I SEM
COURSE NAME: **HS8151- Communicative English**
COURSE CODE: **101**

C101.1	Understand the basics of LSRW skills and will able to participate effectively in conversations, to exchange personal information and to express opinions in English.
C101.2	Comprehend reading and listening tasks and also to describe a simple process with a right choice of vocabulary.
C101.3	Articulate ideas coherently and write on general and creative topics using grammatically correct sentences.
C101 .4	Read, comprehend and interpret articles of a general kind in magazines and newspapers and also write informal letters and e-mails in English employing grammatically correct sentences.
C101.5	Speak clearly, confidently and comprehensibly using communicative strategies and write paragraphs and short essays cohesively and coherently.

COURSE NAME: MA8151- ENGINEERING MATHEMATICS I
COURSE CODE: C102

C102.1	Apply various techniques in solving differential equations with constant and variable coefficients.
C102.2	Gain knowledge on limits, continuity and rules of differentiation and apply them to differentiate various functions and solve maxima and minima problems.
C102.3	Understand the concepts of partial differentiation, total derivatives and Jacobian.
C102 .4	Evaluate integrals using both Riemann sums and fundamental theorem of calculus and determine the convergence and divergence of improper integrals.
C102.5	Apply various techniques of integration to compute multiple integrals and find the area and volume using double and triple integrals respectively

COURSE NAME: PH8151- ENGINEERING PHYSICS
COURSE CODE: **C103**

C103.1	Understand the basics of properties of matter and its applications.
C103.2	Acquire knowledge on the concepts of waves and optical devices and their applications in fibre optics.
C103.3	Evaluate the concepts of thermal properties of materials and their applications in expansion joints and heat exchangers.
C103 .4	Get knowledge on advanced physics concepts of quantum theory and its applications in tunneling microscopes.
C103.5	Understand the basics of crystals, their structures and different crystal growth techniques.

COURSE NAME: **CY8151-ENGINEERING CHEMISTRY**
COURSE CODE: **C104**

C104.1	Identify the origin of water resources and develop innovative methods to produce soft water for industrial use and potable water at cheaper cost.
C104.2	Explore the fundamental concepts in surface chemistry and their application in the field of catalysis.
C104.3	Gain the knowledge about phase diagrams and their applications heterogeneous equilibrium. Emphasis on heat treatment of alloys and applications
C104.4	Understand the chemistry of fuels and combustion and its application in various levels.

C104.5	Acquire the basics of non-conventional sources of energy and understand the principles and the reaction mechanism of batteries and fuel cells.

COURSE NAME: GE8151-Problem Solving and Python Programming
COURSE CODE: **C105**

C105.1	Develop algorithmic solutions to simple computational problems
C105.2	Structure simple Python programs for solving problems.
C105.3	Decompose a Python program into functions.
C105.4	Represent compound data using Python lists, tuples, dictionaries.
C105.5	Read and write data from/to files in Python Programs.

COURSE NAME: GE8152- Engineering Graphics
COURSE CODE: C106

C106.1	Communicate thoughts and ideas graphically in a neat fashion and ability to perform free hand sketching of basic geometrical constructions, curves used in engineering practices, multiple views of objects.
C106.2	Understand the concepts of orthographic projection from lines and plane surfaces
C106.3	Acquire the knowledge of Orthographic projection in three dimensions from solids of basic shapes using change of position and change of reference line method
C106.4	Understand the interior shapes of machine elements and structures through sections of solids and development of lateral surfaces.
C106.5	Understand the three dimensional view of an object using isometric and perspective projections

COURSE NAME: **GE8161- PROBLEM SOLVING AND PYTHON PROGRAMMING LABORATORY**
COURSE CODE: C107

C107.1	Write, test, and debug simple Python programs.
C107.2	Implement Python programs with conditionals and loops
C107.3	Develop Python programs step-wise by defining functions and calling them
C107.4	Use Python lists, tuples, dictionaries for representing compound data..
C107.5	Read and write data from/to files in Python.

COURSE NAME: BS8161- PHYSICS AND CHEMISTRY LABORATORY
COURSE CODE: C108

C108.1	Apply the principles of Laser for engineering applications.
C108.2	Understand the basic knowledge of elasticity.
C108.3	Know the practical applications of thermal physics.
C108 .4	Acquire practical skills in the determination of water quality parameters through volumetric method
C108.5	Understand the practical knowledge on pH and conductometric titrations.

II SEM
COURSE NAME: HS8251- Technical English
COURSE CODE: **C109**

C109.1	Read, identify the transition in texts and comprehend scientific and technical contexts in an enhanced way.
C109.2	Read and interpret data from graphical representations and charts in an effective way.

C109.3	Write reports effectively using appropriate vocabulary and accurate spelling and grammar.
C109 .4	Draft job application letters with Resume and e-mails in a convincing manner.
C109.5	Describe processes, participate in formal and informal conversations, Group Discussions and make technical presentations effectively

COURSE NAME: MA8251-Engineering Mathematics - II
COURSE CODE: **: C110**

C110.1	Evaluate Eigen values and Eigen vectors and apply them in diagonalization of matrices.
C110.2	Acquire knowledge in the fundamentals and basic concepts in vector calculus.
C110.3	Apply the concept of analyticity in complex functions and evaluate complex derivatives.
C110.4	Recognize the nature of singularities, evaluate residues and contour integrals.
C110.5	Understand the usage of Laplace transforms in mathematics and apply in relevant Situations.

COURSE NAME: PH8253- Physics for Electronics Engineering
COURSE CODE: C111

C111.1	Gain knowledge on classical and quantum electron theories and energy band structures.
C111.2	Acquire knowledge basics of semiconductor physics and its applications in various devices.
C111.3	Get knowledge on magnetic and dielectric properties of materials.
C111.4	Have the necessary understanding on the functioning of optical material for optoelectronics.
C111.5	Understand the basics of quantum structures and their applications in carbon electronics.

COURSE NAME: BE8252- Basic Civil and Mechanical Engineering
COURSE CODE: C112

C112.1	To provide an overview and impart basic knowledge of sub disciplines in civil and mechanical Engineering.
C112.2	To familiarize the materials and measurements used in civil engineering.
C112.3	To Provide exposure on the fundamental elements of building structures and provide ideas on proper selection of building materials.
C112 .4	Inculcate with knowledge of Classification and working principle of Power plants, IC Engines and Boilers.
C112.5	Acquire the knowledge on terminologies & working principle of Refrigeration & Air-Conditioning

COURSE NAME: EE8251- Circuit Theory
COURSE CODE: C113

C113.1	Ability to understand the laws and basic concepts of DC and AC circuits
C113.2	Ability to Analyze the DC and AC electrical circuits using mesh and nodal analysis
C113.3	Ability to apply theorems in AC and DC circuits
C113 .4	Ability to analyze and solve RL,RC and RLC transient circuits.
C113.5	Ability to analyze resonance and coupled circuits.and three phase circuits

COURSE NAME: GE8291-Environmental Science and Engineering
COURSE CODE: C114

C114.1	Understand the basics of Structure and functions of an ecosystem, the values of biodiversity and conservation of biodiversity.
C114.2	Understand the causes, effects and control measures of different pollution and disasters.
C114.3	Remember the importance of natural resources and to know the role of an individual in conservation of natural resources and their case studies.
C114 .4	Gain knowledge about the concept of Sustainable development, Environmental Laws and role of Government and Non- Governmental Organizations (NGO) in Environmental Protection.
C114.5	Learn the importance of family welfare programs, population explosion and Value education.

COURSE NAME: GE8261- Engineering Practices Laboratory
COURSE CODE: C115

C115.1	Able to measure electrical parameters such as voltage, current, resistance and power
C115.2	Able to measure the electrical energy by single phase and three phase energy meters.
C115.3	Able to prepare carpentry components and pipe connections including plumbing works.
C115.4	Able to prepare different types of welding joints, basic machining operations in lathe and drilling, sheet metal works.
C115.5	Elaborate on the components, gates, soldering practices.

COURSE NAME: EE8261-Electric Circuits Laboratory
COURSE CODE: **: C116**

C116.1	Able to understand basic electric circuit concepts in engineering applications
C116.2	Able to apply circuit theorems and concepts in engineering applications
C116.3	Able to understand the simulation of electrical circuits and the verification of circuit theorems.
C116 .4	Able to understand the simulation software for solving RL, RC and RLC networks.
C116.5	Able to analyze three phase power and single phase power measurements.

III SEM
COURSE NAME: MA8353 Transforms and Partial Differential Equations
COURSE CODE: C201

C201.1	Understand the mathematical principles of partial differential equations and formulate the equations.
C201.2	Evaluate the various forms of Fourier series.
C201.3	Apply the Fourier series solution methodology to boundary value problems.
C201.4	Understand the concept of Fourier transform and its properties, as well as to evaluate Fourier transforms of typical functions.
C201.5	Apply Z transform techniques for discrete time signals.

COURSE NAME: EC8353 Electronic Devices and Circuits
COURSE CODE: C202

C202.1	Students are able to understand the Structure and operation of PN junction devices.
C202.2	Students are able to understand the Structure and operation of transistors.
C202.3	Students are able to understand the operation of amplifiers.
C202.4	Students are able to understand the operation of multistage amplifiers and differential amplifiers.
C202.5	Students are able to understand feedback amplifiers and oscillators.

COURSE NAME: EE8351 Digital Logic Circuits
COURSE CODE: C203

C203.1	Ability to study various number systems and simplify the logical expressions using Boolean functions
C203.2	Ability to design combinational and sequential Circuit
C203.3	Ability to design various synchronous and asynchronous circuits.
C203.4	Ability to introduce asynchronous sequential circuits and PLDs
C203.5	To understand the digital simulation for development of application oriented logic circuits.

COURSE NAME: EI8351 ELECTRICAL MEASUREMENTS
COURSE CODE: C204

C204.1	Ability to measure current and voltage. Ability to understand AC & DC measurements.
C204.2	Ability to measure power and calibration of energy meters.
C204.3	Ability to measure current and voltage using potentiometric methods.
C204.4	Ability to understand the resistance measurement
C204.5	Ability to use bridge circuits to measure resistance, inductance and capacitance.

COURSE NAME: EI8352 TRANSDUCER ENGINEERING
COURSE CODE: C205

C205.1	Understand the methods of measurement, classification of transducers and to analyze error.
C205.2	To understand the behavior of transducers under static and dynamic conditions and hence to model the transducer
C205.3	To Get exposed to different types of resistive transducers and their application areas.
C205.4	To acquire knowledge on capacitive and inductive transducers..
C205.5	To gain knowledge on variety of transducers and get introduced to MEMS and Smart transducers.

COURSE NAME: CS8392 Object Oriented Programming
COURSE CODE: C206

C206.1	Develop the Java programs using OOP principles
C206.2	Develop Java programs with the concepts inheritance and interfaces
C206.3	Build java applications using exceptions and I/O streams
C206.4	Develop Java applications with threads and generic classes
C206.5	Develop interactive Java programs using swings

COURSE NAME: EI8361 Measurements and Transducers Laboratory
COURSE CODE: C207

C207.1	Understand the concepts of measurement, error and uncertainty.
C207.2	Understand the static and dynamic characteristics of measuring instruments.
C207.3	Gain knowledge about the principle of operation and characteristics of different types of resistance, capacitance and inductance transducers.
C207.4	Acquire knowledge of analyzing different stages of signal conditioning units.
C207.5	Ability to interpret the results and draw meaningful conclusions.

COURSE NAME: CS8383 Object Oriented Programming Laboratory
COURSE CODE: C208

C208.1	Students are able to understand object-oriented concepts.
C208.2	Students are able to understand object oriented programming through C++
C208.3	Students are able to gain the basic knowledge in Object Oriented concepts.
C208.4	Students are able to develop applications using Object Oriented Programming Concepts.
C208.5	Students are able to implement features of object oriented programming to solve real world problems.

IV SEM

COURSE NAME: MA8491 NUMERICAL METHODS
COURSE CODE: C209

C209.1	Evaluate algebraic, transcendental equations, systems of linear equations and Eigen value problems.
C209.2	Apply the knowledge of Interpolation and approximation aid students in construction of approximate polynomials from large sets of experimental data.
C209.3	Understand differentiation and integration of an empirical function given by tabulated numerical values.
C209.4	Evaluate first order ordinary differential equations using single step methods and multistep methods.
C209.5	Gain knowledge in solving boundary value problems in ODE and PDE by finite difference methods.

COURSE NAME: EI8451 ELECTRICAL MACHINES
COURSE CODE: C210

C210.1	Ability to acquire knowledge to solve problems associated with DC and AC Machines
C210.2	Ability to test and control different machines based on the familiarity of basic concepts and working principle
C210.3	Ability to choose appropriate machines for a given application while carrying out projects
C210.4	Ability to apply the knowledge gained to choose appropriate machines for specific application useful for the society.
C210.5	Ability to know about the latest developments related to machines and to learn their concepts even after the completion of the course and to acquire knowledge of stepper motor

COURSE NAME: EI8452 Industrial Instrumentation - I
COURSE CODE: C211

C211.1	Ability to understand the construction and working of instruments used for measurement of force, torque, speed, acceleration, vibration, density, viscosity, humidity, moisture, temperature.
C211.2	Ability to select instruments according to the application
C211.3	Ability to understand the working of instruments used for measurement of pressure.
C211.4	Ability to measure temperature using fiber optic probe & design signal conditioning circuits and compensation schemes for temperature measuring instruments
C211.5	Ability to understand the concept of calibration of instruments and gain knowledge about temperature measurement devices

COURSE NAME: EE8451- Linear integrated Circuits and Applications
COURSE CODE: C212

C212.1	Acquire knowledge in IC fabrication procedure
C212.2	Analyze the characteristics and basic applications of Op-Amp.

C212.3	Design and acquire knowledge on the Applications of Op-amp.
C212.4	Identify the applications of special ICs like Timers, PLL.
C212.5	Understand the features and applications of regulator circuits.

COURSE NAME: IC8451- Control Systems
COURSE CODE: C213

C213.1	Ability to develop various representations of system based on the knowledge of Mathematics, Science and Engineering fundamentals.
C213.2	Ability to do time domain and frequency domain analysis of various models of linear system.
C213.3	Ability to interpret characteristics of the system to develop mathematical model.
C213.4	Ability to design appropriate compensator for the given specifications
C213.5	Ability to come out with solution for complex control problem

COURSE NAME: EC8395-Communication Engineering
COURSE CODE: C214

C214.1	Apply Analog and digital communication techniques.
C214.2	Understand Data communication techniques
C214.3	Use Pulse communication techniques.
C214.4	Analyze Source and Error control coding.
C214.5	Utilize multi-user radio communication

COURSE NAME: EI8461- Devices and Machines lab
COURSE CODE: C215

C215.1	To simulate using PSPICE/MATLAB and analyze the characteristics of PNJunction Diode, Transistor and FET
C215.2	To simulate using PSPICE/MATLAB and analyze the characteristics of UJT,Phase Shift Oscillators and Multivibrator
C215.3	To simulate using PSPICE/MATLAB and analyze the characteristics of Passive filters and rectifiers.
C215.4	To conduct an experiment on DC generators and analyze the open circuit andload characteristics
C215.5	To conduct an experiment on DC motors and analyze the load characteristicsof DC Shunt motor and induction motors ,and transforemrs

COURSE NAME: EE8461- Linear and Digital integrated Circuits Laboratory
COURSE CODE: C216

C216.1	To understand the working of linear and digital integrated circuits. (K2)
C216.2	To construct linear and digital integrated circuits (K3)
C216.3	To analyse linear and digital integrated circuits (K4)
C216.4	To Evaluate the performance of linear and digital integrated circuits (K5)
C216.5	To Understand the working of different application IC's. (K2)

SEM V
COURSE NAME: EI8551 Analytical Instruments
COURSE CODE: C301

C301.1	To understand the fundamental principles of selective analytical instruments used in medical diagnosis, quality assurance & control and research studies.

C301.2	Assess and suggest a suitable analytical method for a specific purpose, and evaluate sensitivity, important sources of interferences and errors, and also suggest alternative analytical methods for quality assurance.
C301.3	To deduce the relevance with deeper understanding of Gas analyzers and Pollution Monitoring systems
C301.4	To develop critical thinking for interpreting analytical data using Various analyzers
C301.5	To analyze the working principle, types and applications of NMR and Mass spectroscopy
C301.6	To Critically evaluate the strengths and limitations of the various instrumental methods.

COURSE NAME: EI8552 Industrial Instrumentation - II
COURSE CODE: C302

C302.1	To analyze about features, installation and applications variable head type flow meters for compressible and incompressible flow.
C302.2	To evaluate coefficient of discharge of various variable head type flow meters like Orifice plate, Venturi tube, Flow nozzle, Dall tube and Pitot tube.
C302.3	To analyze the features of positive displacement flow meters, Variable area flow meter and Mass flow meter, various electrical flow meters and dynamic weighing method forflow meter calibration
C302.4	To evaluate the different methods of level measurement for a variety of applications
C302.5	To analyze the basic concepts of pneumatic and electronic transmitter
C302.6	To examine the behavior of smart transmitter used in flow, level, pressure, temperaturemeasurement together with its installation and calibration.

COURSE NAME: EI8553 Process Control
COURSE CODE: C303

C303.1	To introduce technical terms and nomenclature associated with Process control domain
C303.2	To provide an overview of the features associated with Industrial type PID controller
C303.3	To elaborate the model parameters and design Specifications of controller
C303.4	To make the students understand the various PID tuning methods and different types of control schemes such as cascade control ,feed-forward control and Model Based control schemes
C303.5	To elaborate different types of PID Implementation Issues
C303.6	To familiarize the students with characteristics, selection, sizing of control valves

COURSE NAME: EE8551 Microprocessors and Microcontrollers
COURSE CODE: C304

C304.1	Demonstrate the detail structure of 8085 processor and 8051 microcontroller
C304.2	Classify the different types of machine cycle and interrupt signals of 8085
C304.3	Illustrate how the different peripherals are interfaced with processor and microcontroller
C304.4	Discuss the various instruction sets and addressing modes of 8085 and 8051
C304.5	Evaluate their practical knowledge by writing the simple assembly language program using various instruction of 8085 and 8051
C304.6	Design a simple application development using the programming of 8085 &8051

COURSE NAME: EI8093 UNIT OPERATION AND CONTROL
COURSE CODE: C305

C305.1	Apply the knowledge on solids & fluids to handle the raw materials

C305.2	Review the basic concepts of solid resizing
C305.3	Apply relevant handling techniques to convert the solids and fluids for specific applications
C305.4	Examine alernate solutions for simple/complex problems in heat transfer and review implementation of concepts applied in heat exchange equipments for different applications such as distillation, boilers,
C305.5	Analyze multidisciplinary projects using heat transfer, mass transfer concepts in advanced unit operaions.
C305.6	Apply new techniques and developments for life long learning in various types of unit operations in industries.

COURSE NAME: OCE551- AIR POLLUTION AND CONTROL ENGINEERING
COURSE CODE: C306

C306.1	an understanding of the nature and characteristics of air pollutants, noise pollution and basic concepts of air quality management
C306.2	ability to identify, formulate and solve air and noise pollution problems
C306.3	ability to design stacks and particulate air pollution control devices to meet applicable standards.
C306.4	ability to select appropriate pollution control equipments.
C306.5	ability to ensure quality, control and preventive measures.
C306.6	ability to identify the methods involved in pollutant transport mechanism

COURSE NAME: EI8561 Industrial Instrumentation Laboratory
COURSE CODE: C307

C307.1	To experimentally measure industrial process parameters such as flow, level.
C307.2	To experimentally measure industrial process parameters such as temperature, pressure.
C307.3	To experimentally measure industrial process parameters such as viscosity.
C307.4	To measure and analyze pH, conductivity.
C307.5	To measure and analyze UV absorbance and transmittance.
C307.6	To measure and analyze physiological parameters such as BP, ECG and pulse rate.

COURSE NAME: EE8681 Microprocessors and Microcontrollers Laboratory
COURSE CODE: C308

C308.1	To understand and apply computing platform and software for engineering problems.
C308.2	To programming logics for code conversion.
C308.3	To understand basics of software simulators
C308.4	To understand basics of serial communication.
C308.5	To understand and impart knowledge in DC and AC motor interfacing.
C308.6	To acquire knowledge on A/D and D/A..

VI SEM
COURSE NAME: **: IC8651 ADVANCED CONTROL SYSTEM**
COURSE CODE: C309

C309.1	Able to design state feedback controller and state observer.
C309.2	Able to understand and analyse linear and nonlinear systems using phase plane method.
C309.3	Able to understand and analyse nonlinear systems using describing function method.
C309 .4	Able to understand and design optimal controller.
C309.5	Able to understand optimal estimator including Kalman Filter.
C309.6	Ability to apply advanced control strategies to practical engineering problems.

COURSE NAME: EI8651 Logic and Distributed Control System
COURSE CODE: C310

C310.1	Understand all the important components such as PLC, SCADA, I/O modules and field devices of an industrial automation system.
C310.2	Develop PLC programs using relay logic and ladder logic for industrial sequential applications
C310.3	Develop PLC program in different languages like FBD, structured list, sequential function chart for real time industrial applications
C310.4	To have the knowledge on the architecture and local control unit of Distributed Control System (DCS).
C310.5	Ability to gain knowledge on the recent developments in industrial automation and analyze various case studies in the application of SCADA,DCS and PLC.
C310.6	Ability to gain knowledge from studying about case studies.

COURSE NAME: CS8391 Data Structures
COURSE CODE: C311

C311.1	To understand the concepts of ADT.
C311.2	To Learn linear data structures - lists, stacks, and queues
C311.3	To understand sorting, searching and hashing algorithms
C311.4	To apply Tree and Graph structures.
C311.5	To Apply the different linear and non-linear data structures to problem.Solutions
C311.6	To Critically analyze the various sorting algorithms.

COURSE NAME: EI8092 THERMAL POWER PLANT INSTRUMENTATION
COURSE CODE: C312

C312.1	To Understand the basic methods of power generation ,basic electrical measurements, non electrical parameters, temperature measurements, speed measurements, pressure measurement and smoke measurement.
C312.2	To Analyze the working of thermal power plant, oxygen analysers, flue gasanalyzer
C312.3	To analyze the working of pulverizes , draught system, distributed controlsystem in power plants and interlocks in boiler operation
C312.4	To construct the working of boiler processes, Pand I Diagram ,cogenerationand soot blowing operation
C312.5	To Analyze the various controls of furnace, boiler and turbine
C312.6	To compare the various building blocks of thermal power plants with other power plants and its importance. Gain knowledge of measurement , controlling, monitoring Instruments and different parameters

COURSE NAME: EI8074 Computer Networks
COURSE CODE: C313

C313.1	To Understanding the components required to build different types of networks andUnderstand network Interconnections
C313.2	To analyze the required functionality at each layer for given application, RoutingProtocols and Network structure
C313.3	To evaluate solutions for each functionality at each layer and analyze Routingprotocols.
C313.4	To applying connection management information flow tracing from one node to another node in the network and understanding of network traffic for traditional applications
C313.5	To applying various congestion control and Avoidance techniques and Rememberingof Node to Node communication

C313.6	To Understanding the tradition applications and web services and Remembering thenetwork building

COURSE NAME: EI 8072 ADVANCED INSTRUMENTATION SYSTEMS
COURSE CODE: C314

C314.1	To understand the construction, working and calibration of Flow, level, pressure and temperature measuring instruments
C314.2	To Analyze the Selection and Application of Flow, level, pressure and temperature measuring instruments.
C314.3	To understand the working of chromatography, chemical analyzers and pollution monitoring Instruments
C314.4	Ability to understand the role of Safety instrumentation system and instrumentation standards in the industry
C314.5	To Separate and Analyze the different elements of the compound. To Analyze process hazards, Process control system and Safety control system. Also to determine the Safety integrity level of the process
C314.6	To Design, develop and interpret the documents used to define instruments and control Systems for a typical project, including P&IDs, loop diagrams, specification forms, Instrument lists, logic diagrams, installation details, and location plans

COURSE NAME: CS8381 Data Structures Laboratory
COURSE CODE: C315

C315.1	To implement linear and non-linear data structure operations.
C315.2	To Suggest appropriate linear / non-linear data structure operations for solvinga given problem.
C315.3	Appropriately use the linear / non-linear data structure operations for a givenproblem
C315.4	To apply appropriate hash functions that result in a collision free scenario for data storage and retrieval.
C315.5	To implement graph traversal algorithms.
C315.6	To get familiarized to sorting and searching algorithms.

COURSE NAME: EI8661 Process Control Laboratory
COURSE CODE: C316

C316.1	To understand and analyze process control engineering problems.
C316.2	To build dynamic models using input - output data of a process.
C316.3	To work with real time control loops (flow / level / temperature / pressure).
C316.4	To simulation tools such as MATLAB/LABVIEW/ASPEN.
C316.5	to learn and implement simple adaptive and model based control schemes.
C316.6	To get familiarized to sorting and searching algorithms.

COURSE NAME: HS8581 Professional Communication
COURSE CODE: C317

C317.1	To make effective presentations.
C317.2	To enhance the Employability and Career Skills of students.
C317.3	To participate confidently in Group Discussions.
C317.4	To attend job interviews and be successful in them.
C317.5	To develop adequate Soft Skills required for the workplace.

C317.6	To make them Employable Graduates.

VII SEM
COURSE NAME: **: EI8751 Industrial Data Networks**
COURSE CODE: C401

C401.1	To remember the basic concepts of communication and networking in all networking devices
C401.2	To understand OSI model, various types of communication and networking topologies
C401.3	To apply OSI model, communication and networking topologies for networking devices.
C401.4	To analyze the various networking topology and protocol structures in all networking device
C401.5	To evaluate the functions of various topology, protocol structure and networking devices for various applications
C401.6	To understand the case study related to networking and communication topologies.

COURSE NAME: **EI8091 - INSTRUMENTATION IN PETROCHEMICAL INDUSTRIES**
COURSE CODE: **C402**

C402.1	To discuss on various oil gas production and seperation process and important unit operations in a refinery
C402.2	To interpret various chemical derivatives from petroleum products such as Propylene and Ethylene
C402.3	To develop a mathematical model of selective process and various parameters to be measured in refinery
C402.4	To classify the various hazardous zone and also to inculcate different type of flame and smoke detectors used in petrleum industry.
C402.5	To classify the various hazardous zone and also to inculcate different type of flame and smoke detectors used in petrleum industry.
C402.6	To develop , analyze and select appropriate control strategy for selective unit operations in a refinery.

COURSE NAME: EC8093 Digital Image Processing
COURSE CODE: C403

C403.1	Learn the digital image fundamentals steps and image aquisition
C403.2	Learn Color image fndamentatls and Processing techniques
C403.3	Apply Image enhancement using filtering Techniqes
C403.4	Apply different types of filters for image restoration and noise models
C403.5	Familarize with basic and advanced image segmnetation techniques for all types of images
C403.6	Familiarize feature extraction techniques through various descriptors

COURSE NAME: **EI 8075 -FIBER OPTICS AND LASER INSTRUMENTATION**
COURSE CODE: **C404**

C404.1	To analyze about optical fibers, its construction, basic principle using the basic concepts of science and mathematics together with its classification, mechanical and transmission characteristics, working of various optical sources liker laser and detectors.
C404.2	To apply basic concepts of optical fiber sensors to measure various parameters like pressure , temperature, current, voltage, liquid level and strain, attenuation, dispersion, scattering and absorption losses using various methods.
C404.3	To analyze on the different types of lasers based on level, material used ,power produced along with its properties.

C404.4	To discuss the basic concepts of laser using optical fiber in various Industrial applications together with parameter measurements like length, velocity, acceleration, current, voltage
C404.5	To analyze the basic concepts of laser and optical fibers in industry material processing and medical applications of laser
C404.6	To examine the behavior of holography technique with its classification.

COURSE NAME: **COMPUTER CONTROL OF PROCESSES**
COURSE CODE: **C405**

C405.1	Understand the basic concepts of discrete state variable technique, system identification, z transform, multi loop and multi variable control
C405.2	Apply the concepts like decomposition, least square methods, z transforms, RGA, Tuning methods, Dynamic matrix controller and FLC in computer control of process (K3)
C405.3	Analysis of Controllability, Observability, stability test, parametric and non parametric methods of system identification, Process interaction and pairing in multi variable control.
C405.4	Design the discrete data system from state equation, Dead beat and Dahlin controller
C405.5	Evaluate state transition matrix, state diagram,input output model , modified z transform and pulse transfer function
C405.6	Analyze various case studies of multi loop and multivariable control

COURSE NAME: OAN751 - LOW COST AUTOMATION
COURSE CODE: C406

C406.1	Students can able to do low cost automation systems
C406.2	Students can do some assembly automation
C406.3	Students can understand the concepts of hydraulic systems
C406.4	Students can understand the concepts of Pneumatic systems
C406.5	To design hydraulic systems and do perform analysis
C406.6	To do combinational design using mapping

COURSE NAME: EI8761 Industrial Automation Laboratory
COURSE CODE: C407

C407.1	Understand the basic concepts of PLC, SCADA and DCS
C407.2	Understand the concept of Foundation Fieldbus /IOT/Wireless HART EnabledTransmitter.
C407.3	Apply the Programming of PLC, SCADA and DCS in real time industrial automation (K3)
C407.4	Analyze the interfacing of field devices with PLC and DCS
C407.5	Design of various control schemes in PLC and DCS.
C407.6	Implementation of various control schemes in PLC and DCS

COURSE NAME: EI8762 Instrumentation System Design Laboratory
COURSE CODE: C408

C408.1	To Obtain adequate knowledge in design of various signal conditioning circuitsand Instrumentation systems.
C408.2	To understand and Explain Piping and Instrumentation Diagram, a multi-channel data acquisition system and also prepare documentation of Instrumentation project ,projectscheduling for the case study.
C408.3	To derive and calculate the discharge coefficient of orifice plate and rotameter

C408.4	To Analyze converters ,RPS, linearizing, cold compensation circuits, multi range DPtransmitter and control valve characteristics
C408.5	To Evaluate Electronics and Instrumentation design
C408.6	To Design Active filters ,PID controller and Instrumentation amplifier

VII SEM
COURSE NAME: EI8073- BIOMEDICAL INSTRUMENTATION
COURSE CODE: **C409**

C409.1	To understand the basic medical terminology, relevant for biomedical instrumentation.
C409.2	To understand the different diagnostic measurement methods for identification of human biopotentials and their necessary instrumentation.
C409.3	To understand and measure the electrical and non electrical parameters of biomedical system
C409.4	To understand different imaging techniques and life assisting techniques
C409.5	To Understand the position of biomedical instrumentation in modern hospital care
C409.6	To Analyse different diagnostic measurement methods for different humane variables and their necessary instrumentation

COURSE NAME: MG8591- PRINCIPLES OF MANAGEMENT
COURSE CODE: C410

C410.1	Students will have a clear understanding of different management thoughts and its application in the real world organization
C410.2	Students will be able to have clarity in managerial functions like planning,organizing, staffing
C410.3	Students will be able to have clarity in managerial functions like leading & controlling
C410.4	Students are able to understand the theories, strategies and current trends in management development
C410.5	Students are able to understand the theories, strategies and current trends in communication.
C410.6	Students have the knowledge on international aspects of managemen

COURSE NAME: EI8079- ROBOTICS AND AUTOMATION
COURSE CODE: C411

C411.1	Understand the evolution of robot technology and mathematically represent different types of robot
C411.2	Understand the Power sources, sensors and actuators relevant to robots
C411.3	Understand the design concepts of Manipulators and Grippers and relevant control circuits
C411.4	Study the Concepts of Kinematics and Path planning and create exposutre to robot programming languages
C411.5	Familiarize various control schemes of Robotics control
C411.6	Get exposed to the case studies and design of robot machine interface

COURSE NAME: IC8811 Project Work
COURSE CODE: C412

C412.1	Students can able to solve a specific problem right from its identification.
C412.2	Students are able to understand the literature review till the successful solution.
C412.3	Students are able to design a new process and find out the solution.

C412.4	Students will be in a position to find a solution by formulating proper methodology.
C412.5	Students will be in a position to take up any challenging practical problems.
C412.6	Students will be in a position to give solution to social relevant projects