
COS	COURSE OUTCOMES
CO1	To discuss about the study of generation of switching transients and their control using circuit – theoretical concept.
CO2	Able to learn the mechanism of lighting strokes and the production of lighting surges.
CO3	Describe the propagation, reflection and refraction of travelling waves.
CO4	Able to study the impact of voltage transients caused by faults
CO5	To discuss the concepts of circuit breaker action, load rejection on integrated power system.

SUBJECT CODE & NAME:	**GE8071 - Disaster Management**
COS	COURSE OUTCOMES
CO1	To differentiate the types of disasters, causes and their impact on environment and society
CO2	Able to assess vulnerability and various methods of risk reduction measures as well as mitigation.
CO3	Able to draw the hazard and vulnerability profile of India

CO4	Able to study Scenarious in the Indian context, Disaster damage assessment and management.
CO5	To discuss the case studies and field works.

SUBJECT CODE & NAME:	**EE8711 - Power System Simulation Laboratory**
COS	COURSE OUTCOMES
CO1	Ability to acquire knowledge on Formation of Bus Admittance and Impedance Matrices and Solution of Networks
CO2	Ability to analyze the power flow using GS and NR method
CO3	Ability to find Symmetric and Unsymmetrical fault
CO4	Ability to understand the economic dispatch

SUBJECT CODE & NAME:	**EE8712 - Renewable Energy System Laboratory**
COS	COURSE OUTCOMES
CO1	Ability to understand and analyze Renewable energy systems
CO2	Ability to simulate the various Renewable energy sources
CO3	Ability to recognize current and possible future role of Renewable energy sources
CO4	Ability to understand basics of Intelligent Controllers

REGULATION & SEMESTE	**2017 - VIII**
SUBJECT CODE & NAME:	**EE8018 - Microcontroller Based System Design**
COS	COURSE OUTCOMES
CO1	Able to know about the architecture of PIC microcontroller
CO2	Able to know about the functions of interrupts and timers
CO3	Able to Understand the peripheral devices for data communication and transfer
CO4	Able to know about the functional blocks of ARM processor
CO5	Able to Understand the architecture of ARM processors

SUBJECT CODE & NAME:	**GE8076 - Professional Ethics in Engineering**
COS	COURSE OUTCOMES

CO1	Able to to apply ethics in society
CO2	Able todiscuss the ethical issues related to engineering
CO3	Able to realize the responsibilities and rights in the society

SUBJECT CODE & NAME:	**EE8811 - Project Work**
COS	COURSE OUTCOMES
CO1	Able to develop the ability to solve a specific problem right from its identification and literature review
CO2	Able to find solution by formulating proper methodology
CO3	Able to train the students in preparing project reports and to face reviews and viva voce examination
CO4	Able to be in a position to take up any challenging practical problems
DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING	
REGULATION & SEMESTER:	**2017 - I**
SUBJECT CODE & NAME:	HS8151 Communicative English
COS	**COURSE OUTCOMES**
CO1	Students will acquire wide knowledge in all the four skills such as listening, speaking, reading and writing
CO2	Students will be able to write effectively for a variety of professional and social settings.
CO3	Students will be able to share ideas and concepts in proper pronunciation, structure, appropriate use and style of the English Language as well as the application areas of English communication
CO4	Students will be able to prepare, organize, and deliver an engaging oral presentation.
CO5	Students will become active readers who can articulate their own interpretations with an awareness and curiosity for other perspectives.

SUBJECT CODE & NAME:	MA8151 Engineering Mathematics - I
COS	**COURSE OUTCOMES**
CO1	To apply both the limit definition and rules of differentiation to differentiate functions.
CO2	To apply Differentiation in Maxima and Minima problems
CO3	To Evaluate integrals both by using Riemann's and the fundamental theorem of calculus
CO4	To compute multiple integrals, area, volume, integrals in polar co ordinates in addition to change of order and change of variables
CO5	To evaluate the integrals using techniques of integration, such as substitution, partial fractions and integration by parts

SUBJECT CODE & NAME:	PH8151 Engineering Physics
COS	**COURSE OUTCOMES**

CO1	Understand the elastic behavior and theraml properties of materials.
CO2	Understand the properties and applications of wave and fiber optics
CO3	Understand thermal properties of the material.
CO4	Understand Quantum mechanical behavior of the material
CO5	Understand the crystal structure and growing methods of crystal

SUBJECT CODE & NAME:	CY8151 Engineering Chemistry
COS	**COURSE OUTCOMES**
CO1	To Know and develop innovative methods to produce soft water for boiler feed by various treatment process
CO2	Explain role of adsorption phenomena and various catalytic types and its key properties
CO3	Students able to know about significance and properties of alloy making and its application on phase diagram.
CO4	To explain about analysis and manufacture of various types of fuel.
CO5	To Know about the importance and application of energy sources and energy storage devices.

SUBJECT CODE & NAME:	GE8151 Problem Solving and Python Programming
COS	**COURSE OUTCOMES**
CO1	Student will able to develop algorithmic solutions to simple computational problems.
CO2	Student will able to demonstrate programs using simple Python statements and expressions.
CO3	Student will able to Explain control flow and function concept in python for solving problems.
CO4	Student will able to use Python data structures lists, tuples & dictionaries for representing compound data
CO5	Student will able to Explain files, exception, modules and packages in Python for solving problems.

SUBJECT CODE & NAME:	GE8152 Engineering Graphics
COS	**COURSE OUTCOMES**
CO1	Perform Freehand Sketching Of Basic Geometrical Constructions And Multiple Views Of Objects and conic sections.
CO2	Develop Orthographic Projections Of Lines And Plane Surfaces
CO3	Draw projections of solids
CO4	Draw projections of development of surfaces
CO5	Visualize and to project isometric and perspective sections of simple solids

SUBJECT CODE & NAME:	GE8161 Problem Solving and Python Programming Laboratory
COS	**COURSE OUTCOMES**
CO1	Student will able to develop solutions to simple computational problems using Python programs
CO2	Student will able to solve problems using conditionals and loops in Python

CO3	Student will able to develop Python programs by defining functions and calling them
CO4	Student will able to use Python lists, tuples and dictionaries for representing compound data
CO5	Student will able to Develop Python programs using files

SUBJECT CODE & NAME:	BS8161 Physics and Chemistry Laboratory
COS	**COURSE OUTCOMES**
CO1	The students will be out fitted with hands on knowledge in the ETDA Method water hardness.
CO2	The students will be find out in the alkality ions present the water .
CO3	To student will be analysis of mixer of acid.
CO4	Analyse the thermal conductivity of a bad conductor
CO5	Apply the elastic behavior of material
REGULATION & SEMESTER:	**2017 - II**
SUBJECT CODE & NAME:	HS8251 Technical English
COS	**COURSE OUTCOMES**
CO1	Read various types of texts adapting different reading strategies
CO2	Write letters and reports effectively in formal and informal situations.
CO3	Speak confidently and communicate with others effectively in order to improve their interview skills.
CO4	Use the language perfectly without grammatical errors and by using a wide range of vocabulary.
CO5	Use the technical information properly according to business situations.
SUBJECT CODE & NAME:	MA8251 Engineering Mathematics - II
COS	**COURSE OUTCOMES**
CO1	To understand the concept of Eigen values and Eigen vectors, diagonalization of Matrix, symmetric matrices,positive definite matrices and similar matrices
CO2	To evaluate Gradient, Divergence and Curl of a Vector point functions and related identities.
CO3	To evaluate a Line,Surface and Volume integrals by using Gauss, Stokes and Green's Theorems and their verification.
CO4	To understand the concept ofAnalytic functions,conformal mapping and Complex integration
CO5	To understand the concept of Laplace Transform and inverse transform of simple functions, properties, various related theorems and application to differential equations with constant coefficients
SUBJECT CODE & NAME:	PH8253 Physics for Electronics Engineering
COS	**COURSE OUTCOMES**
CO1	Understand the Electrical properties of conducting materials.
CO2	Understand the properties and applications of semiconducting materials .
CO3	Understand properties and applications of the magnetic materials and dielectric material
CO4	Understand the properties and applications of optical materials
CO5	Understand the properties and applications of nano electronic device
SUBJECT CODE & NAME:	BE8254 Basic Electrical and Instrumentation Engineering

COS	COURSE OUTCOMES
CO1	Understand the concept of three phase power circuits and measurement
CO2	Comprehend the concepts in transformers
CO3	Comprehend the concepts in electrical generators, motors for DC
CO4	Comprehend the concepts in electrical generators, motors for AC
CO5	Choose appropriate measuring instruments for given application
SUBJECT CODE & NAME:	EC8251 Circuit Analysis
COS	**COURSE OUTCOMES**
CO1	Understand the basic concepts of DC and AC circuits behavior
CO2	Study and Analysis the Network theorems for DC and AC Circuits
CO3	Understand the basic concepts of Resonance and Coupled circuits.
CO4	Study and Analysis the transient and steady state response of the circuits subjected to step and sinusoidal excitations.
CO5	Understand and design based on Two port networks and Several Parameters methods
SUBJECT CODE & NAME:	EC8252 Electronic Devices
COS	**COURSE OUTCOMES**
CO1	To acquaint the students with the construction, theory and operation of PN junction diode.
CO2	To acquaint the students with the construction, theory and operation of Bipolar Junction Transistors.
CO3	To acquaint the students with the construction, theory and operation of field effect transistors.
CO4	To study about the special semiconductor devices.
CO5	To acquaint the students with the construction, theory and operation power control devices, LED, LCD, and other Opto-electronic devices.
SUBJECT CODE & NAME:	EC8261 Circuits and Devices Laboratory
COS	**COURSE OUTCOMES**
CO6	Analyze the characteristics of basic electronic devices
CO7	Design RL and RC circuits
CO8	Verify Thevinin & Norton theorem KVL & KCL, and Super Position Theorems
CO9	Design of Clipper ,Clamper and FWR
CO10	Determine the resonance frequency of series and Parallel RLC
SUBJECT CODE & NAME:	GE8261 Engineering Practices Laboratory
COS	**COURSE OUTCOMES**
CO1	Exposure to various hands on works in basic engineering practice
CO2	Know to handle the equipments safty with various accessories
CO3	basic knowledge in welding and sheet metal
CO4	Basic knowledge in electrical equipments
CO5	Basic knowledge in electronics components

REGULATION & SEMESTER:	2017 - III
SUBJECT CODE & NAME:	MA8352 Linear Algebra and Partial Differential Equations
COS	**COURSE OUTCOMES**
CO1	Explain the fundamental concepts of advanced algebra and their role in modern mathematics and applied contexts.
CO2	Demonstrate accurate and efficient use of advanced algebraic techniques.
CO3	Demonstrate their mastery by solving non - trivial problems related to the concepts and by proving simple theorems about the statements proven by the text.
CO4	Able to solve various types of partial differential equations.
CO5	Able to solve engineering problems using Fourier series.
SUBJECT CODE & NAME:	EC8393 Fundamentals of Data Structures In C
COS	**COURSE OUTCOMES**
CO1	Implement linear and non-linear data structure operations using C
CO2	Suggest appropriate linear / non-linear data structure for any given data set.
CO3	Apply hashing concepts for a given problem
CO4	Modify or suggest new data structure for an application
CO5	Appropriately choose the sorting algorithm for an application
SUBJECT CODE & NAME:	EC8351 Electronic Circuits- I
COS	**COURSE OUTCOMES**
CO1	Discuss the methods of biasing the transistors
CO2	Categorize the midband analysis of amplifier circuits using small –signal equivalent circuits to determine gain input impedance and output impedance
CO3	Examine the methods of calculating cutoff frequencies and to determine bandwidth
CO4	Discuss the classification of large signal amplifiers
CO5	Analyze the classifications of rectifiers and power supplies
SUBJECT CODE & NAME:	EC8352 Signals and Systems
COS	**COURSE OUTCOMES**
CO1	To be able to determine if a given system is linear/causal/stable
CO2	Capable of determining the frequency components present in a deterministic signal
CO3	Capable of characterizing LTI systems in the time domain and frequency domain
CO4	To be able to compute the output of an LTI system in the time and frequency domains
CO5	Capable to solve recursive & Non-recursive system,DT systems connected in series and parallel
SUBJECT CODE & NAME:	EC8392 Digital Electronics
COS	**COURSE OUTCOMES**
CO1	Able to Review the fundamentals of Digital Electronics
CO2	Able to Design various combinational digital circuits using logic gates
CO3	Able to Do the analysis and design procedures for synchronous and asynchronous sequential circuits

CO4	Able to Use the semiconductor memories and related technology
CO5	Able to Use electronic circuits involved in the design of logic gates
SUBJECT CODE & NAME:	EC8391 Control Systems Engineering
COS	**COURSE OUTCOMES**
CO1	Identify the various control system components and their representations.
CO2	Analyze the various time domain parameters.
CO3	Analysis the various frequency response plots and its system.
CO4	Apply the concepts of various system stability criterions.
CO5	Design various transfer functions of digital control system using state variable models.
SUBJECT CODE & NAME:	EC8381 Fundamentals of Data Structures in C Laboratory
COS	**COURSE OUTCOMES**
CO1	Write basic and advanced programs in C
CO2	Implement Application of Stacks and Queues
CO3	Implement functions and recursive functions in C
CO4	Implement data structures using C
CO5	Choose appropriate sorting algorithm for an application and implement it in a modularized way
SUBJECT CODE & NAME:	EC8361 Analog and Digital Circuits Laboratory
COS	**COURSE OUTCOMES**
CO1	Design and Test rectifiers, filters and regulated power supplies
CO2	Analyze the limitation in bandwidth of single stage and multi stage amplifier
CO3	Measure CMRR in differential amplifier
CO4	Simulate and analyze amplifier circuits using Pspic
CO5	Design and Test the digital logic circuits
SUBJECT CODE & NAME:	HS8381 Interpersonal Skills/Listening &Speaking
COS	**COURSE OUTCOMES**
CO1	Listen and respond appropriately.
CO2	Participate in group discussions
CO3	Make effective presentations
CO4	Make an Active Listener
CO5	Participate confidently and appropriately in conversations both formal and informal
REGULATION & SEMESTER:	**2017 - IV**
SUBJECT CODE & NAME:	MA8451 Probability and Random Processes
COS	**COURSE OUTCOMES**

CO1	Understand the fundamental knowledge of the concepts of probability and have knowledge of standard distributions which can describe real life phenomenon.
CO2	Understand the basic concepts of one and two dimensional random variables and apply in engineering applications.
CO3	Apply the concept random processes in engineering disciplines.
CO4	Understand and apply the concept of correlation and spectral densities.
CO5	The students will have an exposure of various distribution functions and help in acquiring skills in handling situations involving more than one variable. Able to analyze the response of random inputs to linear time invariant systems.
SUBJECT CODE & NAME:	EC8452 Electronic Circuits II
COS	**COURSE OUTCOMES**
CO1	Analyze different types of amplifier, oscillator and multivibrator circuits
CO2	Design BJT amplifier and oscillator circuits
CO3	Analyze transistorized amplifier and oscillator circuits
CO4	Design and analyze feedback amplifiers
CO5	Design LC and RC oscillators, tuned amplifiers, wave shaping circuits, multivibrators, power amplifier and DC convertors.
SUBJECT CODE & NAME:	EC8491 Communication Theory
COS	**COURSE OUTCOMES**
CO1	Design AM communication systems
CO2	Design Angle modulated communication systems
CO3	Apply the concepts of Random Process to the design of Communication systems
CO4	Analyze the noise performance of AM and FM systems
CO5	Gain knowledge in sampling and quantization
SUBJECT CODE & NAME:	EC8451 Electromagnetic Fields
COS	**COURSE OUTCOMES**
CO1	Display an understanding of fundamental electromagnetic laws and concepts
CO2	Explain the coupling between electric and magnetic fields through Faraday's law
CO3	Write Maxwell's equations in integral, differential and phasor forms and explain their physical meaning
CO4	Explain electromagnetic wave propagation in lossy and in lossless media
CO5	Solve simple problems requiring estimation of electric and magnetic field quantities based on these concepts and laws
SUBJECT CODE & NAME:	EC8453 Linear Integrated Circuits
COS	**COURSE OUTCOMES**
CO1	Design linear and non linear applications of OP – AMPS
CO2	Design applications using analog multiplier and PLL

CO3	Design ADC and DAC using OP – AMPS
CO4	Generate waveforms using OP – AMP Circuits
CO5	Analyze special function ICs
SUBJECT CODE & NAME:	GE8291 Environmental Science and Engineering
COS	**COURSE OUTCOMES**
CO1	Environmental Pollution or problems cannot be solved by mere laws.They understand the nature and facts about environment
CO2	Public participation is an important aspect which serves the environmental Protection. One will obtain knowledge on the following after completing the course.
CO3	Public awareness of environmental is at infant stage.
CO4	Ignorance and incomplete knowledge has lead to misconceptions
CO5	Development and improvement in std. of living has lead to serious environmental disasters
SUBJECT CODE & NAME:	EC8461 Circuits Design and Simulation Laboratory
COS	**COURSE OUTCOMES**
CO1	Analyze various types of feedback amplifiers
CO2	Design oscillators, tuned amplifiers circuits
CO3	Design , wave-shaping circuits and multivibrators circuits
CO4	Design and simulate feedback amplifiers, oscillators,
CO5	Design and simulate tuned amplifiers, wave-shaping circuits and multivibrators using SPICE Tool.
SUBJECT CODE & NAME:	EC8462 Linear Integrated Circuits Laboratory
COS	**COURSE OUTCOMES**
CO1	Design amplifiers, oscillators, D-A converters using operational amplifiers.
CO2	Design filters using op-amp and performs an experiment on frequency response.
CO3	Analyze the working of PLL and describe its application as a frequency multiplier.
CO4	Design DC power supply using ICs.
CO5	Analyze the performance of filters, multivibrators, A/D converter and analog multiplier using SPICE.
REGULATION & SEMESTER:	**2017 - V**
SUBJECT CODE & NAME:	EC8501 Digital Communication
COS	**COURSE OUTCOMES**
CO1	To know the basics concept of information theory
CO2	To study the various waveform coding schemes

CO3	To learn the various baseband transmission schemes
CO4	To understand the various band pass signaling schemes
CO5	To know the concept and details of error control coding techniques
SUBJECT CODE & NAME:	EC8553 Discrete-Time Signal Processing
COS	**COURSE OUTCOMES**
CO1	To Analyze the frequency domain behaviour of a given Discrete Time signal using Discrete Fourier Transform
CO2	Design IIR filters using Impulse Invariant and Bilinear Transformation Techniques
CO3	Analyze the spectral characteristics of digital filter using windowing technique
CO4	Understand the concept of transformation techniques used for discrete time system analysis and its various properties
CO5	Develop an algorithm using TSM320C6X Processor for simple signal processing applications.
SUBJECT CODE & NAME:	EC8552 Computer Architecture and Organization
COS	**COURSE OUTCOMES**
CO1	Able to Describe data representation, instruction formats and the operation of a digital computer
CO2	Able to Illustrate the fixed point and floating-point arithmetic for ALU operation
CO3	Able to Discuss about implementation schemes of control unit and pipeline performance
CO4	Able to Explain the concept of various memories, interfacing and organization of multiple processors
CO5	Able to Discuss parallel processing technique and unconventional architectures
SUBJECT CODE & NAME:	EC8551 Communication Networks
COS	**COURSE OUTCOMES**
CO1	Able to Identify the components required to build different types of networks
CO2	Able to Choose the required functionality at each layer for given application
CO3	Able to get idea on Routing and its basics
CO4	Able to Identify solution for each functionality at each layer
CO5	Able to Trace the flow of information from one node to another node in the network

SUBJECT CODE & NAME:	EC8562 Digital Signal Processing Laboratory
COS	**COURSE OUTCOMES**
CO1	Able to get idea on basic signal processing operations
CO2	Able to design implementation of various DSP systems
CO3	Able to Analyze the architecture of a DSP Processor
CO4	Able to design & Implement the FIR and IIR Filters
CO5	Able to analyze or design various DSP applications
SUBJECT CODE & NAME:	EC8561 Communication Systems Laboratory
COS	**COURSE OUTCOMES**
CO1	Able to Simulate & validate the various functional modules of a communication system
CO2	Able to Demonstrate their knowledge in base band signaling schemes through implementation of digital modulation schemes
CO3	Able to Apply various channel coding schemes in communication system
CO4	Able to Apply v their capabilities towards the improvement of the noise performance of communication system
CO5	Able to Simulate end-to-end communication Link
SUBJECT CODE & NAME:	EC8563 Communication Networks Laboratory
COS	**COURSE OUTCOMES**
CO1	Able to Communicate between two desktop computers
CO2	Able to Implement the different protocols
CO3	Able to Program using sockets.
CO4	Able to Implement and compare the various routing algorithms
CO5	Able to Use the simulation tool.
REGULATION & SEMESTER:	**2017 - VI**
SUBJECT CODE & NAME:	EC8691 Microprocessors and Microcontrollers

COS	COURSE OUTCOMES
CO1	Able to Understand and execute programs based on 8086 microprocessor.
CO2	Able to get idea on bus structures
CO3	Able to Design Memory Interfacing circuits
CO4	Able to Design and interface I/O circuits
CO5	Able to Design and implement 8051 microcontroller based systems.
SUBJECT CODE & NAME:	EC8095 VLSI DESIGN
COS	**COURSE OUTCOMES**
CO1	Students should be able to Realize the concepts of digital building blocks using MOS transistor
CO2	Students should be able to Design combinational MOS circuits and power strategies.
CO3	Students should be able to Design and construct Sequential Circuits and Timing systems
CO4	Students should be able to Design arithmetic building blocks and memory subsystems
CO5	Students should be able to Apply and implement FPGA design flow and testing.
SUBJECT CODE & NAME:	EC8652 Wireless Communication
COS	**COURSE OUTCOMES**
CO1	Able to Characterize a wireless channel
CO2	Able to evolve the system design specifications
CO3	Able to Design a cellular system based on resource availability and traffic demands
CO4	Able to Identify suitable signaling and multipath mitigation techniques
CO5	Able to get idea on MULTIPLE ANTENNA TECHNIQUES
SUBJECT CODE & NAME:	MG8591 Principles of Management
COS	**COURSE OUTCOMES**
CO1	Able to know the evolution of Management and principles of management
CO2	Able to know Managerial functions of planning and have same basic knowledge on international aspect of management

CO3	Able to know Managerial functions of organizing and have same basic knowledge on international aspect of management
CO4	Able to know Managerial functions of staffing and have same basic knowledge on international aspect of management
CO5	Able to know Managerial functions of leading & controlling and have same basic knowledge on international aspect of management
SUBJECT CODE & NAME:	EC8651 Transmission Lines and RF Systems
COS	**COURSE OUTCOMES**
CO1	Able to Explain the characteristics of transmission lines and its losses
CO2	Able to Write about the standing wave ratio and input impedance in high frequency transmission lines
CO3	Able to Analyze impedance matching by stubs using smith charts
CO4	Able to Analyze the characteristics of TE and TM waves
CO5	Able to Design a RF transceiver system for wireless communication+B82
SUBJECT CODE & NAME:	EC8681 Microprocessors and Microcontrollers Laboratory
COS	**COURSE OUTCOMES**
CO1	Students should be able to Write ALP Programmes for fixed and Floating Point and Arithmetic operations
CO2	Students should be able to Interface different I/Os with processor
CO3	Students should be able to Generate waveforms using Microprocessors
CO4	Students should be able to Execute Programs in 8051
CO5	Students should be able to Explain the difference between simulator and Emulator www.rejinpaul.com
SUBJECT CODE & NAME:	EC8661 VLSI Design Laboratory
COS	**COURSE OUTCOMES**
CO1	Students should be able to Write HDL code for basic as well as advanced digital integrated circuit
CO2	Students should be able to Import the logic modules into FPGA Boards
CO3	Students should be able to Synthesize Place and Route the digital Ips
CO4	Students should be able to Design the layouts of Digital & Analog IC Blocks using EDA tools
CO5	Students should be able to Simulate and Extract the layouts of Digital & Analog IC Blocks using EDA tools

SUBJECT CODE & NAME:	EC8611+B171echnical Seminar
COS	**COURSE OUTCOMES**
CO1	Able to review, prepare and present any kind of technological developments
CO2	Able to face the placement interviews effectively
SUBJECT CODE & NAME:	HS8581 Professional Communication
COS	**COURSE OUTCOMES**
CO1	Able to Make effective presentations
CO2	Able to give Self-Introduction
CO3	Able to Participate confidently in Group Discussions.
CO4	Able to Attend job interviews and be successful in them.
CO5	Able to Develop adequate Soft Skills required for the workplace
REGULATION & SEMESTER:	**2017 - VII**
SUBJECT CODE & NAME:	EC8701 Antennas and Microwave Engineering
COS	**COURSE OUTCOMES**
CO1	Able to apply the basic principles and evaluate antenna parameters and link power budgets
CO2	Able to get idea on RADIATION MECHANISMS
CO3	Able to Design and assess the performance of various antennas
CO4	Able to get idea on PASSIVE AND ACTIVE MICROWAVE DEVICES
CO5	Able to Design a microwave system given the application specifications
SUBJECT CODE & NAME:	EC8751 Optical Communication
COS	**COURSE OUTCOMES**
CO1	Able to Realize basic elements in optical fibers, different modes and configurations.
CO2	Able to Analyze the transmission characteristics associated with dispersion and polarization techniques.

CO3	Able to Design optical sources and detectors with their use in optical communication system.
CO4	Able to Construct fiber optic receiver systems, measurements and coupling techniques
CO5	Able to Design optical communication systems and its networks.
SUBJECT CODE & NAME:	EC8791 Embedded and Real Time Systems
COS	**COURSE OUTCOMES**
CO1	Able to Describe the architecture of ARM processor
CO2	Able to programming of ARM processor
CO3	Able to Outline the concepts of embedded systems
CO4	Able to Explain the basic concepts of real time operating system design
CO5	Able to Model real-time applications using embedded-system concepts
SUBJECT CODE & NAME:	EC8702 Ad hoc and Wireless Sensor Networks
COS	**COURSE OUTCOMES**
CO1	Able to get idea on the basics of Ad hoc networks and Wireless Sensor Networks
CO2	Able to to identify the routing algorithm
CO3	Able to get idea on MAC layer protocols
CO4	Able to understand the SENSOR NETWORK SECURITY
CO5	Students can able to understand the Wireless Sensor Networks
SUBJECT CODE & NAME:	EC8711 Embedded Laboratory
COS	**COURSE OUTCOMES**
CO1	Student can Write programs in ARM
CO2	Able to Interface various peripherals
CO3	Able to analyse the concept of intrept performance
CO4	student can Write programs to interfacing keyboard, display, motor and sensor
CO5	Students can able to done mini project using embedded system

SUBJECT CODE & NAME:	EC8761 Advanced Communication Laboratory
COS	**COURSE OUTCOMES**
CO1	The student would be able to Analyze the performance of simple optical link by measurement of losses
CO2	The student would be able to Analyzing the mode characteristics of fiber
CO3	The student would be able to Analyze the Eye Pattern, Pulse broadening of optical fiber and the impact on BER
CO4	The student would be able to Estimate the Wireless Channel Characteristics and Analyze the performance of Wireless Communication System
CO5	The student would be able to Understand the intricacies in Microwave System design
REGULATION & SEMESTER:	**2017 - VIII**
SUBJECT CODE & NAME:	EC8811 Project Work
COS	**COURSE OUTCOMES**
CO	On the completion of work, students will be in the position to take up any challenging practical problems and find solution by formulating proper methodology
PROFESSIONAL ELECTIVES - ELECTIVE I	
REGULATION & SEMESTER:	**2017 - V**
SUBJECT CODE & NAME:	CS8392 Object Oriented Programming
COS	**COURSE OUTCOMES**
CO1	Able to develop Java programs using OOP principles
CO2	Able to develop the concepts of inheritance and interfaces
CO3	Able to develop Java applications
CO4	Able to build threads and generics classes in java
CO5	Able to develop interactive Java programs using swings
SUBJECT CODE & NAME:	EC8073 Medical Electronics
COS	**COURSE OUTCOMES**
CO1	Able to Know the human body electro- physiological parameters and recording of bio-potentials

CO2	Able to Comprehend the non-electrical physiological parameters and their measurement – body temperature, blood pressure, pulse, blood cell count, blood flow meter etc.
CO3	Able to Interpret the various assist devices used in the hospitals viz. pacemakers, defibrillators, dialyzers and ventilators
CO4	Able to Comprehend physical medicine methods eg. ultrasonic, shortwave, microwave surgical diathermies , and bio-telemetry principles and methods
CO5	Able to Know about recent trends in medical instrumentation
SUBJECT CODE & NAME:	CS8493 Operating Systems
COS	**COURSE OUTCOMES**
CO1	Able to Analyze various scheduling algorithms.
CO2	Able to Understand deadlock, prevention and avoidance algorithms.
CO3	Able to Compare and contrast various memory management schemes.
CO4	Able to Understand the functionality of file systems.
CO5	Able to Perform administrative tasks on Linux Servers and compare iOS and Android Operating Systems.
SUBJECT CODE & NAME:	EC8074 Robotics and Automation
COS	**COURSE OUTCOMES**
CO1	Able to Explain the concepts of industrial robots in terms of classification, specifications and coordinate systems, along with the need and application of robots & automation
CO2	Able to Examine different sensors and actuators for applications like maze solving and self driving cars.
CO3	Able to Design a 2R robot & an end-effector and solve the kinematics and dynamics of motion for robots.
CO4	Able to Explain navigation and path planning techniques along with the control architectures adopted for robot motion planning.
CO5	Able to Describe the impact and progress in AI and other research trends in the field of robotics
SUBJECT CODE & NAME:	EC8075 Nano Technology and Applications
COS	**COURSE OUTCOMES**
CO1	Able to get idea on the basic NANOTECHNOLOGY
CO2	Able to identify the characterization, and manipulation of nanoscale materials.
CO3	Able to get idea on MEASUREMENT OF NANOMATERIALS
CO4	Able to Comprehend the exciting applications of nanotechnology

CO5	Students can able to design or create new applications in nano technology
SUBJECT CODE & NAME:	GE8074 Human Rights
COS	**COURSE OUTCOMES**
CO1	Got basic knowledge of human rights
CO2	Got knowledge about the evolution of human rights
CO3	Got knowledge about Theories and Laws
CO4	Got knowledge about the human Rights in India
CO5	Got knowledge in human rights
SUBJECT CODE & NAME:	GE8077 Total Quality Management
COS	**COURSE OUTCOMES**
CO1	Able to apply the tools and techniques of quality management
CO2	Able to get idea on TQM principle.
CO3	Able to get idea on TQM tools and techniques 1
CO4	Able to get idea on TQM tools and techniques 2
CO5	Able to get idea on Quality managenment system
PROFESSIONAL ELECTIVES - ELECTIVE II	
REGULATION & SEMESTER:	**2017 - VI**
SUBJECT CODE & NAME:	CS8792 Cryptography and Network Security
COS	**COURSE OUTCOMES**
CO1	Able to Understand the fundamentals of networks security, security architecture, threats and vulnerabilities
CO2	Able to analyze & apply the symmetric cryptographic algorithms
CO3	Able to analyze & apply public key cryptography
CO4	Able to analyze & apply the various Authentication schemes
CO5	Able to Understand various Security practices and System security standards

SUBJECT CODE & NAME:	EC8091 Advanced Digital Signal Processing
COS	**COURSE OUTCOMES**
CO1	Able to simulate the concepts of special random processes
CO2	Able to Choose appropriate spectrum estimation
CO3	Able to simulate or apply optimum filters appropriately
CO4	Able to simulate or apply adaptive algorithm for processing non-stationary signals
CO5	Able to Apply and analyse wavelet transforms for signal and image processing
SUBJECT CODE & NAME:	EC8001 MEMS and NEMS
COS	**COURSE OUTCOMES**
CO1	Able to understand the concepts of micro and nano electromechanical devices
CO2	Able to know MEMS FABRICATION TECHNOLOGIES
CO3	Able to analyze the aspects of electromechanical transducers including sensors and actuators
CO4	Able to understand the concepts of quantum mechanics and nano systems
SUBJECT CODE & NAME:	EC8002 Multimedia Compression and Communication
COS	**COURSE OUTCOMES**
CO1	Able to know the Design audio compression techniques
CO2	Able to Configure image and video compression techniques
CO3	Able to Configure Text, video compression techniques
CO4	Able to Select suitable service model for specific application
CO5	Able to Configure multimedia communication network
SUBJECT CODE & NAME:	EC8003 CMOS Analog IC Design
COS	**COURSE OUTCOMES**
CO1	Able to know the concepts of Analog IC design and current mirror circuits

CO2	Able to Design & analyze the configuration of Amplifiers and feedback circuits.
CO3	Able to Design & analyze the characteristics of frequency response of the amplifier
CO4	Able to Design & analyze the performance of the Able to built stability and frequency compensation
CO5	Able to built switched capacitor circuits and PLLs
SUBJECT CODE & NAME:	EC8004 Wireless Networks
COS	**COURSE OUTCOMES**
CO1	Able to get idea on the basic NANOTECHNOLOGY
CO2	Able to identify the characterization, and manipulation of nanoscale materials.
CO3	Able to get idea on MEASUREMENT OF NANOMATERIALS
CO4	Able to Comprehend the exciting applications of nanotechnology
CO5	Students can able to design or create new applications in nano technology
SUBJECT CODE & NAME:	GE8075 Intellectual Property Rights
COS	**COURSE OUTCOMES**
CO1	Ability to manage Intellectual Property portfolio to enhance the value of the firm
CO2	Ability to manage IPRs
CO3	Able to get idea on AGREEMENTS AND LEGISLATIONS
CO4	Able to get idea on DIGITAL PRODUCTS AND LAW
CO5	Able to get idea on ENFORCEMENT OF IPRs
PROFESSIONAL ELECTIVES - ELECTIVE III	
REGULATION & SEMESTER:	**2017 - VII**
SUBJECT CODE & NAME:	EC8092 Advanced Wireless Communication
COS	**COURSE OUTCOMES**
CO1	Able to know the concepts of capacity of wireless channel using MIMO
CO2	Able to get knowledge about the importance of MIMO

CO3	Able to get knowledge about vari+B144ous methods for improving the data rate of wireless communication system
CO4	Able to get knowledge about TRELLIS CODES
CO5	Able to get knowledge about SPACE TIME CODES
SUBJECT CODE & NAME:	EC8071 Cognitive Radio
COS	**COURSE OUTCOMES**
CO1	Got knowledge on the design principles on software defined radio and cognitive radio
CO2	Able to Design & analyze the configuration of cognitive radio
CO3	Able to Design & analyze the configuration of spectrum sensing and dynamic spectrum access.
CO4	Got knowledge on MAC and Network layer design of cognitive radio
CO5	Got knowledge on the advanced features of cognitive radio
SUBJECT CODE & NAME:	GE8072 Foundation Skills in Integrated Product Development
COS	**COURSE OUTCOMES**
CO1	Got knowledge ot Define, formulate and analyze a problem
CO2	Able to get soluiton for specific problems independently
CO3	Able to get idea on innovation & Product Development process
CO4	Able to work independently as well as in teams
CO5	Able to co-ordinate a project from start to finish
SUBJECT CODE & NAME:	CS8082 Machine Learning Techniques
COS	**COURSE OUTCOMES**
CO1	Able to Differentiate between supervised, unsupervised, semi-supervised machine learning approaches
CO2	Able to Apply specific supervised or unsupervised machine learning algorithm for a particular problem
CO3	Able to Analyse and suggest the appropriate machine learning approach for the various types of problem
CO4	Able to Design and make modifications to existing machine learning algorithms to suit an individual application
CO5	Able to Provide useful case studies on the advanced machine learning algorithms

SUBJECT CODE & NAME:	EC8005 Electronics Packaging and Testing
COS	**COURSE OUTCOMES**
CO1	Able to Give a comprehensive introduction to the various packaging types used along with the associated thermal, speed, signal and integrity power issues
CO2	Able to Enable design of packages which can withstand higher temperature, vibrations and shock
CO3	Able to get idea on CHIP PACKAGES
CO4	Able to Design of PCBs which minimize the EMI and operate at higher frequency
CO5	Able to Analyze the concepts of Testing and testing methods
SUBJECT CODE & NAME:	EC8006 Mixed Signal IC Design
COS	**COURSE OUTCOMES**
CO1	Able to get idea on concepts for mixed signal MOS circuit
CO2	Able to analyze the characteristics of IC based CMOS filters
CO3	Able to analyze or design of various data converter architecture circuits.
CO4	Able to analyze or design the signal to noise ratio and modeling of mixed signals
CO5	Able to analyze or design the oscillators and phase lock loop circuit
SUBJECT CODE & NAME:	GE8071 Disaster Management
COS	**COURSE OUTCOMES**
CO1	Able to Differentiate the types of disasters, causes
CO2	Able to Differentiate the impact on environment and society
CO3	Able to Assess vulnerability and various methods of risk reduction measures as well as mitigation
CO4	Able to Draw the hazard and vulnerability profile of India
CO5	Able to Scenarios in the Indian context, Disaster damage assessment and management.
PROFESSIONAL ELECTIVES - ELECTIVE IV	
REGULATION & SEMESTER:	**2017 - VIII**

SUBJECT CODE & NAME:	EC8072 Electro Magnetic Interference and Compatibility
COS	**COURSE OUTCOMES**
CO1	Able to Identify the various types and mechanisms of Electromagnetic Interference
CO2	Able to Identify the EMI COUPLING PRINCIPLES
CO3	Able to Propose a suitable EMI mitigation technique
CO4	Able to DESIGN FOR CIRCUITS AND PCBS
CO5	Able to Describe the various EMC Standards and methods to measure them
SUBJECT CODE & NAME:	EC8007 Low power SoC Design
COS	**COURSE OUTCOMES**
CO1	Able to Identify the POWER CONSUMPTION IN CMOS
CO2	Able to know Basic Concepts of Bus-Based Communication Architectures
CO3	Able to know POWER OPTIMIZATION
CO4	Able to DESIGN OF LOW POWER CIRCUITS
CO5	Able to know Floor-planning Methods
SUBJECT CODE & NAME:	EC8008 Photonic Networks
COS	**COURSE OUTCOMES**
CO1	Able to Use the backbone infrastructure for our present and future communication needs
CO2	Able to know OPTICAL NETWORK ARCHITECTURES
CO3	Able to know ROUTING NETWORKS
CO4	Able to Compare the differences in the design of data plane, control plane, routing, switching
CO5	Able to Compare the differences in the design of dresource allocation methods, network management and protection methods in vogue
SUBJECT CODE & NAME:	EC8009 Compressive Sensing
COS	**COURSE OUTCOMES**
CO1	Able to Appreciate the motivation and the necessity for compressed sensing technology.

CO2	Able to know Basis Pursuit algorithm
CO3	Able to know Basic Concepts of COMPRESSIVE SENSING FOR WSN
CO4	Able to know Basic Concepts of Bus-Based Communication Architectures
CO5	Able to Design a new algorithm or modify an existing algorithm for different application areas in wireless sensor network.
SUBJECT CODE & NAME:	EC8093 Digital Image Processing
COS	**COURSE OUTCOMES**
CO1	Able to Know and understand the basics and fundamentals of digital image processing
CO2	Able to know Basic Concepts digitization, sampling, quantization, and 2D-transforms.
CO3	Able to Operate on images using the techniques of smoothing, sharpening and enhancement.
CO4	Able to Understand the restoration concepts and filtering techniques.
CO5	Able to Learn the basics of segmentation, features extraction, compression and recognition methods for color models.
SUBJECT CODE & NAME:	GE8076 Professional Ethics in Engineering
COS	**COURSE OUTCOMES**
CO1	Enable to apply or create an awareness on Human Values
CO2	Enable to apply or create an awareness on Engineering Ethics
CO3	Able to get idea onCodes of Ethics in social
CO4	Able to realize SAFETY, RESPONSIBILITIES AND RIGHTS in the society.
CO5	Able to get idea on ethical issues related to engineering
PROFESSIONAL ELECTIVES - ELECTIVE V	
REGULATION & SEMESTER:	**2017 - VIII**
SUBJECT CODE & NAME:	EC8010 Video Analytics
COS	**COURSE OUTCOMES**
CO1	Able to get idea on the need for video Analytics & basic configuration of video analytics
CO2	Able to get idea on Morphological operations

CO3	Able to get idea on Neural networks
CO4	Able to Design video analytic algorithms for security applications
CO5	Able to Design custom made video analytics system for the given target application
SUBJECT CODE & NAME:	EC8011 DSP Architecture and Programming
COS	**COURSE OUTCOMES**
CO1	Able to get idea on Basics on Digital Signal Processors
CO2	Able to get idea on Programmable DSP‘s Architecture
CO3	Able to Analyze the concepts of Digital Signal Processors
CO4	Able to Demonstrate their ability to program the DSP processor for signal processing applications
CO5	Able to Discuss, compare and select the suitable Advanced DSP Processors for real-time signal processing applications
SUBJECT CODE & NAME:	EC8094 Satellite Communication
COS	**COURSE OUTCOMES**
CO1	Able to Analyze the satellite orbits
CO2	Able to Analyze the earth segment and space segment
CO3	Able to Analyze the satellite Link design
CO4	Able to SATELLITE ACCESS AND CODING METHODS
CO5	Able to Design various satellite applications
SUBJECT CODE & NAME:	CS8086 Soft Computing
COS	**COURSE OUTCOMES**
CO1	Able to Apply suitable soft computing techniques for various applications
CO2	Able to get idea on ARTIFICIAL NEURAL NETWORKS
CO3	Able to get idea on FUZZY SYSTEMS
CO4	Able to get idea on Inversion and Deletion -Mutation Operator
CO5	Able to Integrate various soft computing techniques for complex problems.

SUBJECT CODE & NAME:	IT8006 Principles of Speech Processing
COS	**COURSE OUTCOMES**
CO1	Able to get idea on SPEECH SIGNAL CHARACTERISTICS & ANALYSIS
CO2	Able to Design speech compression techniques
CO3	Able to Configure speech recognition techniques
CO4	Able to Design speaker recognition systems
CO5	Able to Design text to speech synthesis systems
SUBJECT CODE & NAME:	GE8073 Fundamentals of Nano Science
COS	**COURSE OUTCOMES**
CO1	Able to get basis of nanomaterial science
CO2	Able to get basis types and application of nanomaterial science
CO3	Able to Will familiarize about the science of nanomaterials
CO4	Able to Will demonstrate the preparation of nanomaterials
CO5	Able to Will develop knowledge in characteristic nanomaterial
DEPARTMENT OF MECHANICAL ENGINEERING	
REGULATION & SEMESTE	**2017 - I**
SUBJECT CODE & NAME:	HS8151 - Communicative English
CO'S	**COURSE OUTCOMES**
CO1	Students will acquire wide knowledge in all the four skills such as listening, speaking, reading and writing
CO2	Students will be able to write effectively for a variety of professional and social settings.
CO3	Students will be able to share ideas and concepts in proper pronunciation, structure, appropriate use and style of the English Language as well as the application areas of English communication
CO4	Students will be able to prepare, organize, and deliver an engaging oral presentation.
CO5	Students will become active readers who can articulate their own interpretations with an awareness and curiosity for other perspectives.

SUBJECT CODE & NAME:	MA8151 -Engineering Mathematics - I
CO'S	**COURSE OUTCOMES**
	Student will be able,
CO1	To apply both the limit definition and rules of differentiation to differentiate functions.
CO2	To apply Differentiation in Maxima and Minima problems
CO3	To Evaluate integrals both by using Riemann's and the fundamental theorem of calculus
CO4	To compute multiple integrals, area, volume, integrals in polar co ordinates in addition to change of order and change of variables
CO5	To evaluate the integrals using techniques of integration, such as substitution, partial fractions and integration by parts
SUBJECT CODE & NAME:	PH8151 - Engineering Physics
CO'S	**COURSE OUTCOMES**
	Student will be able,
CO1	Understand the elastic behavior and theraml properties of materials.
CO2	Understand the properties and applications of wave and fiber optics
CO3	Understand thermal properties of the material.
CO4	Understand Quantum mechanical behavior of the material
CO5	Understand the crystal structure and growing methods of crystal
SUBJECT CODE & NAME:	CY8151 - Engineering Chemistry
CO'S	**COURSE OUTCOMES**
	Student will be able,
CO1	To Know and develop innovative methods to produce soft water for boiler feed by various treatment process.
CO2	Explain role of adsorption phenomena and various catalytic types and its key properties
CO3	Students able to know about significance and properties of alloy making and its application on phase diagram.
CO4	To explain about analysis and manufacture of various types of fuel.

CO5	To Know about the importance and application of energy sources and energy storage devices.
SUBJECT CODE & NAME:	GE8151 - Problem Solving and Python Programming
CO'S	**COURSE OUTCOMES**
	Student will be able,
CO1	Develop algorithmic solutions to simple computational problems
CO2	Read, write, execute by hand simple Python programs.
CO3	Structure simple Python programs for solving problems.
CO4	Decompose a Python program into functions.
CO5	Represent compound data using Python lists, tuples, dictionaries
CO6	Read and write data from/to files in Python Programs.
SUBJECT CODE & NAME:	GE8152 - Engineering Graphics
CO'S	**COURSE OUTCOMES**
	Student will be able to,
CO1	Perform Freehand Sketching Of Basic Geometrical Constructions And Multiple Views Of Objects and conic sections.
CO2	Develop Orthographic Projections Of Lines And Plane Surfaces
CO3	Draw projections of solids
CO4	Draw projections of development of surfaces
CO5	Visualize and to project isometric and perspective sections of simple solids
SUBJECT CODE & NAME:	GE8161- Problem Solving and Python Programming Laboratory
CO'S	**COURSE OUTCOMES**
	Student will be able to,
CO1	Write, test, and debug simple Python programs.
CO2	Implement Python programs with conditionals and loops.

CO3	Develop Python programs step-wise by defining functions and calling them.
CO4	Use Python lists, tuples, dictionaries for representing compound data.
CO5	Read and write data from/to files in Python.
SUBJECT CODE & NAME:	BS8161-Physics and Chemistry Laboratory
CO'S	**COURSE OUTCOMES**
CO1	Student will have knowledge to Analyse the particle size & accptance andle using laser.
CO2	Student will be able to Apply the principle of ultasonic interferometer
CO3	Student will be able to understand the priciples of spectrometer grating
CO4	Students can Analyse the thermal conductivity of a bad conductor
CO5	Student will be able to Apply the elastic behavior of material
REGULATION & SEMESTE	**2017 - II**
SUBJECT CODE & NAME:	HS8251 - Technical English
CO'S	**COURSE OUTCOMES**
	Student will be able to,
CO1	Read various types of texts adapting different reading strategies
CO2	Write letters and reports effectively in formal and informal situations.
CO3	Speak confidently and communicate with others effectively in order to improve their interview skills.
CO4	Use the language perfectly without grammatical errors and by using a wide range of vocabulary.
CO5	Use the technical information properly according to business situations.
SUBJECT CODE & NAME:	MA8251- Engineering Mathematics - II
CO'S	**COURSE OUTCOMES**
	Student will be able to,
CO1	To understand the concept of Eigen values and Eigen vectors, diagonalization of Matrix, symmetric matrices,positive definite matrices and similar matrices

CO2	To evaluate Gradient, Divergence and Curl of a Vector point functions and related identities.
CO3	To evaluate a Line,Surface and Volume integrals by using Gauss, Stokes and Green's Theorems and their verification.
CO4	To understand the concept ofAnalytic functions,conformal mapping and Complex integration
CO5	To understand the concept of Laplace Transform and inverse transform of simple functions, properties, various related theorems and application to differential equations with constant coefficients
SUBJECT CODE & NAME:	PH8251 - Materials Science
CO'S	**COURSE OUTCOMES**
	Student will be able to,
CO1	Understand the phase diagrams.
CO2	Understand the properties,preparation and applications of ferrous alloys
CO3	Understand the mechanical properties materials .
CO4	Understand properties and applications of the magnetic,dielectric and super conducting materials
CO5	Understand the properties,prepartion methods and applications of new materials
SUBJECT CODE & NAME:	BE8253 Basic Electrical, Electronics and InstrumentationEngineering
CO'S	**COURSE OUTCOMES**
	Student will be able to,
CO1	Understand electric circuits and working principle of electrical machines
CO2	understanding the concept of various electronic devices
CO3	choose appropriate instruments for electrical measurements for a specific appliocation
SUBJECT CODE & NAME:	GE8291 Environmental Science and Engineering
CO'S	**COURSE OUTCOMES**
	Student will be able to,

CO1	To Know about the Scope and important of Environmental Science and values of Biodiversity.
CO2	Students will capable to identify Problems related to various Environmental Pollutions and its Control & Prevention.
CO3	Students will understand the Natural resources and sensible use of resources for sustainable lifestyles
CO4	To acquire the knowledge about social problems related to energy and the environmental production.
CO5	To know about the importance of population explosion & family welfare programme and application of information technology in environment.
SUBJECT CODE & NAME:	GE8292 Engineering Mechanics
CO'S	**COURSE OUTCOMES**
	Student will be able to,
CO1	Illustrate the statics of particles in equilibrium
CO2	Analyse the rigid body in equilibrium
CO3	Evaluate the properties of surfaces and solids
CO4	Calculate dynamic forces exerted in rigid body
CO5	Determine the friction and its effects, rigid body dynamics
SUBJECT CODE & NAME:	GE8261 Engineering Practices Laboratory
CO'S	**COURSE OUTCOMES**
	Student will be able to,
CO1	Fabricate carpentry components and pipe connections including plumbing works.
CO2	Use welding equipments to join the structures.
CO3	Carry out the basic machining operations
CO4	Make the sheet metal models
CO5	Illustrate on centrifugal pump, Air conditioner, operations of smithy, foundary and fittings
CO6	Carry out basic home electrical works and appliances
CO7	Measure the electrical quantities

CO8	Elaborate on the components, gates, soldering practices.
SUBJECT CODE & NAME:	BE8261 Basic Electrical, Electronics and Instrumentation Engineering Laboratory
CO'S	**COURSE OUTCOMES**
	Student will be able to,
CO1	Ability to determine the speed characteristic of different electrical machines
CO2	Ability to design simple circuits involving diodes and transistors
CO3	Ability to use operational amplifiers
REGULATION & SEMESTE	**2017 - III**
SUBJECT CODE & NAME:	MA8353 Transforms and Partial Differential Equations
CO'S	**COURSE OUTCOMES**
	Student will be able to,
CO1	Understand how to solve the given standard partial differential equations.
CO2	Solve differential equations using Fourier series analysis which plays a vital role in engineering applications.
CO3	Appreciate the physical significance of Fourier series techniques in solving one and two dimensional heat flow problems and one dimensional wave equations.
CO4	Understand the mathematical principles on transforms and partial differential equations would provide them the ability to formulate and solve some of the physical problems of engineering.
CO5	Use the effective mathematical tools for the solutions of partial differential equations by using Z transform techniques for discrete time systems.
SUBJECT CODE & NAME:	ME8391 Engineering Thermodynamics
CO'S	**COURSE OUTCOMES**
	Student will be able to,
CO1	Apply the first law of thermodynamics for simple open and closed systems.
CO2	Know second law of thermodynamics and apply to open and closed systems
CO3	Study Rankine cycle to steam power plant and compare few cycle improvement methods

CO4	Derive simple thermodynamic relations of ideal and real gases
CO5	Calculate the properties of gas mixtures and moist air and its use in psychometric processes
SUBJECT CODE & NAME:	CE8394 Fluid Mechanics and Machinery
CO'S	**COURSE OUTCOMES**
	Student will be able to,
CO1	Apply Mathematical knowledge to predict the properties and characteristics of a fluid.
CO2	Analyse and calculate major and minor losses associated with pipe flow in piping networks.
CO3	Mathematically predict the nature of physical quantities
CO4	Critically analyse the performance of pumps
CO5	Critically analyse the performance of turbines
SUBJECT CODE & NAME:	ME8351 Manufacturing Technology - I
CO'S	**COURSE OUTCOMES**
	Student will be able to,
CO1	Explain different metal casting processes, associated defects, merits and demerits
CO2	Compare different metal joining processes.
CO3	Summarize various hot working and cold working methods of metals.
CO4	Work on various sheet metal making processes.
CO5	Distinguish various methods of manufacturing plastic components.
SUBJECT CODE & NAME:	EE8353 Electrical Drives and Controls
CO'S	**COURSE OUTCOMES**
CO1	Able to understand the basics of electric drives and to discuss the thermal considerations.
CO2	Able to analyze characteristics of different types of drive motors.

CO3	Able to explain the different types of starters.
CO4	Able to elucidate the speed control of DC drives.
CO5	Able to elucidate the speed control of AC drives.
SUBJECT CODE & NAME:	ME8361 Manufacturing Technology Laboratory - I
CO'S	**COURSE OUTCOMES**
	Student will be able to,
CO1	Demonstrate the safety precautions exercised in the mechanical workshop.
CO2	Make the workpiece as per given shape and size using Lathe.
CO3	Join two metals using arc welding or gas welding
CO4	Use sheet metal fabrication tools and make simple tray and funnel.
CO5	Use different moulding tools, patterns and prepare sand moulds.
SUBJECT CODE & NAME:	ME8381 Computer Aided Machine Drawing
CO'S	**COURSE OUTCOMES**
	Student will be able to,
CO1	Follow the drawing standards, Fits and Tolerances
CO2	Re-create part drawings, sectional views and assembly drawings as per standards
SUBJECT CODE & NAME:	EE8361 Electrical Engineering Laboratory
CO'S	**COURSE OUTCOMES**
	Student will be able to,
CO1	Ability to perform speed characteristic of different electrical machine
SUBJECT CODE & NAME:	HS8381 Interpersonal Skills / Listening & Speaking
CO'S	**COURSE OUTCOMES**

	Student will be able to,
CO1	Listen and respond appropriately.
CO2	Participate in group discussions
CO3	Make effective presentations
CO4	Participate confidently and appropriately in conversations both formal and informal
REGULATION & SEMESTE	**2017 - IV**
SUBJECT CODE & NAME:	MA8452 STATISTICS AND NUMERICAL METHODS
CO'S	**COURSE OUTCOMES**
	Student will be able to,
CO1	Apply the concept of testing of hypothesis for small and large samples in real life problems.
CO2	Apply the basic concepts of classifications of design of experiments in the field of agriculture.
CO3	Appreciate the numerical techniques of interpolation in various intervals and apply the numerical techniques of differentiation and integration for engineering problems.
CO4	Understand the knowledge of various techniques and methods for solving first and second order ordinary differential equations.
CO5	Solve the partial and ordinary differential equations with initial and boundary conditions by using certain techniques with engineering applications
SUBJECT CODE & NAME:	ME8492 KINEMATICS OF MACHINERY
CO'S	**COURSE OUTCOMES**
	Student will be able to,
CO1	Discuss the basics of mechanism
CO2	Calculate velocity and acceleration in simple mechanisms
CO3	Develop CAM profiles
CO4	Solve problems on gears and gear trains
CO5	Examine friction in machine elements

SUBJECT CODE & NAME:	ME8451 MANUFACTURING TECHNOLOGY – II
CO'S	**COURSE OUTCOMES**
	Student will be able to,
CO1	Explain the mechanism of material removal processes.
CO2	Describe the constructional and operational features of centre lathe and other special purpose lathes.
CO3	Describe the constructional and operational features of shaper, planner, milling, drilling,sawing and broaching machines.
CO4	Explain the types of grinding and other super finishing processes apart from gear manufacturing processes.
CO5	Summarize numerical control of machine tools and write a part program.
SUBJECT CODE & NAME:	ME8491 ENGINEERING METALLURGY
CO'S	
	Student will be able to,
CO1	Explain alloys and phase diagram, Iron-Iron carbon diagram and steel classification.
CO2	Explain isothermal transformation, continuous cooling diagrams and different heat treatment processes.
CO3	Clarify the effect of alloying elements on ferrous and non-ferrous metals
CO4	Summarize the properties and applications of non metallic materials.
CO5	Explain the testing of mechanical properties.
SUBJECT CODE & NAME:	CE8395 STRENGTH OF MATERIALS FOR MECHANICAL ENGINEERS
CO'S	
	Student will be able to,
CO1	Understand the concepts of stress and strain in simple and compound bars, the importance of principal stresses and principal planes.
CO2	Understand the load transferring mechanism in beams and stress distribution due to shearing force and bending moment.
CO3	Apply basic equation of simple torsion in designing of shafts and helical spring
CO4	Calculate the slope and deflection in beams using different methods.

CO5	Analyze and design thin and thick shells for the applied internal and external pressures.
SUBJECT CODE & NAME:	ME8493 THERMAL ENGINEERING - I
CO'S	
	Student will be able to,
CO1	Apply thermodynamic concepts to different air standard cycles and solve problems.
CO2	Solve problems in single stage and multistage air compressors
CO3	Explain the functioning and features of IC engines, components and auxiliaries.
CO4	Calculate performance parameters of IC Engines.
CO5	Explain the flow in Gas turbines and solve problems.
SUBJECT CODE & NAME:	ME8462 MANUFACTURING TECHNOLOGY LABORATORY – II
CO'S	
	Student will be able to,
CO1	use different machine tools to manufacturing gears
CO2	Ability to use different machine tools to manufacturing gears.
CO3	Ability to use different machine tools for finishing operations
CO4	Ability to manufacture tools using cutter grinder
CO5	Develop CNC part programming
SUBJECT CODE & NAME:	CE8381 STRENGTH OF MATERIALS AND FLUID MECHANICS AND MACHINERY LABORATORY
CO'S	
	Student will be able to,
CO1	Ability to perform Tension, Torsion, Hardness, Compression, and Deformation test on Solid materials.
CO2	Perform Tension, Torsion, Hardness, Compression, and Deformation test on Solid materials.

CO3	Use the measurement equipments for flow measurement.
CO4	Perform test on different fluid machinery.
SUBJECT CODE & NAME:	HS8461 ADVANCED READING AND WRITING
CO'S	
	Student will be able to,
CO1	Write different types of essays.
CO2	Write winning job applications.
CO3	Read and evaluate texts critically.
CO4	Display critical thinking in various professional contexts.
REGULATION & SEMESTE	**2017 - V**
SUBJECT CODE & NAME:	ME8595 THERMAL ENGINEERING – II
CO'S	
	Student will be able to,
CO1	Solve problems in Steam Nozzle
CO2	Explain the functioning and features of different types of Boilers and auxiliaries and calculate performance parameters.
CO3	Explain the flow in steam turbines, draw velocity diagrams for steam turbines and solve problems.
CO4	Summarize the concept of Cogeneration, Working features of Heat pumps and Heat exchangers
CO5	Solve problems using refrigerant table / charts and psychrometric charts
SUBJECT CODE & NAME:	ME8593 DESIGN OF MACHINE ELEMENTS
CO'S	
	Student will be able to,
CO1	Explain the influence of steady and variable stresses in machine component design.

CO2	Apply the concepts of design to shafts, keys and couplings.
CO3	Apply the concepts of design to temporary and permanent joints.
CO4	Apply the concepts of design to energy absorbing members, connecting rod and crank shaft.
CO5	Apply the concepts of design to bearings.
SUBJECT CODE & NAME:	ME8501 METROLOGY AND MEASUREMENTS
CO'S	
	Student will be able to,
CO1	Describe the concepts of measurements to apply in various metrological instruments
CO2	Outline the principles of linear and angular measurement tools used for industrial applications
CO3	Explain the procedure for conducting computer aided inspection
CO4	Demonstrate the techniques of form measurement used for industrial components
CO5	Discuss various measuring techniques of mechanical properties in industrial applications
SUBJECT CODE & NAME:	ME8594 DYNAMICS OF MACHINES
CO'S	
	Student will be able to,
CO1	Calculate static and dynamic forces of mechanisms.
CO2	Calculate the balancing masses and their locations of reciprocating and rotating masses.
CO3	Compute the frequency of free vibration.
CO4	Compute the frequency of forced vibration and damping coefficient.
CO5	Calculate the speed and lift of the governor and estimate the gyroscopic effect on automobiles, ships and airplanes.
SUBJECT CODE & NAME:	OCE551 AIR POLLUTION AND CONTROL ENGINEERING
CO'S	

	Student will be able to,
CO1	An understanding of the nature and characteristics of air pollutants, noise pollution and basic concepts of air quality management
CO2	Ability to identify, formulate and solve air and noise pollution problems
CO3	Ability to design stacks and particulate air pollution control devices to meet applicable standards.
CO4	Ability to select control equipments.
CO5	Ability to ensure quality, control and preventive measures.
SUBJECT CODE & NAME:	ME8511 KINEMATICS AND DYNAMICS LABORATORY
CO'S	
	Student will be able to,
CO1	Explain gear parameters, kinematics of mechanisms, gyroscopic effect and working of lab equipments.
CO2	Determine mass moment of inertia of mechanical element, governor effort and range sensitivity, natural frequency and damping coefficient, torsional frequency, critical speeds of shafts, balancing mass of rotating and reciprocating masses, and transmissibility ratio.
SUBJECT CODE & NAME:	ME8512 THERMAL ENGINEERING LABORATORY
CO'S	
	Student will be able to,
CO1	conduct tests on heat conduction apparatus and evaluate thermal conductivity of materials.
CO2	conduct tests on natural and forced convective heat transfer apparatus and evaluate heat transfer coefficient.
CO3	conduct tests on radiative heat transfer apparatus and evaluate Stefan Boltzmann constant and emissivity.
CO4	conduct tests to evaluate the performance of parallel/counter flow heat exchanger apparatus and reciprocating air compressor.
CO5	conduct tests to evaluate the performance of refrigeration and airconditioning test rigs.
SUBJECT CODE & NAME:	ME8513 METROLOGY AND MEASUREMENTS LABORATORY
CO'S	
	Student will be able to,

CO1	CO1 Measure the gear tooth dimensions, angle using sine bar, straightness and flatness,thread parameters, temperature using thermocouple, force, displacement, torque and vibration.
CO2	Calibrate the vernier, micrometer and slip gauges and setting up the comparator for the inspection.
REGULATION & SEMESTE	**2017 - VI**
SUBJECT CODE & NAME:	ME8651 DESIGN OF TRANSMISSION SYSTEMS
CO'S	
	Student will be able to,
CO1	Apply the concepts of design to belts, chains and rope drives.
CO2	Apply the concepts of design to spur, helical gears.
CO3	Apply the concepts of design to worm and bevel gears.
CO4	Apply the concepts of design to gear boxes .
CO5	Apply the concepts of design to cams, brakes and clutches
SUBJECT CODE & NAME:	ME8691 COMPUTER AIDED DESIGN AND MANUFACTURING
CO'S	
	Student will be able to,
CO1	Explain the 2D and 3D transformations, clipping algorithm, Manufacturing models and Metrics
CO2	Explain the fundamentals of parametric curves, surfaces and Solids
CO3	Summarize the different types of Standard systems used in CAD
CO4	Apply NC & CNC programming concepts to develop part programme for Lathe & Milling Machines
CO5	Summarize the different types of techniques used in Cellular Manufacturing and FMS
SUBJECT CODE & NAME:	ME8693 HEAT AND MASS TRANSFER
CO'S	
	Student will be able to,

CO1	Apply heat conduction equations to different surface configurations under steady state and transient conditions and solve problems
CO2	Apply free and forced convective heat transfer correlations to internal and external flows through/over various surface configurations and solve problems
CO3	Explain the phenomena of boiling and condensation, apply LMTD and NTU methods of thermal analysis to different types of heat exchanger configurations and solve problems
CO4	Explain basic laws for Radiation and apply these principles to radiative heat transfer between different types of surfaces to solve problems
CO5	Apply diffusive and convective mass transfer equations and correlations to solve problems for different applications
SUBJECT CODE & NAME:	ME8692 FINITE ELEMENT ANALYSIS
CO'S	
	Student will be able to,
CO1	Summarize the basics of finite element formulation.
CO2	Apply finite element formulations to solve one dimensional Problems.
CO3	Apply finite element formulations to solve two dimensional scalar Problems.
CO4	Apply finite element method to solve two dimensional Vector problems.
CO5	Apply finite element method to solve problems on iso parametric element and dynamic Problems.
SUBJECT CODE & NAME:	ME8694 HYDRAULICS AND PNEUMATICS
CO'S	
	Student will be able to,
CO1	Explain the Fluid power and operation of different types of pumps.
CO2	Summarize the features and functions of Hydraulic motors, actuators and Flow control valves
CO3	Explain the different types of Hydraulic circuits and systems
CO4	Explain the working of different pneumatic circuits and systems
CO5	Summarize the various trouble shooting methods and applications of hydraulic and pneumatic systems.
SUBJECT CODE & NAME:	ME8091 AUTOMOBILE ENGINEERING

CO'S	
	Student will be able to,
CO1	Recognize the various parts of the automobile and their functions and materials.
CO2	Discuss the engine auxiliary systems and engine emission control.
CO3	Distinguish the working of different types of transmission systems.
CO4	Explain the Steering, Brakes and Suspension Systems.
CO5	Predict possible alternate sources of energy for IC Engines.
SUBJECT CODE & NAME:	PR8592 WELDING TECHNOLOGY
CO'S	
	Student will be able to,
CO1	Understand the construction and working principles of gas and arc welding process.
CO2	Understand the construction and working principles of resistance welding process.
CO3	Understand the construction and working principles of various solid state welding process.
CO4	Understand the construction and working principles of various special welding processes.
CO5	Understand the concepts on weld joint design, weldability and testing of weldments.
SUBJECT CODE & NAME:	ME8681 CAD / CAM LABORATORY
CO'S	
	Student will be able to,
CO1	Draw 3D and Assembly drawing using CAD software
CO2	Demonstrate manual part programming with G and M codes using CAM
SUBJECT CODE & NAME:	ME8682 DESIGN AND FABRICATION PROJECT
CO'S	

	Student will be able to,
CO1	Design and Fabricate the machine element or the mechanical product.
CO2	Demonstrate the working model of the machine element or the mechanical product.
SUBJECT CODE & NAME:	HS8581 PROFESSIONAL COMMUNICATION
CO'S	
	Student will be able to,
CO1	Make effective presentations
CO2	Participate confidently in Group Discussions.
CO3	Attend job interviews and be successful in them.
CO4	Develop adequate Soft Skills required for the workplace
REGULATION & SEMESTE	**2017 - VII**
SUBJECT CODE & NAME:	ME8792 POWER PLANT ENGINEERING
CO'S	
	Student will be able to,
CO1	Explain the layout, construction and working of the components inside a thermal power plant.
CO2	Explain the layout, construction and working of the components inside a Diesel, Gas and Combined cycle power plants.
CO3	Explain the layout, construction and working of the components inside nuclear power plants.
CO4	Explain the layout, construction and working of the components inside Renewable energy power plants.
CO5	Explain the applications of power plants while extend their knowledge to power plant economics and environmental hazards and estimate the costs of electrical energy production.
SUBJECT CODE & NAME:	ME8793 PROCESS PLANNING AND COST ESTIMATION
CO'S	
	Student will be able to,

CO1	Select the process, equipment and tools for various industrial products.
CO2	Prepare process planning activity chart.
CO3	Explain the concept of cost estimation.
CO4	Compute the job order cost for different type of shop floor.
CO5	Calculate the machining time for various machining operations.
SUBJECT CODE & NAME:	ME8791 MECHATRONICS
CO'S	
	Student will be able to,
CO1	Discuss the interdisciplinary applications of Electronics, Electrical, Mechanical and Computer Systems for the Control of Mechanical, Electronic Systems and sensor technology.
CO2	Discuss the architecture of Microprocessor and Microcontroller, Pin Diagram, Addressing Modes of Microprocessor and Microcontroller.
CO3	Discuss Programmable Peripheral Interface, Architecture of 8255 PPI, and various device interfacing
CO4	Explain the architecture, programming and application of programmable logic controllers to problems and challenges in the areas of Mechatronic engineering.
CO5	Discuss various Actuators and Mechatronics system using the knowledge and skills acquired through the course and also from the given case studies
SUBJECT CODE & NAME:	ME8073 Unconventional Machining Processes
CO'S	
	Student will be able to,
CO1	Explain the need for unconventional machining processes and its classification
CO2	Compare various thermal energy and electrical energy based unconventional machining processes.
CO3	Summarize various chemical and electro-chemical energy based unconventional machining processes.
CO4	Explain various nano abrasives based unconventional machining processes.
CO5	Distinguish various recent trends based unconventional machining processes.
SUBJECT CODE & NAME:	ME8097 Non Destructive Testing and Evaluation

CO'S	
	Student will be able to,
CO1	Explain the fundamental concepts of NDT
CO2	Discuss the different methods of NDE
CO3	Explain the concept of Thermography and Eddy current testing
CO4	Explain the concept of Ultrasonic Testing and Acoustic Emission
CO5	Explain the concept of Radiography
SUBJECT CODE & NAME:	OIE751 Robotics
CO'S	
	Student will be able to,
CO1	Explain the concepts of industrial robots, classification, specifications and coordinate systems. Also summarize the need and application of robots in different sectors.
CO2	Illustrate the different types of robot drive systems as well as robot end effectors.
CO3	Apply the different sensors and image processing techniques in robotics to improve the ability of robots.
CO4	Develop robotic programs for different tasks and familiarize with the kinematics motions of robot.
CO5	Examine the implementation of robots in various industrial sectors and interpolate the economic analysis of robots.
SUBJECT CODE & NAME:	OIE751 Robotics
CO'S	
	Student will be able to,
CO1	Explain the concepts of industrial robots, classification, specifications and coordinate systems. Also summarize the need and application of robots in different sectors.
CO2	Illustrate the different types of robot drive systems as well as robot end effectors.
CO3	Apply the different sensors and image processing techniques in robotics to improve the ability of robots.
CO4	Develop robotic programs for different tasks and familiarize with the kinematics motions of robot.
CO5	Examine the implementation of robots in various industrial sectors and interpolate the economic analysis of robots.

SUBJECT CODE & NAME:	ME8711 SIMULATION AND ANALYSIS LABORATORY
CO'S	
	Student will be able to,
CO1	Simulate the working principle of air conditioning system, hydraulic and pneumatic cylinder and cam follower mechanisms using MATLAB.
CO2	Analyze the stresses and strains induced in plates, brackets and beams and heat transfer problems.
CO3	Calculate the natural frequency and mode shape analysis of 2D components and beams.
SUBJECT CODE & NAME:	ME8781 MECHATRONICS LABORATORY
CO'S	
	Student will be able to,
CO1	Demonstrate the functioning of mechatronics system with various pneumatic, hydraulic and electrical systems.
CO2	Demonstrate the functioning of control systems with the help of PLC and microcontrollers.
SUBJECT CODE & NAME:	MG8591 PRINCIPLES OF MANAGEMENT
CO'S	
	Student will be able to,
CO1	Understand managerial functions and organization
CO2	Understand of planning techniques
CO3	Understanding of organizing an organization
CO4	Demonstrate the concepts of directing
CO5	Understanding of controlling
SUBJECT CODE & NAME:	ME8094 COMPUTER INTEGRATED MANUFACTURING SYSTEMS
CO'S	

	Student will be able to,
CO1	Explain the basic concepts of CAD, CAM and computer integrated manufacturing systems
CO2	Summarize the production planning and control and computerized process planning
CO3	Differentiate the different coding systems used in group technology
CO4	Explain the concepts of flexible manufacturing system (FMS) and automated guided vehicle (AGV) system
CO5	Classification of robots used in industrial applications
COURSE CODE & NAME:	ME8811 Project Work
COS	**COURSE OUTCOMES**
CO1	Students will be in a position to take up any challenging practical problems and find solution by formulating proper methodology
DEPARTMENT OF INFORMATION TECHNOLOGY	
REGULATION & SEMESTE	**2017 - I**
SUBJECT CODE & NAME:	HS8151 - Communicative English
COS	**COURSE OUTCOMES**
CO1	Students will acquire wide knowledge in all the four skills such as listening, speaking, reading and writing
CO2	Students will be able to write effectively for a variety of professional and social settings.
CO3	Students will be able to share ideas and concepts in proper pronunciation, structure, appropriate use and style of the English Language as well as the application areas of English communication
CO4	Students will be able to prepare, organize, and deliver an engaging oral presentation.
CO5	Students will become active readers who can articulate their own interpretations with an awareness and curiosity for other perspectives.

SUBJECT CODE & NAME:	MA8151 -Engineering Mathematics - I
COS	**COURSE OUTCOMES**
CO1	Stdent will be able to use both the limit definition and rules of differentiation to differentiate functions.
CO2	Student will able to apply Differentiation to solve Maxima and Minima problems
CO3	Student will able to Evaluate integrals both by using Riemann's and by using the fundamental theorem of calculus
CO4	Student will able to apply integration to compute multiple integrals, area, volume, integrals in polar co ordinates in addition to change of order and change of variables
CO5	Student will able to evaluate the integrals using techniques of integration, such as substitution, partial fractions and integration by parts

SUBJECT CODE & NAME:	PH8151 - Engineering Physics

COS	COURSE OUTCOMES
CO1	Students will be able to Understand the elastic behavior and theraml properties of materials.
CO2	Students will be able to Understand the properties and applications of wave and fiber optics
CO3	Students will be able to Understand thermal properties of the material.
CO4	Students will be able to Understand Quantum mechanical behavior of the material
CO5	Students will be able to Understand the crystal structure and growing methods of crystal

SUBJECT CODE & NAME:	CY8151 - Engineering Chemistry
COS	COURSE OUTCOMES
CO1	Students will be able to Know and develop innovative methods to produce soft water for boiler feed by various treatment process.
CO2	Explain role of adsorption phenomena and various catalytic types and its key properties
CO3	Students able to know about significance and properties of alloy making and its application on phase diagram.
CO4	To explain about analysis and manufacture of various types of fuel.
CO5	To Know about the importance and application of energy sources and energy storage devices.

SUBJECT CODE & NAME:	GE8151 - Problem Solving and Python Programming
COS	COURSE OUTCOMES
CO1	Student can able to develop algorithmic solutions to simple computational problems.
CO2	Student can demonstrate programs using simple Python statements and expressions.
CO3	Student is able to Explain control flow and function concept in python for solving problems.
CO4	Student can use Python data structures lists, tuples & dictionaries for representing compound data
CO5	Student is able to Explain files, exception, modules and packages in Python for solving problems.

SUBJECT CODE & NAME:	GE8152 - Engineering Graphics
COS	COURSE OUTCOMES
CO1	Perform Freehand Sketching Of Basic Geometrical Constructions And Multiple Views Of Objects and conic sections.
CO2	Develop Orthographic Projections Of Lines And Plane Surfaces
CO3	Draw projections of solids
CO4	Draw projections of development of surfaces
CO5	Visualize and to project isometric and perspective sections of simple solids

SUBJECT CODE & NAME:	GE8161- Problem Solving and Python Programming Laboratory
COS	COURSE OUTCOMES
CO1	Student can develop solutions to simple computational problems using Python programs

CO2	Student can solve problems using conditionals and loops in Python
CO3	Student will able to develop Python programs by defining functions and calling them
CO4	Student can use Python lists, tuples and dictionaries for representing compound data
CO5	Student will able to Develop Python programs using files

SUBJECT CODE & NAME:	BS8161-Physics and Chemistry Laboratory
COS	**COURSE OUTCOMES**
CO1	The students will be out fitted with hands on knowledge in the ETDA Method water hardness.
CO2	The students will be find out in the alkality ions present the water .
CO3	To student will be analysis of mixer of acid.
CO4	Analyse the thermal conductivity of a bad conductor
CO5	Apply the elastic behavior of material

REGULATION & SEMESTE	**2017 - II**
SUBJECT CODE & NAME:	HS8251 - Technical English
COS	**COURSE OUTCOMES**
CO1	Students will be able to Read various types of texts adapting different reading strategies
CO2	Students will be able to Write letters and reports effectively in formal and informal situations.
CO3	Students will be able to Speak confidently and communicate with others effectively in order to improve their interview skills.
CO4	Students will be able to Use the language perfectly without grammatical errors and by using a wide range of vocabulary.
CO5	Students will be able to Use the technical information properly according to business situations.

SUBJECT CODE & NAME:	MA8251 - Engineering Mathematics - II
COS	**COURSE OUTCOMES**
CO1	Understand the concept of Eigen values and Eigen vectors, diagonalization of Matrix, symmetric matrices, positive definite matrices and similar matrices
CO2	Student will able to evaluate Gradient, Divergence and Curl of a Vector point functions and related identities.
CO3	Student will able to evaluate Evaluation of line, Surface and volume integrals using Gauss, Stokes and Green's Theorems and their verification.
CO4	Understand the concept ofAnalytic functions and conformal mapping and Complex integration
CO5	Understand the concept of Laplace Transform and inverse transform of simple functions, properties, various related theorems and application to differential equations with constant coefficients

SUBJECT CODE & NAME:	PH8252 - Physics for Information Science
COS	**COURSE OUTCOMES**
CO1	Understand the Electrical properties of conducting materials.
CO2	Understand the properties and applications of semiconducting materials

CO3	Understand properties and applications of the magnetic materials.
CO4	Understand the properties and applications of optical materials
CO5	Understand the properties and applications of nano electronic device.

SUBJECT CODE & NAME:	BE8255 - Basic Electrical, Electronics and Measurement Engineering
COS	**COURSE OUTCOMES**
CO1	Student will Able to verify basic laws and theorems of electrical circuits.
CO2	Student will Able to design simple electronic circuits using diodes and transistors.
CO3	Student will Able to determine the performance characteristics of different electrical machines.
CO4	Student will Able to use operational amplifiers.
CO5	Student will Able to calibrate different measuring instruments.

SUBJECT CODE & NAME:	IT8201 - Information Technology Essentials
COS	**COURSE OUTCOMES**
CO1	Student can able to design and deploy web-sites.
CO2	Student can design and deploy simple web-applications.
CO3	Student can create simple database applications.
CO4	Student can able to know and develop personal information system for an individual to gather, organize, store and retrieve the ideas and information found to be useful for the individual.
CO5	Student can describe the basics of networking and mobile communications.

SUBJECT CODE & NAME:	CS8251 - Programming in C
COS	**COURSE OUTCOMES**
CO1	Student will able to develop simple real time applications in C.
CO2	Student will able to implement applications of matrix operations using arrays and string operations.
CO3	Student will able to develop and implement applications of computation of Sine series, Scientific calculator in C using functions and Sorting of names using pointers.
CO4	Student will able to develop applications in C using structures such as student databases and employee details.
CO5	Student will able to design applications of telephone directory using random access file processing and count the number of account holders using sequential file prodcessing.

SUBJECT CODE & NAME:	GE8261 - Engineering Practices Laboratory
COS	**COURSE OUTCOMES**
CO1	Fabricate carpentry components and pipe connections including plumbing works.
CO2	Use welding equipments to join the structures.
CO3	Carryout the basic machining operations

CO4	Make the sheet metal models
CO5	Illustrate on centrifugal pump, Air conditioner, operations of smithy, foundary and fittings
CO6	Carry out basic home electrical works and appliances
CO7	Measure the electrical quantities
CO8	Elaborate on the components, gates, soldering practices.

SUBJECT CODE & NAME:	CS8261 - C Programming Laboratory
COS	**COURSE OUTCOMES**
CO1	Student will able to develop C programs for simple applications making use of basic constructs
CO2	Student will able to develop C programs for arrays and strings such as applications of matrix operations.
CO3	Student will able to develop C programs involving functions, recursion, pointers, and structures such as computation of Sine series, Scientific calculator in C and Sorting of names.
CO4	Student will able to design applications of telephone directory using random access file processing.
CO5	Student will able to design applications of count the number of account holders using sequential file prodcessing.

SUBJECT CODE & NAME:	IT8211 - Information Technology Essentials Laboratory
COS	**COURSE OUTCOMES**
CO1	Student should able to Design interactive websites using basic HTML tags, different styles and links.
CO2	Student can able to create client side and server side programs using scripts using PHP.
CO3	Student should able to design dynamic web sites and handle multimedia components
CO4	Students can able to create applications with PHP connected to database.
CO5	Student should able to create Personal Information System

REGULATION & SEMESTE	**2017 - III**
SUBJECT CODE & NAME:	MA8351 - Discrete Mathematics
COS	**COURSE OUTCOMES**
CO1	Students will be able to understand the concepts needed to test the logic of a program.
CO2	Students will be able to understanding in identifying structures on many levels
CO3	Students will be able to analyse a class of functions which transform a finite set into another finite set which relates to input and output functions in computer science
CO4	Students will be able to Know the aware of the counting principles
CO5	Students will be able to exposed the concepts and properties of algebraic structures such as groups, rings and fields.

SUBJECT CODE & NAME:	CS8351 - Digital Principles and System Design
COS	**COURSE OUTCOMES**
CO1	To design digital circuits using simplified Boolean functions

CO2	To analyze and design combinational circuits
CO3	To analyze and design synchronous and asynchronous sequential circuits
CO4	To understand Programmable Logic Devices
CO5	To write HDL code for combinational and sequential circuits

SUBJECT CODE & NAME:	CS8391 - Data Structures
COS	**COURSE OUTCOMES**
CO1	students will be able to learn and implement concepts of ADT, List ADT and its types.
CO2	students will implement Stack ADT, Queue ADT and its applications.
CO3	students can able to learn and implement Tree ADT and its Traversals.
CO4	students will be able to learn and implement Graph ADT, Traversals and its applications.
CO5	student will be able to analyze different sorting algorithms and understand importance of Hashing.

SUBJECT CODE & NAME:	CS8392 - Object Oriented Programming
COS	**COURSE OUTCOMES**
CO1	Students able to understand the basics of OOP and fundamental concepts of Java programming.
CO2	Students able to understand the different types of Inheritance and the Interface concepts
CO3	Students able to define exceptions and use I/O streams
CO4	Students will have the ability to develop a java application with threads and generics classes
CO5	Students able to develop a java application with threads and generics classes.

SUBJECT CODE & NAME:	EC8394 - Analog and Digital Communication
COS	**COURSE OUTCOMES**
CO1	Able to review the analog communication techniques
CO2	Able to review the digital communication techniques
CO3	Able to use data and pulse communication techniques
CO4	Able to analyze Source and Error control coding
CO5	Able to Utilize multi-user radio communication

SUBJECT CODE & NAME:	CS8381 - Data Structure Laboratory
COS	**COURSE OUTCOMES**
CO1	students will be able to implement Linear Data structure operations.
CO2	student can able to decide appropriate Data structures for diiferent problems.
CO3	students will be able to implement Tree operations and its Traversal.

CO4	students will be able to implement Graphs, its Traversals and Applications.
CO5	students will implement searching and different sorting algorithms.

SUBJECT CODE & NAME:	CS8383 - Object Oriented Programming Laboratory
COS	**COURSE OUTCOMES**
CO1	Student can develop and implement Java programs for simple applications that make use of classes and objects
CO2	Student can develop and implement Java programs for applications that make use of packages and interfaces
CO3	Student can develop and implement Java programs with arraylist and exception handling
CO4	Student can develop and implement Java programs with multithreading and file processing
CO5	Student can design applications using generic programming and event handling

SUBJECT CODE & NAME:	CS8382 - Digital System Laboratory
COS	**COURSE OUTCOMES**
CO1	Implement simplified combinational circuits using basic logic gates
CO2	Implement combinational circuits using MSI devices
CO3	Able to understasnd the implementation of Sequential Circuits
CO4	Able to undersatnd the Implementation of synchronous and Asynchronous counters.
CO5	Simulate combinational and sequential circuits using HDL

SUBJECT CODE & NAME:	HS8381 - Interpersonal skills/Listening &Speaking
COS	**COURSE OUTCOMES**
CO1	Students will be able to Listen and respond appropriately.
CO2	Students will be able to Participate in group discussions.
CO3	Students will be able to Make effective presentations.
CO4	Students will be able to Participate confidently and appropriately in conversations both formal and informal.
CO5	Students will be able to Lead the team confidently by acquiring excellent leadership skills.

REGULATION & SEMESTE	**2017 - IV**
SUBJECT CODE & NAME:	MA8391 - PROBABILITY AND STATISTICS
COS	**COURSE OUTCOMES**
CO1	Understand the fundamental knowledge of the concepts of probability and have knowledge of standard distributions which can describe real life phenomenon.
CO2	Understand the basic concepts of one and two dimensional random variables and apply in engineering applications.
CO3	Apply the concept of testing of hypothesis for small and large samples in real life problems.
CO4	Apply the basic concepts of classifications of design of experiments in the field of agriculture and statistical quality control.

CO5	Have the notion of sampling distributions and statistical techniques used in engineering and management problems

SUBJECT CODE & NAME:	CS8491 - COMPUTER ARCHITECTURE
COS	**COURSE OUTCOMES**
CO1	Understand the basics structure of computers, operations and instructions.
CO2	Design arithmetic and logic unit.
CO3	Understand pipelined execution and design control unit.
CO4	Understand parallel processing architectures.
CO5	Understand the various memory systems and I/O communication.

SUBJECT CODE & NAME:	CS8492 DATABASE MANAGEMENT SYSTEMS
COS	**COURSE OUTCOMES**
CO1	Classify the modern and futuristic database applications based on size and complexity
CO2	Map ER model to Relational model to perform database design effectively
CO3	Write queries using normalization criteria and optimize queries
CO4	Compare and contrast various indexing strategies in different database systems
CO5	Appraise how advanced databases differ from traditional databases

SUBJECT CODE & NAME:	CS8451 DESIGN AND ANALYSIS OF ALGORITHMS
COS	**COURSE OUTCOMES**
CO1	Design algorithms for various computing problems.
CO2	Analyze the time and space complexity of algorithms
CO3	Critically analyze the different algorithm design techniques for a given problem
CO4	Modify existing algorithms to improve efficiency.

SUBJECT CODE & NAME:	CS8493 OPERATING SYSTEMS
COS	**COURSE OUTCOMES**
CO1	Analyze various scheduling algorithms.
CO2	Understand deadlock, prevention and avoidance algorithms.
CO3	Compare and contrast various memory management schemes.
CO4	Understand the functionality of file systems.
CO5	Perform administrative tasks on Linux Servers.
CO6	Compare iOS and Android Operating Systems

SUBJECT CODE & NAME:	GE8291 ENVIRONMENTAL SCIENCE AND ENGINEERING
COS	**COURSE OUTCOMES**
CO1	Public awareness of environment at infant stage.
CO2	Ignorance and incomplete knowledge has lead to misconceptions.
CO3	Development and improvement in standard of living has lead to serious environmental disasters.

SUBJECT CODE & NAME:	CS8481 DATABASE MANAGEMENT SYSTEMS LABORATORY
COS	**COURSE OUTCOMES**
CO1	Use typical data definitions and manipulation commands.
CO2	Design applications to test Nested and Join Queries
CO3	Implement simple applications that use Views
CO4	Implement applications that require a Front-end Tool
CO5	Critically analyze the use of Tables, Views, Functions and Procedures

SUBJECT CODE & NAME:	CS8461 OPERATING SYSTEMS LABORATORY
COS	**COURSE OUTCOMES**
CO1	Compare the performance of various CPU Scheduling Algorithms
CO2	Implement Deadlock avoidance and Detection Algorithms
CO3	Implement Semaphores
CO4	Create processes and implement IPC
CO5	Analyze the performance of the various Page Replacement Algorithms
CO6	Implement File Organization and File Allocation Strategies

SUBJECT CODE & NAME:	HS8461 ADVANCED READING AND WRITING
COS	**COURSE OUTCOMES**
CO1	Write different types of essays.
CO2	Write winning job applications.
CO3	Read and evaluate texts critically.
CO4	Display critical thinking in various professional contexts.

REGULATION & SEMESTE	2017 - V
SUBJECT CODE & NAME:	MA8551 ALGEBRA AND NUMBER THEORY
COS	**COURSE OUTCOMES**
CO1	Apply the basic notions of groups, rings, fields which will then be used to solve related problems.

CO2	Explain the fundamental concepts of advanced algebra and their role in modern mathematics and applied contexts.
CO3	Demonstrate accurate and efficient use of advanced algebraic techniques.
CO4	Demonstrate their mastery by solving non - trivial problems related to the concepts, and by proving simple theorems about the, statements proven by the text.
CO5	Apply integrated approach to number theory and abstract algebra, and provide a firm basis for further reading and study in the subject.

SUBJECT CODE & NAME:	CS8591 COMPUTER NETWORKS
COS	**COURSE OUTCOMES**
CO1	Understand the basic layers and its functions in computer networks.
CO2	Evaluate the performance of a network.
CO3	Understand the basics of how data flows from one node to another.
CO4	Analyze and design routing algorithms.
CO5	Design protocols for various functions in the network.
CO6	Understand the working of various application layer protocols

SUBJECT CODE & NAME:	EC8691 MICROPROCESSORS AND MICROCONTROLLERS
COS	**COURSE OUTCOMES**
CO1	Understand and execute programs based on 8086 microprocessor.
CO2	Design Memory Interfacing circuits.
CO3	Design and interface I/O circuits.
CO4	Design and implement 8051 microcontroller based systems

SUBJECT CODE & NAME:	IT8501 WEB TECHNOLOGY
COS	**COURSE OUTCOMES**
CO1	Design simple web pages using markup languages like HTML and XHTML.
CO2	Create dynamic web pages using DHTML and java script that is easy to navigate and use.
CO3	Program server side web pages that have to process request from client side web pages.
CO4	Represent web data using XML and develop web pages using JSP.
CO5	Understand various web services and how these web services interact.

SUBJECT CODE & NAME:	CS8494 SOFTWARE ENGINEERING
COS	**COURSE OUTCOMES**
CO1	Identify the key activities in managing a software project.
CO2	Compare different process models.
CO3	Concepts of requirements engineering and Analysis Modeling.

CO4	Apply systematic procedure for software design and deployment.
CO5	Compare and contrast the various testing and maintenance.
CO6	Manage project schedule, estimate project cost and effort required.

SUBJECT CODE & NAME:	EC8681 MICROPROCESSORS AND MICROCONTROLLERS LABORATORY
COS	**COURSE OUTCOMES**
CO1	Write ALP Programmes for fixed and Floating Point and Arithmetic operations
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

SUBJECT CODE & NAME:	CS8581 NETWORKS LABORATORY
COS	**COURSE OUTCOMES**
CO1	Implement various protocols using TCP and UDP.
CO2	Compare the performance of different transport layer protocols.
CO3	Use simulation tools to analyze the performance of various network protocols.
CO4	Analyze various routing algorithms.
CO5	Implement error correction codes.

SUBJECT CODE & NAME:	IT8511 WEB TECHNOLOGY LABORATORY
COS	**COURSE OUTCOMES**
CO1	Design simple web pages using markup languages like HTML and XHTML.
CO2	Create dynamic web pages using DHTML and java script that is easy to navigate and use.
CO3	Program server side web pages that have to process request from client side web pages.
CO4	Represent web data using XML and develop web pages using JSP.
CO5	Understand various web services and how these web services interact.

REGULATION & SEMESTE	**2017 - VI**
SUBJECT CODE & NAME:	IT8601 COMPUTATIONAL INTELLIGENCE
COS	**COURSE OUTCOMES**
CO1	Provide a basic exposition to the goals and methods of Computational Intelligence.
CO2	Study of the design of intelligent computational techniques.
CO3	Apply the Intelligent techniques for problem solving

CO4	Improve problem solving skills using the acquired knowledge in the areas of, reasoning, natural language understanding, computer vision, automatic programming and machine learning

SUBJECT CODE & NAME:	CS8592 OBJECT ORIENTED ANALYSIS AND DESIGN
COS	**COURSE OUTCOMES**
CO1	Express software design with UML diagrams
CO2	Design software applications using OO concepts.
CO3	Identify various scenarios based on software requirements
CO4	Transform UML based software design into pattern based design using design patterns
CO5	Understand the various testing methodologies for OO software

SUBJECT CODE & NAME:	IT8602 MOBILE COMMUNICATION
COS	**COURSE OUTCOMES**
CO1	Explain the basics of mobile telecommunication system
CO2	Illustrate the generations of telecommunication systems in wireless network
CO3	Understand the architecture of Wireless LAN technologies
CO4	Determine the functionality of network layer and Identify a routing protocol for a given Ad hoc networks
CO5	Explain the functionality of Transport and Application layer

SUBJECT CODE & NAME:	CS8091 BIG DATA ANALYTICS
COS	**COURSE OUTCOMES**
CO1	Design two dimensional graphics.
CO2	Apply two dimensional transformations.
CO3	Design three dimensional graphics.
CO4	Apply three dimensional transformations.
CO5	Apply Illumination and color models.
CO6	Apply clipping techniques to graphics.
CO7	Understood Different types of Multimedia File Format
CO8	Design Basic 3d Scenes using Blender

SUBJECT CODE & NAME:	CS8662 MOBILE APPLICATION DEVELOPMENT LABORATORY
COS	**COURSE OUTCOMES**
CO1	Develop mobile applications using GUI and Layouts.
CO2	Develop mobile applications using Event Listener.
CO3	Develop mobile applications using Databases.

CO4	Develop mobile applications using RSS Feed, Internal/External Storage, SMS, Multi-threading and GPS.
CO5	Analyze and discover own mobile app for simple needs.

SUBJECT CODE & NAME:	CS8582 OBJECT ORIENTED ANALYSIS AND DESIGN LABORATORY
COS	**COURSE OUTCOMES**
CO1	Perform OO analysis and design for a given problem specification.
CO2	Identify and map basic software requirements in UML mapping.
CO3	Improve the software quality using design patterns and to explain the rationale behind applying specific design patterns
CO4	Test the compliance of the software with the SRS.

SUBJECT CODE & NAME:	HS8581 PROFESSIONAL COMMUNICATION
COS	**COURSE OUTCOMES**
CO1	Make effective presentations
CO2	Participate confidently in Group Discussions.
CO3	Attend job interviews and be successful in them.
CO4	Develop adequate Soft Skills required for the workplace

REGULATION & SEMESTE	**2017 - VII**
SUBJECT CODE & NAME:	MG8591 PRINCIPLES OF MANAGEMENT
COS	**COURSE OUTCOMES**
CO1	Upon completion of the course, students will be able to have clear understanding of managerial functions like planning, organizing, staffing, leading & controlling and have same basic kn

SUBJECT CODE & NAME:	CS8792 CRYPTOGRAPHY AND NETWORK SECURITY
COS	**COURSE OUTCOMES**
CO1	Understand the fundamentals of networks security, security architecture, threats and vulnerabilities
CO2	Apply the different cryptographic operations of symmetric cryptographic algorithms
CO3	Apply the different cryptographic operations of public key cryptography
CO4	Apply the various Authentication schemes to simulate different applications.
CO5	Understand various Security practices and System security standards

SUBJECT CODE & NAME:	CS8791 CLOUD COMPUTING
COS	**COURSE OUTCOMES**
CO1	Articulate the main concepts, key technologies, strengths and limitations of cloud computing.
CO2	Learn the key and enabling technologies that help in the development of cloud.

CO3	Develop the ability to understand and use the architecture of compute and storage cloud, service and delivery models.
CO4	Explain the core issues of cloud computing such as resource management and security.
CO5	Be able to install and use current cloud technologies.
CO6	Evaluate and choose the appropriate technologies, algorithms and approaches for implementation and use of cloud.

SUBJECT CODE & NAME:	IT8711 FOSS AND CLOUD COMPUTING LABORATORY
COS	**COURSE OUTCOMES**
CO1	Configure various virtualization tools such as Virtual Box, VMware workstation.
CO2	Design and deploy a web application in a PaaS environment.
CO3	Learn how to simulate a cloud environment to implement new schedulers.
CO4	Install and use a generic cloud environment that can be used as a private cloud.
CO5	Manipulate large data sets in a parallel environment.

SUBJECT CODE & NAME:	IT8761 SECURITY LABORATORY
COS	**COURSE OUTCOMES**
CO1	Develop code for classical Encryption Techniques to solve the problems.
CO2	Build cryptosystems by applying symmetric and public key encryption algorithms.
CO3	Construct code for authentication algorithms.
CO4	Develop a signature scheme using Digital signature standard.
CO5	Demonstrate the network security system using open source tools

REGULATION & SEMESTER:	**2017 - VI ELECTIVE - I**
SUBJECT CODE & NAME:	IT8076 SOFTWARE TESTING
COS	**COURSE OUTCOMES**
CO1	Design test cases suitable for a software development for different domains.
CO2	Identify suitable tests to be carried out.
CO3	Prepare test planning based on the document.
CO4	Document test plans and test cases designed.
CO5	Use automatic testing tools
CO6	Develop and validate a test plan.

SUBJECT CODE & NAME:	CS8077 GRAPH THEORY AND APPLICATIONS
COS	**COURSE OUTCOMES**
CO1	Understand the basic concepts of graphs, and different types of graphs

CO2	Understand the properties, theorems and be able to prove theorems.
CO3	Apply suitable graph model and algorithm for solving applications.

SUBJECT CODE & NAME:	IT8071 DIGITAL SIGNAL PROCESSING
COS	**COURSE OUTCOMES**
CO1	Perform mathematical operations on signals.
CO2	Understand the sampling theorem and perform sampling on continuous-time signals to get discrete time signal by applying advanced knowledge of the sampling theory.
CO3	Transform the time domain signal into frequency domain signal and vice-versa.
CO4	Apply the relevant theoretical knowledge to design the digital IIR/FIR filters for the given analog specifications.

SUBJECT CODE & NAME:	IT8001 INFORMATION STORAGE AND MANAGEMENT
COS	**COURSE OUTCOMES**
CO1	Understand the logical and physical components of a Storage infrastructure.
CO2	Evaluate storage architectures, including storage subsystems, DAS, SAN, NAS, and CAS.
CO3	Understand the various forms and types of Storage Virtualization.
CO4	Describe the different role in providing disaster recovery and business continuity capabilities.
CO5	Distinguish different remote replication technologies

SUBJECT CODE & NAME:	CS8072 AGILE METHODOLOGIES
COS	**COURSE OUTCOMES**
CO1	Realize the importance of interacting with business stakeholders in determining the requirements for a software system
CO2	Perform iterative software development processes: how to plan them, how to execute them.
CO3	Point out the impact of social aspects on software development success.
CO4	Develop techniques and tools for improving team collaboration and software quality.
CO5	Perform Software process improvement as an ongoing task for development teams.
CO6	Show how agile approaches can be scaled up to the enterprise level.

SUBJECT CODE & NAME:	IT8072 EMBEDDED SYSTEMS
COS	**COURSE OUTCOMES**
CO1	Describe the architecture and programming of ARM processor.
CO2	Explain the concepts of embedded systems
CO3	Understand the Concepts of peripherals and interfacing of sensors.
CO4	Capable of using the system design techniques to develop firmware
CO5	Illustrate the code for constructing a system

SUBJECT CODE & NAME:	GE8075 INTELLECTUAL PROPERTY RIGHTS
COS	**COURSE OUTCOMES**
CO1	Ability to manage Intellectual Property portfolio to enhance the value of the firm.

REGULATION & SEMESTER:	2017 - VII ELECTIVE - II
SUBJECT CODE & NAME:	IT8002 WEB DEVELOPMENT FRAMEWORKS
COS	**COURSE OUTCOMES**
CO1	Analyze the fundamentals of web framework
CO2	Use the concept of Java web framework
CO3	Implement the concept using Struts framework
CO4	Apply the concept of python web framework to the problem solutions.
CO5	Critically analyze the various Web frameworks.

SUBJECT CODE & NAME:	CS8082 MACHINE LEARNING TECHNIQUES
COS	**COURSE OUTCOMES**
CO1	Differentiate between supervised, unsupervised, semi-supervised machine learning approaches
CO2	Apply specific supervised or unsupervised machine learning algorithm for a particular problem
CO3	Analyse and suggest the appropriate machine learning approach for the various types of problem
CO4	Design and make modifications to existing machine learning algorithms to suit an individual application
CO5	Provide useful case studies on the advanced machine learning algorithms

SUBJECT CODE & NAME:	IT8003 FORMAL LANGUAGES AND AUTOMATA THEORY
COS	**COURSE OUTCOMES**
CO1	Design a finite automaton for a specific language.
CO2	Design a Turing machine.
CO3	Select appropriate grammar for the implementation of compiler phases
CO4	Design a lexical analyzer
CO5	Design a simple parser
CO6	Design and implement techniques used for optimization by a compiler.
CO7	Write a very simple code generator

SUBJECT CODE & NAME:	CS8081 INTERNET OF THINGS
COS	**COURSE OUTCOMES**

CO1	Explain the concept of IoT.
CO2	Analyze various protocols for IoT.
CO3	Design a PoC of an IoT system using Rasperry Pi/Arduino
CO4	Apply data analytics and use cloud offerings related to IoT.
CO5	Analyze applications of IoT in real time scenario

SUBJECT CODE & NAME:	IT8075 SOFTWARE PROJECT MANAGEMENT
COS	**COURSE OUTCOMES**
CO1	Understand Project Management principles while developing software.
CO2	Gain extensive knowledge about the basic project management concepts, framework and the process models.
CO3	Obtain adequate knowledge about software process models and software effort estimation techniques.
CO4	Estimate the risks involved in various project activities.
CO5	Define the checkpoints, project reporting structure, project progress and tracking mechanisms using project management principles.
CO6	Learn staff selection process and the issues related to people management

SUBJECT CODE & NAME:	IT8074 SERVICE ORIENTED ARCHITECTURE
COS	**COURSE OUTCOMES**
CO1	Understand XML technologies
CO2	Understand service orientation, benefits of SOA
CO3	Understand web services and WS standards
CO4	Use web services extensions to develop solutions
CO5	Understand and apply service modeling, service oriented analysis and design for application development

SUBJECT CODE & NAME:	GE8077 TOTAL QUALITY MANAGEMENT
COS	**COURSE OUTCOMES**
CO1	The student would be able to apply the tools and techniques of quality management to manufacturing and services processes.

REGULATION & SEMESTER:	**2017 - VII ELECTIVE - III**
SUBJECT CODE & NAME:	CS8079 HUMAN COMPUTER INTERACTION
COS	**COURSE OUTCOMES**
CO1	Design effective dialog for HCI
CO2	Design effective HCI for individuals and persons with disabilities.
CO3	Assess the importance of user feedback.
CO4	Explain the HCI implications for designing multimedia/ ecommerce/ e-learning Web sites.

CO5	Develop meaningful user interface.

SUBJECT CODE & NAME:	CS8073 C# AND .NET PROGRAMMING
COS	**COURSE OUTCOMES**
CO1	Write various applications using C# Language in the .NET Framework.
CO2	Develop distributed applications using .NET Framework.
CO3	Create mobile applications using .NET compact Framework.

SUBJECT CODE & NAME:	CS8088 WIRELESS ADHOC AND SENSOR NETWORKS
COS	**COURSE OUTCOMES**
CO1	Identify different issues in wireless ad hoc and sensor networks .
CO2	To analyze protocols developed for ad hoc and sensor networks .
CO3	To identify and understand security issues in ad hoc and sensor networks.

SUBJECT CODE & NAME:	GE8072 FOUNDATION SKILLS IN INTEGRATED PRODUCT DEVELOPMENT
COS	**COURSE OUTCOMES**
CO1	Define, formulate and analyze a problem
CO2	Solve specific problems independently or as part of a team
CO3	Gain knowledge of the Innovation & Product Development process in the Business Context
CO4	Work independently as well as in teams
CO5	Manage a project from start to finish

SUBJECT CODE & NAME:	CS8071 ADVANCED TOPICS ON DATABASES
COS	**COURSE OUTCOMES**
CO1	To develop in-depth understanding of relational databases and skills to optimize database performance in practice.
CO2	To understand and critique on each type of databases.
CO3	To design faster algorithms in solving practical database problems.
CO4	To implement intelligent databases and various data models.

SUBJECT CODE & NAME:	GE8074 HUMAN RIGHTS
COS	**COURSE OUTCOMES**
CO1	Engineering students will acquire the basic knowledge of human rights.

REGULATION &	**2017 - VIII ELECTIVE - IV**

SUBJECT CODE & NAME:	CS8085 SOCIAL NETWORK ANALYSIS
COS	**COURSE OUTCOMES**
CO1	Develop semantic web related applications.
CO2	Represent knowledge using ontology.
CO3	Predict human behaviour in social web and related communities.
CO4	Visualize social networks.

SUBJECT CODE & NAME:	CS8086 SOFT COMPUTING
COS	**COURSE OUTCOMES**
CO1	Apply suitable soft computing techniques for various applications.
CO2	Integrate various soft computing techniques for complex problems

SUBJECT CODE & NAME:	CS8074 CYBER FORENSICS
COS	**COURSE OUTCOMES**
CO1	Understand the basics of computer forensics
CO2	Apply a number of different computer forensic tools to a given scenario
CO3	Analyze and validate forensics data
CO4	Identify the vulnerabilities in a given network infrastructure
CO5	Implement real-world hacking techniques to test system security

SUBJECT CODE & NAME:	IT8073 INFORMATION SECURITY
COS	**COURSE OUTCOMES**
CO1	Discuss the basics of information security
CO2	Illustrate the legal, ethical and professional issues in information security
CO3	Demonstrate the aspects of risk management.
CO4	Become aware of various standards in the Information Security System
CO5	Design and implementation of Security Techniques.

SUBJECT CODE & NAME:	EC8093 DIGITAL IMAGE PROCESSING
COS	**COURSE OUTCOMES**
CO1	Know and understand the basics and fundamentals of digital image processing, such as digitization, sampling, quantization, and 2D-transforms.
CO2	Operate on images using the techniques of smoothing, sharpening and enhancement.
CO3	Understand the restoration concepts and filtering techniques.
CO4	Learn the basics of segmentation, features extraction, compression and recognition methods for color models.

SUBJECT CODE & NAME:	IT8004 NETWORK MANAGEMENT
COS	**COURSE OUTCOMES**
CO1	Gather, derive, define and validate real requirements for the specified network.
CO2	Understand different types of requirements from the user, application, device and network component
CO3	Develop traceability between requirements, architecture decisions, and design decisions
CO4	Implement how and where addressing and routing, security, network management, and performance are required in the network.
CO5	Use SNMPv1, v2 and v3 protocols.

SUBJECT CODE & NAME:	GE8076 PROFESSIONAL ETHICS IN ENGINEERING
COS	**COURSE OUTCOMES**
CO1	Upon completion of the course, the student should be able to apply ethics in society, discuss the ethical issues related to engineering and realize the responsibilities and rights in the society

REGULATION & SEMESTER:	2017 - VIII ELECTIVE - V
SUBJECT CODE & NAME:	CS8080 INFORMATION RETRIEVAL TECHNIQUES
COS	**COURSE OUTCOMES**
CO1	Use an open source search engine framework and explore its capabilities
CO2	Apply appropriate method of classification or clustering.
CO3	Design and implement innovative features in a search engine.
CO4	Design and implement a recommender system.

SUBJECT CODE & NAME:	CS8078 GREEN COMPUTING
COS	**COURSE OUTCOMES**
CO1	Acquire knowledge to adopt green computing practices to minimize negative impacts on the environment.
CO2	Enhance the skill in energy saving practices in their use of hardware.
CO3	Evaluate technology tools that can reduce paper waste and carbon footprint by the stakeholders.
CO4	Understand the ways to minimize equipment disposal requirements .
SUBJECT CODE & NAME:	CS8084 NATURAL LANGUAGE PROCESSING
COS	**COURSE OUTCOMES**
CO1	To tag a given text with basic Language features
CO2	To design an innovative application using NLP components
CO3	To implement a rule based system to tackle morphology/syntax of a language

CO4	To design a tag set to be used for statistical processing for real-time applications
CO5	To compare and contrast the use of different statistical approaches for different types of NLP applications.

SUBJECT CODE & NAME:	IT8077 SPEECH PROCESSING
COS	**COURSE OUTCOMES**
CO1	Create new algorithms with speech processing
CO2	Derive new speech models
CO3	Perform various language phonetic analysis
CO4	Create a new speech identification system
CO5	Generate a new speech recognition system

SUBJECT CODE & NAME:	IT8078 WEB DESIGN AND MANAGEMENT
COS	**COURSE OUTCOMES**
CO1	Design Website using HTML CSS and JS
CO2	Design Responsive Sites
CO3	Manage, Maintain and Support Web Apps

SUBJECT CODE & NAME:	IT8005 ELECTRONIC COMMERCE
COS	**COURSE OUTCOMES**
CO1	Design Website using HTML CSS and JS
CO2	Design Responsive Sites
CO3	Manage, Maintain and Support Web Apps

SUBJECT CODE & NAME:	GE8073 FUNDAMENTALS OF NANOSCIENCE
COS	**COURSE OUTCOMES**
CO1	Will familiarize about the science of nanomaterials
CO2	Will demonstrate the preparation of nanomaterials
CO3	Will develop knowledge in characteristic nanomaterial