K.L.N. COLLEGE OF ENGINEERING

REGULATION – 2013
B.E. ELECTRONICS AND INSTRUMENTATION ENGINEERING
COURSE OUTCOMES (CO)

HS6151-Technical English-I [C101]

C101.1	Apply the collaborative and social aspects of research and writing processes.
C101.2	Comprehend that research and writing is a series of tasks, including accessing, retrieving, evaluating, analyzing and synthesizing appropriate data and information from sources that vary in content, format, structure and scope.
C101.3	Use appropriate technologies to organize, present and communicate information to address a range of audiences, purposes and genres.
C101.4	Explain the relationships among language, knowledge and power including social, cultural, historical and economic issues related to information, writing and technology.
C101.5	Demonstrate the role of a variety of technologies/ media in accessing, retrieving, managing and communicating information.

MA6151-Mathematics-I [C102]

C102.1	Find the eigen values and eigen vectors to diagonalise and reduce a matrix to quadratic form
C102.2	Check the converges, diverges of infinite series
C102.3	Obtain the evaluate and envelopes of a given curves by means of radius and centre of curvature
C102.4	Calculate the maxima and minima value functions of two variables
C102.5	Find the area of plain curves and volume of solid using double and triple integrals

PH6151-Engineering Physics-I [C103]

C103.1	Classify the Bravais lattices and different types of crystal structures and growth technique.
C103.2	Demonstrate the properties of elasticity and heat transfer through objects.
C103.3	Explain black body radiation, properties of matter waves and Schrodinger wave equations.
C103.4	Illustrate the acoustic requirements, production and application of ultrasonics.
C103.5	Examine the characteristics of laser and optical fiber.

CY6151 -Engineering Chemistry – I (C104)

C104.1	Classify the polymers and their utility in the industries and describe the techniques of polymerization & properties of polymers.
C104.2	Relate various thermodynamic functions such as enthalpy, entropy, free energy and their importance and equilibrium constant and its significance.
C104.3	Characterize the photophysical processes such as fluorescence and phosphorescence and various components of UV & IR spectrophotometer.
C104.4	Analyze the phase transitions of one component and two component systems and the types of alloys and their application in industries.
C104.5	Describe the synthesis, characteristics and the applications of nano materials.

GE6151-Computer Programming-[C105]

C105.1	Explain the basic organization of computers, the number systems and write the pseudo code for algorithms and flow chart.
C105.2	Develop 'C' programming fundamentals, looping statements and solve problems.
C105.3	Design 'C' programs for arrays and strings.
C105.4	Use functions with pass by value and reference, pointers in programs.
C105.5	Develop codings in 'C' for structures and unions with storage classes and preprocessor.

GE6152- Engineering Graphics [C106]

C106.1	Construct the conic sections and special curves and outline their practical applications and sketch the orthographic views from pictorial views and models
C106.2	Apply the principles of orthographic projections of points in all quadrants, lines and planes in first quadrant.
C106.3	Draw the projections of simple solids like prisms, pyramids, cylinder and cone and obtain the traces of plane figures
C106.4	Design the sectional views of solids like cube, prisms, pyramids, cylinders & cones and Development of its lateral surfaces
C106.5	Apply the principles of isometric projection and perspective projection of simple solids and truncated prisms, pyramids, cone and cylinders

GE6161 – Computer Practices Laboratory – (C107)

C107.1	Prepare data using MS-word & Excel to visualize graphs, charts in MS-Excel.
C107.2	Outline the given problem using flowchart and to program using Switch case & Control structures.
C107.3	Develop the code using decision making & looping statements.
C107.4	Apply passing parameters using Arrays & Functions.
C107.5	Use structure and Union for a given database and to bring out the importance of Unions over structure.

GE6162 – Engineering Practices Laboratory — (C108)

C108.1	Demonstrate wiring for a simple residential house, identify the ratings of various appliances like Fluorescent tube, incandescent lamp, etc.
C108.2	Calculate the different Electrical quantities, measure the energy consumption using single phase energy meter.
C108.3	Measure the resistance to earth of an electrical equipment, analyze AC signal parameters using CRO.
C108.4	Verify the Truth tables of Logic gates AND, OR, EOR and NOT, generate clock signal using suitable gates.
C108.5	Develop soldering in a PCB, measure ripple factor of Half Wave Rectifier and Full Wave Rectifier.

GE6163 - Physics and Chemistry Laboratory – I (C109)

C109.1	Evaluate the wavelength of spectral lines using spectrometer, the wavelength of laser, particle size, acceptance angle of an optical fiber using semiconductor diode laser and the thickness of a thin wire through interference fringes using Air wedge apparatus.
C109.2	Appraise the velocity of sound and compressibility of the liquid using ultrasonic interferometer and thermal conductivity for bad conductors using Lee's disc apparatus.
C109.3	Determine the DO content in water sample by winkler's method and molecular weight of polymer by Ostwald viscometer.
C109.4	Find the strength of an acid using pH meter and conductometer.
C109.5	Estimate the amount of weak and strong acids in a mixture by conductometer.

HS6251-Technical English-II [C110]

C110.1	speak clearly, confidently, comprehensibly, and communicate with one or many listeners using appropriate communicative strategies
C110.2	Write cohesively and coherently and flawlessly avoiding grammatical errors, using a wide vocabulary range, organizing their ideas logically on a topic.
C110.3	Read different genres of texts adopting various reading strategies.
C110.4	listen/view and comprehend different spoken discourses/excerpts in different accents
C110.5	Recognize, understand, and analyze the context within which language, information, and knowledge are produced, managed, organized, and disseminated.

MA6251-Mathematics-II - [C111]

C111.1	Find solenoidal, irrotational vectors and explain the concepts of Green's, Gauss divergence , Stokes theorem to evaluate, single double and triple integrals
C111.2	Obtain the P.I. of Cauchy and Legendre Equation , explain the method of variation of parameters and solve simultaneous linear equations
C111.3	evaluate Laplace Transforms of periodic functions and solve the ODE using Inverse Laplace Transform
C111.4	Recall the properties of analytic functions for verifying C-R equations and determine Bilinear Transformation
C111.5	Expand functions of two variables as Taylor's and Laurent's series and evaluate Contour integrals using Cauchy's Integral formula

PH6251 – Engineering Physics–II – [C112]

C112.1	Illustrate classical and quantum free electron theory and calculate carrier concentration in metals.
C112.2	Describe the carrier concentration in semi conductors and identify the p-type and n-type semi conductor using hall effect.
C112.3	Classify the different types of magnetic and super conducting materials.
C112.4	Explain the dielectrics, types of polarization, losses and breakdown.
C112.5	Discuss the properties, preparation and applications of metallic alloys, SMA, nano materials, NLO, Bio-materials.

CY6251 – Engineering Chemistry –II – [C113]

C113.1	Explain the problems of using hard water in boilers and the methods of treatment of water for boiler use.
C113.2	Design the electrochemical cells and to identify the types of corrosion and the methods of preventing.
C113.3	Illustrate the methods of harnessing energy from non-conventional energy sources.
C113.4	Classify various engineering materials and their importance.
C113.5	Relate the significance of solid, liquid and gaseous fuels and to calculate the calorific values of fuels and the requirement of air for combustion in furnaces.

GE6251- Basic Civil and Mechanical Engineering - [C114]

C114.1	Explain the working principles of various power plants and differentiate the pumps and turbines.
C114.2	State the functions of IC engine and classify the various types of boilers.
C114.3	Apply the principles of vapour absorption and compression systems and Explain the Operation of air conditioner.
C114.4	Apply the principles of surveying and use various measurements for surveying and study about various engineering materials and leveling instruments.
C114.5	Classify the types of bridges, foundation, floorings, roofs, plasters and R.C.C structural members and state the purpose of dam.

EE 6201 – Circuit Theory – (C115)

C115.1	Apply Kirchhoff's current and voltage law to simple circuits and Solve complex circuits using Mesh & Nodal Methods.
C115.2	Apply Network theorems to solve simple and complex linear circuits.
C115.3	Solve the Series and Parallel resonance circuit, analyze the performance of single & double tuned circuits.
C115.4	Develop the Transient response of RLC circuits using LaplaceTransform, explain the characteristics of two port networks.
C115.5	Explain three phase balanced and unbalanced star, delta network.

GE6262 - Physics and Chemistry Laboratory – II-[C116]

C116.1	Appraise the Young's modulus of the beam by uniform and non uniform bending method, the moment of inertia and Rigidity Modulus for thin wire using Torsion Pendulum.
C116.2	Use Poiseuille's method for determining the coefficient of viscosity of the liquid.
C116.3	Evaluate the refractive index of spectral lines for determining the dispersive power of a prism.
C116.4	Determine the type, amount of alkalinity , hardness in a given water sample and evaluate the amount of copper using EDTA method
C116.5	Examine the potentiometric redox titration and Conductometric precipitation titration.

GE6263-Computer Programming Laboratory-[C117]

C117.1	Explain UNIX Operating system and usage of file system.
C117.2	Apply Shell Commands for a given task using filter and pipe commands.
C117.3	Develop and implement the Shell scripts in VI editor.
C117.4	Develop C Program on Unix environment.
C117.5	Apply File handling in C to copy, merge and display the given file.

EE 6211 – Electric Circuits Laboratory – (C118)

C118.1	Apply KCL, KVL and Network Theorems to Simple and Complex circuits.
C118.2	Demonstrate the working of CRO and Determine the Time Constant of RC circuit.
C118.3	Determine frequency response of RLC circuits and Use MATLAB to simulate series, parallel resonant circuit, low pass, high pass filter.
C118.4	Use MATLAB to simulate three phase balanced, unbalanced circuit and Measure power in three phase circuits by two wattmeter methods.
C118.5	Determine h-parameters of Two port networks and Calibrate single phase energy Meter

MA6351- Transforms and Partial Differential Equations[C201]

C201.1	Solve First, Second order homogeneous and non homogeneous partial differential equations
C201.2	Find the Fourier series of a given function satisfying Dirichlet's condition.
C201.3	Apply Fourier series to solve one dimensional way, one and two dimensional heat equations.
C201.4	Determine Fourier transform for a given function and use them to evaluate certain definite Integrals
C201.5	Determine z transforms of standard functions and use them to solve difference equations

GE6351 – Environmental Science and Engineering (C202)

C202.1	Define Environment, ecosystem and biodiversity, classify types of ecosystems and outline the impacts to biodiversity.
C202.2	Define pollution, classify its types, analyze the causes and suggest control measures for pollution.
C202.3	Outline various natural resources; explain causes and impacts of destruction of resources.
C202.4	List various social issues related to land, water and energy; summarize the concerning government acts and rules to overcome these problems.
C202.5	Interpret population explosion and variation among nations, show the impacts of over population and illustrate the methods to mitigate the same.

EE6301-Digital Logic Circuits-[C203]

C203.1	List the various types of number system and compare the digital logic families.
	Apply K –Map for simplification and implementation of combinational logic circuit.
C203.3	Explain the synchronous Sequential logic circuits and draw the block diagram of Shift Registers.
C203.4	Design asynchronous sequential circuits and describe the operation of Programmable Logic Devices.
C203.5	Develop the VHDL coding for combinational and Sequential logic circuits.

EC6202 - Electronic Devices and Circuits – [C204]

C204.1	Draw the characteristics of various types of Diodes, design half and full wave Rectifiers.
C204.2	Compare the different configurations of BJT, draw its characteristics.
C204.3	Calculate the FET parameters, draw its frequency response
C204.4	Design Amplifier circuits and draw frequency response characteristics.
C204.5	Develop the parameters of feedback amplifier circuit, describe different types of oscillator circuits.

EE 6303 – Linear Integrated Circuits & Applications– [C205]

C205.1	Explain the procedure for the fabrication of IC
C205.2	Summarize the DC & AC characteristics of Operational amplifier.
C205.3	Discuss the applications of Operational amplifier
C205.4	Describe the internal functional blocks of special ICs like Timer and PLL.
C205.5	Classify types of voltage regulators and describe the special ICs.

EI 6301 – Electrical Measurements[C206]

C206.1	Explain the construction and operation of Galvanometer, Ammeter and Voltmeter of various type.
C206.2	Describe the construction of Energy meter & Wattmeter and measurement techniques of power and energy
C206.3	Elaborate the working of Potentiometers and Instrument transformers.
C206.4	Measure the Unknown resistance by various methods.
C206.5	Measure the Unknown Impedance by various methods..

EC6361 - Electronics Laboratory – [C207]

C207.1	Find the breakdown voltage of Diode, draw the V-I characteristics of BJT.
C207.2	Draw the equivalent circuit of JFET and develop the saw tooth waveform generation using UJT
C207.3	Design the Common Emitter amplifier and draw the V-I characteristics of photo diode & photo transistor
C207.4	Compare the theoretical and practical frequency value of oscillators and measure the ripple factor of rectifier
C207.5	Show the frequency response of filters, design the multivibrators

EE 6311 – Linear and Digital Integrated Circuits Laboratory– (C208)

C208.1	Apply Boolean functions to implement adder, subtractor circuits and convert Excess 3 to BCD, Binary to Gray code and vice versa
C208.2	Test Parity generator and checker and Design encoder decoder circuits
C208.3	Demonstrate 4 bit synchronous, asynchronous counter and Shift registers.
C208.4	Illustrate multiplexer demultiplexer circuit and apply 555 timer in Monostable and Astable operation.
C208.5	Apply OP-AMP to construct Adder, comparator, differentiator, Integrator and describe VCO, PLL characteristics.

MA6459-Numerical Methods-[C209]

C209.1	Determine the solution of algebraic and transcentendal system of linear equations
C209.2	To interpolate the values of unknown functions using Newton's Formula
C209.3	Estimate the numerical values of the derivatives and integrals of unknown function
C209.4	Solve first and second order initial value problem
C209.5	Solve Numerically boundary value problem

CS6456-Object Oriented Programming-[C210]

C210.1	Explain the key attributes of C++ like native types and statements and implement ADT.
C210.2	Develop object oriented programs using polymorphism and data abstraction concepts.
C210.3	Design templates, construct generics and to handle exceptions.
C210.4	Develop the concept of java in creating classes, objects using arrays and control statements.
C210.5	Create packages, handle exceptions and develop multi-threaded programs.

EI6401 - Transducer Engineering[C211]

C211.1	Explain the calibration methods and types of transducers.
C211.2	classify the characteristics of transducers and its Significance.
C211.3	Explain the principles of variable resistive transducers
C211.4	Explain the principles of variable Inductive and Capacitive transducers
C211.5	Explain the different types of smart transducers

EE6403-Discrete Time Systems and Signal Processing-[C212]

C212.1	Classify the different types of signals and systems and Explain the sampling process of continuous time signal.
C212.2	Apply z-transform and inverse Z transform and analyze discrete time systems.
C212.3	Apply Radix-2 Decimation in Time (DIT) and Decimation in Frequency (DIF)FFT Algorithm to Compute Discrete Fourier Transform.
C212.4	Explain different types of Infinite Impulse Response (IIR) filters and Finite Impulse Response (FIR) filters.
C212.5	Explain various architectures of Digital signal processors.

EI6402 - Electrical Machines[C213]

C213.1	Explain the Principle of operations of DC machines and derive the torque equation of D.C.motor.
C213.2	Apply the equivalent circuit parameters for a transformer and derive transformer efficiency for different load condition.
C213.3	Infer with the alternator and find the regulation of alternators.
C213.4	Compare the types of 3 phase induction motors and identify the different rotor torques.
C213.5	Explain the double field revolving theory and the speed – torque characteristics and compare the performance of special machines

EI6403 - Applied Thermodynamics and Fluid Dynamics[C214]

C214.1	To Know the Basic Concepts and Applications of First Law and application of system for engineering application
C214.2	Able to Explain, Discuss & Sketch the concept and working of Boilers and their mountings and accessories and also Explain the concept and working Ranking cycle.
C214.3	Understood the basic concept and Discuss about fluid mechanics; I am also familiar with the Calculation in pressure measurements.
C214.4	To know about to Describe the derivation in Rayleigh's and Explain about Buckingham's method
C214.5	To familiar and Explain about Basic Concepts and List the Applications of various types of turbines. Able to Calculate problems in turbines.

CS 6461- Object Oriented programming Laboratory-[C215]

C215.1	Design C++ programs using functions, classes with objects, member functions and constructors.
C215.2	Develop operator and function overloading and run time polymorphism using C++.
C215.3	Develop file handling techniques in C++ for sequential and random access also use Java code for strings.
C215.4	Construct packages and interfaces in Java.
C215.5	Create threads in Java and handle predefined and user defined exceptions.

EI6411 - Electrical Machines Laboratory[C216]

C216.1	Analyze the characteristics of DC shunt generator DC compound generator and calculate critical resistance and critical speed
C216.2	Examine load characteristics of DC shunt, series and compound motor and identify its maximum efficiency operating point
C216.3	Predict the efficiency of DC shunt machine in different methods
C216.4	Explain the load characteristics of single phase and three phase transformer , separate the different losses and to find the efficiency
C216.5	Predetermine the equivalent circuit parameters of single phase transformer in two different methods and compare the results

EE6502 - Microprocessors and Microcontrollers[C301]

C301.1	Describe the basic Architecture of 8085 Microprocessor and working of all blocks of the processor, IO and memory interfacings with necessary timing diagrams.
C301.2	Classify the instructions with the help of Addressing modes of 8085 with necessary programs.
C301.3	Explain the basic Architecture of 8051 Microcontroller with working of various blocks of the controller like Interrupts, Timer, IO ports etc. with necessary timing diagram and compare the programming concepts with 8085.
C301.4	Analyze the architecture of various Interfacing Devices like 8255 PPI, 8259 PIC, 8251 USART, 8279, 8253, ADC and DAC and Programming of all the Interfacing IC's.
C301.5	Apply the knowledge of programming concepts of 8051 Microcontroller for various applications like keyboard display interface, servo motor etc.,

IC6501- Control systems – (C302)

C302.1	Discuss the use of transfer function models for analysis of physical systems and the control system components.
C302.2	Analyze the time response of systems and steady state error.
C302.3	Use the basic knowledge in obtaining the open loop and closed–loop frequency responses of systems.
C302.4	Explain the stability analysis and types of compensators.
C302.5	Describe the state variable representation of physical systems and the effect of state feedback.

EE6503 - Power Electronics - [C303]

C303.1	Explain the significance of switching devices and its application to power converters and demonstrate the triggering circuit and snubber circuits.
C303.2	Compare the operation of two, three Pulse Converters and draw output waveforms with and without source and load inductance.
C303.3	Classify the operation of Choppers and outline the application of SMPS.
C303.4	Analyze the operation of single phase and three phase Inverters with and without PWM techniques.
C303.5	Illustrate the operation of AC voltage controller and cycloconverter and its application.

EI6501 - Analytical Instruments[C304]

C304.1	Know the Knowledge of Spectrophotometers.
C304.2	Explain the basics of Chromatography.
C304.3	Describe the different types of Gas Analyzers.
C304.4	Understand the working principle of Ion Selective Electrodes, PH electrodes and conductivity meters.
C304.5	Discuss the NMR Spectrometers and radiations techniques.

EI6502 Industrial Instrumentation – I [C305]

C305.1	The students will acquire familiarity about various industrial instrumentation types, their parameters and different types of measurement techniques.
C305.2	The students will understand the principles of industrial parameter standards and its calibration methodology.
C305.3	The students will knowledge about pressure transducers.
C305.4	The students will an idea about the temperature standards, calibration and signal conditioning used in RTD's.
C305.5	The student will acquire extensive sound knowledge about thermocouples and pyrometry techniques.

EI6001 Data Structures and Algorithms [C306E]

C306E1.1	Select good programming design methods for program development
C306E1.2	Develop C programs for object oriented concepts
C306E1.3	Develop C programs for handling exceptions
C306E1.4	Develop C programs for practical problems using non-linear data structures.
C306E1.5	Develop recursive programs using trees and graphs

EE6612 - Microprocessors and Microcontrollers Laboratory [C307]

C307.1	Predict the smallest/ largest number from a given array and to Perform various mathematical operations using 8085 processor
C307.2	Convert the given analog input to digital value and to control the traffic signals
C307.3	Develop coding to display the given word using keyboard and display controller
C307.4	Manipulate the basic operations involving jumps and loops using 8051
C307.5	Design circuits for implementing real time applications

EI6511 - Transducers and Measurements Laboratory [C308]

C308.1	obtain the static characteristics of transducers like LVDT, Linear potentiometer,strain guage and Load cell.
C308.2	Explain about the input - ouptput characteristics of Thermocouple,RTD and Thermistor.
C308.3	calibrate the single phase energy meter ,wattmeter,voltmeter,ammeter and ohmmeter.
C308.4	measures the unknown resistance,capacitance and inductance using appropriate bridge circuits
C308.5	obtain the step response of thermocouple and RTD

GE6563- Communication Skills – Laboratory – (C309)

C309.1	Apply appropriate communication skills across settings, purposes and audiences.
C309.2	Demonstrate knowledge of communication theory and applications.
C309.3	Practice critical thinking to develop innovative and well-founded perspectives related to the students emphasis. Build and maintain healthy and effective relationships.
C309.4	Use technology to communicate effectively in various settings and contexts.
C309.5	Demonstrate appropriate and professional ethical behavior.

EI6601 Modern Electronic Instrumentation[C310]

C310.1	Describe the various types of electronic instruments and their functions
C310.2	Explain the suitable displays and analyzers based on the applications
C310.3	Design the various types of waveform generators .
C310.4	DemonstrateVirtual instrumentation programs with DAQ cards based on various VI applications.
C310.5	Explain the real time applications using telemetry systems.

EI6602 Process Control[C311]

C311.1	Develop the first order and higher order process and to develop the transfer function
C311.2	Analyze the effect of various controllers for a given process and to design Electronic controllers
C311.3	Explain the valve characteristics and construction
C311.4	Determine the controller parameters for a given system transfer function
C311.5	Explain various control techniques and contol loops for different process

EI6603 Industrial Instrumentation – II [C312]

C312.1	Describe familiarity about various industrial instrumentation types, their parameters and different types of measurement techniques.
C312.2	Summarize the principles of Electrical type Flow meters and guidelines for selection of flow meters.
C312.3	Predict the knowledge about Flow meters.
C312.4	Explain the level measurement and various methods of level measurements.
C312.5	Recall the measurement of viscosity, humidity and moisture.

EC6651-Communication Engineering – [C313]

C313.1	Explain the operation of Amplitude Modulation , draw the frequency spectrum and vector representation of AM
C313.2	Compare the different methods of QPSK BFSK and GMSK
C313.3	Analyze how information is transmitted to receiver using the Huffman coding
C313.4	Discuss about the various types of multiple access techniques
C313.5	C310.5 Distinguish between INTELSAT and INSAT

EE 6602 – Embedded Systems – [C314]

C314.1	Analyze the basic build process of embedded systems, structural units in embedded processor and selection of processor and memory devices depending upon the applications.
C314.2	Classify the types of I/O device ports and buses and different interfaces for data transfer
C314.3	Model the Embedded Product Development Life Cycle (EDLC) by using different techniques like state machine model, sequential program model and concurrent model
C314.4	Analyze the basic concept of Real Time Operating Systems and plan to scheduling of different task and compare the features of different types of Real Time Operating Systems
C314.5	Apply the knowledge of programming concepts of Embedded Systems for various applications like Washing Machine automotive and Smart Card System applications

EI6002 Power Plant Instrumentation[C315E2]

C315E2.1	Explain the various types of power generation.
C315E2.2	Explain the measurement involves in thermal power plant
C315E2.3	Elaborate the basic control loop techniques in boiler.
C315E2.4	Explain the burner control and management in boiler of thermal power plant
C315E2.5	Explain the types of turbine and its control techniques.

EI6003 Instrumentation in Petrochemical Industries [C315E2]

C315E2.1	Explain the basic processing in petroleum industry
C315E2.2	Explain about the unit operations in petrochemical industry
C315E2.3	Explain the petroleum products and their routes
C315E2.4	Explain the measurement and control in petrochemical industry
C315E2.5	Explain the various safety in Petrochemical Industry

EI6611 Industrial Instrumentation Laboratory[C316]

C316.1	I am able to determine the discharge co-efficient of orifice plate.
C316.2	I am able to draw the characteristics of Torque Measurement under loading and unloading conditions
C316.3	I am able to determine the kinematic viscosity for Castrol, engine oil for different temperature
C316.4	I am able to measure the concentration of solution using UV Spectrophotometer.
C316.5	I am able to measure the PH of the given solution

EI6612 Process Control Laboratory[C317]

C317.1	I am able to realize the concepts of interacting and non interacting liquid level system
C317.2	I am able to simulate the closed loop response of second order system with P,PI & PID Controller.
C317.3	I am able to obtain the response of ON /OFF & P,PI, &PID controller for a typical

	flow process station
C317.4	I am able to obtain the response of ON /OFF & P,PI, &PID controller for a typical pressure process station
C317.5	I am able to implement feed forward, cascade,controller in a multi process trainer.

EI6701 Industrial Data Networks[C401]

C401.1	Describe the various types of data network fundamentals and their functions
C401.2	Explain the suitable internetworking devices based on the applications
C401.3	Explain the various types of communication protocols and their drawbacks
C401.4	Explain the various versions of field bus and their drawbacks
C401.5	Describe the fundamentals of wireless communication and their functions

EI6702 Logic and Distributed Control System[C402]

C402.1	Discuss the use of PLC architecture, i/o modules and to control a given sequence of operation.
C402.2	Apply the PLC ladder programming for a given application.
C402.3	Understand the basic knowledge of computer controlled system, data loggers, SCADA, direct digital control.
C402.4	Explain the basic knowledge of DCS and its various architectures, local control unit configurations.
C402.5	Describe the various interfaces used in DCS environment.

EC6601 VLSI Design [C403]

C4O3.1	Explain the CMOS technology and its principles.
C4O3.2	Design the various combinational logic circuits using digital operations.
C4O3.3	Design the various sequential logic circuits using digital operations.
C4O3.4	Design the various arithmetic building blocks of the combinational and sequential logic circuits for digital operations.
C4O3.5	Explain the various implementation strategies of the combinational and sequential logic circuits.

EI6703 Fibre Optics and Laser Instruments [C404]

C404.1	List the types of fibre and their properties, working with light through the fiber.
C404.2	Analyze application of the fiber in industries for measurements systems and units
C404.3	Understand the fundamendals of laser and its characteristics types of lasers
C404.4	To know the application of lasers in industrial for various units and working methods
C404.5	Apply level of laser in Hologram and medical applications.

EI6704 Biomedical Instrumentation [C405]

C405.1	Explain the fundamentals of Biomedical Engineering
C405.2	Explain the measurements of Non-Electrical parameters and diagnostic procedures
C405.3	Explain the electrical parameter acquisition and analysis
C405.4	Explain the construction and working of medical imaging devices
C405.5	Describe the construction and working of Life assisting,therapeutic devices and concept of robotic devices

EE6006 Applied Soft Computing [C406E3]

C406E3.1	Identify and describe soft computing techniques and their roles in building intelligent machines.
C406E3.2	Apply neural networks to pattern classification and real time problems
C406E3.3	Explain the fuzzy logic set theory and neuro fuzzy system
C406E3.4	Analyze fuzzy logic control and reasoning to handle uncertainty and solve engineering problems
C406E3.5	Apply genetic algorithms to combinational optimization problems

IC6701 Digital Control System [C406E3]

C406E3.1	Illustrate the concepts of sample data control system and sampling theorem
C406E3.2	Apply the concepts of Z transform and to find the pulse transfer function of discrete time sytem
C406E3.3	Illustrate the stability concepts in discrete domain
C406E3.4	Illustrate the design aspects of digital controllers and compensators.
C406E3.5	Outline the concepts of state variable analysis in discrete domain

EC6612 VLSI Design Laboratory [C407]

C407.1	To explain the basic cmos circuits and cmos process technology
C407.2	To discuss the factors of combinational logic design and power dissipation in cmos circuits
C407.3	To recognize different types of sequential logic circuits and compare low power memory circuits
C407.4	To summarize architectures of arithmetic building blocks.
C407.5	To illustrate implementation strategies of FPGA architecture

EI6711 Instrumentation System Design Laboratory [C408]

C408.1	Able to differentiate common mode & differential mode configuration.
C408.2	Able to design V to I & I to V converter for a given range.
C408.3	I am familiar with developing PCB layout diagrams.
C408.4	Able to develop compensation circuit for a thermocouple.
C408.5	Able to draw flow lift characteristics of given valve

EI6712 –Comprehension [C409]

C409.1	Describe the basic concepts of electrical and electronics subjects.
C409.2	Solve objective type questions in the field of electrical and electronics engineering
C409.3	Review, prepare and present technological developments
C409.4	Analyze the modern trends in the field of electrical and electronics engineering.
C409.5	Answer effectively during technical interviews.

MG6851-Principles of Management [C410]

C410.1	Describe the basic of management and its types, skills, management roles, types of business organizations and current trends in business.
C410.2	Explain the nature and purpose of planning , types, objective of planning and decision process
C410.3	Compare the different organization structures, Authorities and responsibilities, Human resource management and training and development.
C410.4	Estimate the individual and group behavior, motivation, job satisfaction, types and theories of leadership, communication and IT.
C410.5	Apply the knowledge using the various System and process of controlling, budgetary and non-budgetary control techniques, use of computers and IT in Management control, reporting.

EI6801 Computer Control of Processes [C411]

C411.1	Apply the use of Discrete time system to test the system for observability and controllability
C411.2	Apply the System identification techniques to determine the plant model of a system
C411.3	Design of digital controller using Z transforms
C411.4	Explain the basic knowledge of Multi loop control and its interaction in a process
C411.5	Discuss the various types of Multivariable controllers and its implementations.

GE6757 Total Quality Management [C412]

C412.1	Explain the basic concepts of TQM and it's Importance
C412.2	Explain the basic principles of TQM
C412.3	Apply the management tools and concepts of TQM
C412.4	Apply the tools and Techniques of TQM
C412.5	Discuss Quality system in Manufacturing and service sector Industry.

EI6811 Project Work [C413]

C413.1	Apply the fundamentals of mathematics, science and engineering knowledge to identify , formulate , design and investigate complex engineering problems of electronics and Instrumentation engineering and allied applications .
C413.2	Apply appropriate techniques and modern engineering hardware and software tools in electronics and Instrumentation engineering,automation and allied applications.
C413.3	Apply reasoning informed by the contextual knowledge to assess societal , health, safety, legal and cultural issues with societal and environmental context , applying ethical principles in the field of electronics and Instrumentation engineering and allied applications.
C413.4	Function effectively as an individual and as a member or leader in diverse teams in multidisciplinary settings and make effective presentation, and communicate effectively.
C413.5	Demonstrate the understanding of the engineering and management principles in multidisciplinary environments to engage in lifelong learning in the broadest context of technological change.