Department of Electrical Engineering

Course Outcomes (CO)

Semester III

3EE01 ENGINEERING MATHEMATICS-III

After successfully completing the course, the students will be able to:

CO1. Demonstrate the knowledge of differential equations and partial differential equations, applied to electrical engineering systems.

CO 2. Apply Laplace transform to solve differential equations.

CO 3. Demonstrate the use of Fourier Transform to connect the time domain and frequency domain.

CO 4. Apply Z Transform to solve of various Linear Difference equations with constant coefficients.

CO 5. Apply the knowledge of vector calculus to solve physical problems.

CO 6. Demonstrate the basic concepts of probability and statistics.

3EE02 ELECTRICAL CIRCUIT ANALYSIS

After successfully completing the course, the students will be able to:

CO 1. Analyze electric and magnetic circuits using basic circuital laws

CO 2. Analyze the circuit using Network simplification theorems.

CO 3. Solve circuit problems using concepts of electric network topology.

CO 4. Evaluate transient response of different circuits using Laplace transform

CO 5. Evaluate two-port network parameters and network functions

3EE03 ELECTRICAL MACHINES – I

After successfully completing the course, the students will be able to:

CO1. Explain the construction and working of DC Machines.

CO 2. Illustrate the different Characteristics, types, their applications and parallel Operation of D.C. Generators.

CO 3. Demonstrate the various characteristics, starting, speed control and braking operation on DC motors

CO 4. Analyze the performance of DC machines by conducting the various tests on it.

CO 5. Determine the parameters of equivalent circuits, performance parameters of single phase transformer and merits & demerits of autotransformer

CO 6. Explain the construction, working, different connections, applications and testing of three phase transformer.

3EE04 ENERGY RESOURCES AND GENERATION

After successfully completing the course, the students will be able to:

CO 1. Explain the operation of Thermal, Hydro, Nuclear and Diesel power plants.

CO 2. Summarize solar energy conversion, solar radiation measuring instruments, wind energy conversion and their applications.

CO 3. Outline the principle and operation of fuel cells, ocean & tidal energy conversion, and other nonconventional energy resources.

CO 4. Determine the various factors and curves related to electrical load & generating plant.

3EE05 ELECTRONIC DEVICES & CIRCUITS

After successfully completing the course, the students will be able to:

CO 1. Demonstrate the knowledge of semiconductor physics and PN Junction Diode

CO 2. Analyze the rectifier and regulator circuits.

CO 3. Analyze the operational parameters of BJT

CO 4. Analyze various multistage amplifier circuits

CO 5. Demonstrate the knowledge of JFET, MOSFET, UJT and their operational parameters

CO 6. Demonstrate the knowledge of construction, characteristics and applications of special function diodes

3EE06 ELECTRICAL CIRCUIT ANALYSIS LAB

After successfully completing the course, the students will be able to:

CO1. To inspect network theorems.

CO2. Plot the frequency response of series RLC circuits and their resonance conditions.

CO3. Determine two port network parameters and self, mutual inductance of coupled circuits.

CO4. Analyze three phase power drawn by balanced circuits.

3EE07 ELECTRICAL MACHINES – I LAB

After successfully completing the course, the students will be able to:

CO1. To understand the construction and working of DC Machines.

CO2. Illustrate the different Characteristics, types, their applications and parallel Operation of DC Generator.

CO3. Analyze the various characteristics, starting, speed control and braking operation on DC motors

CO4 Inspect and analyze the performance of DC machines by conducting the various tests on it.

CO5. Determine the performance characteristics of DC shunt and DC compound generators by conducting load tests.

CO6. Determine the performance of a single-phase transformer by conducting Open Circuit (O.C) and Short Circuit (SC) tests.

3EE08 ELECTRONIC DEVICES & CIRCUITS LAB

CO1. Understand V-I characteristics of semiconductor PN junction Diode and Zener diode.

CO2. Analyse performance of rectifier circuits.

CO3. Demonstrate performance of Zener as a voltage regulator.

CO4. Analyze the operational parameters of BJT and its applications in multistage amplifiers.

CO5. Demonstrate the characteristics of FET and UJT.

CO6. Demonstrate characteristics of LED, Photo diode and Phototransistor.

3EE09 ELECTRICAL TECHNOLOGY LAB

After successfully completing the course, the students will be able to:

CO1. Understand the concept of various standard symbol used in electrical wiring.

CO2. Understand the various type of wiring

CO3. Understand connection of MCB, Energy meter, Switchboard etc.

CO4. Understand the energy bill for HT and LT consumers,

CO5. Understand various component of solar power plant.

Semester IV

4EE01 ELECTROMAGNETIC FIELD

After successfully completing the course, the students will be able to:

CO 1. Demonstrate the basic mathematical concepts related to electromagnetic vector fields.

CO 2. Apply the principles of electrostatics to the solutions of problems relating to electric field and electric potential, boundary conditions and electric energy density.

CO 3. Apply the principles of magneto statics to the solutions of problems relating to magnetic field.

CO 4. Apply Maxwell's equation in different forms (differential and integral) to diverse engineering problems.

4EE02 ELECTRICAL MEASUREMENT & INSTRUMENTATION

After successfully completing the course, the students will be able to:

CO1. Classify various measuring instruments like PMMC, Electrodynamometer type, MI type for voltage, current, power measurement.

CO2. Analyze various method for measurement of Resistance, inductance, capacitance using bridges.

CO 3. Explain working of various digital measuring instruments.

CO 4. To classify and selection of various types of measuring instruments.

CO5. To Understand Transducer working and applications.

CO6. Demonstrate construction and working of Instrument transformer and special purpose meters.

4EE03 POWER SYSTEM – 1

After successfully completing the course, the students will be able to:

CO 1. Calculate the transmission line parameters like resistance, inductances and capacitances.

CO 2. Explain the various configurations of line conductors and their effects on the line parameters.

CO 3. Estimate the electrical characteristics of transmission lines and hence to evaluate the performance of the lines.

CO 4. Draw the single line diagram of any electrical system.

CO 5. Perform the per unit calculation of any electrical system.

CO 6. Apply knowledge of voltage control and power factor improve methods practically.

4EE04 ANALOG AND DIGITAL CIRCUIT

After successfully completing the course, the students will be able to:

CO1. Explain the principles of operational amplifiers, parameters of op-amp

CO2. Illustrate the linear and nonlinear applications of op-amp

CO3. Demonstrate the knowledge of Voltage regulator and Timer ICs

CO4. Describe the working of Logic families and their applications.

CO5. Demonstrate the knowledge of combinational and sequential circuits and its application

4EE05 SIGNAL & SYSTEM

After successfully completing the course, the students will be able to:

CO 1. Understand importance and applications of signals and systems

CO 2. Classify Systems into various categories

CO 3. Perform convolution of Analog and Discrete time signals

CO 4. Convert Analog signal into discrete signal by using Sampling Method

CO 5. Apply CTFT, Z-Transform, DTFT, FFT for the analysis of Various Signals and Systems

4EE06 ELECTRICAL MEASUREMENT & INSTRUMENTATION LAB

After successfully completing the course, the students will be able to:

CO1. To understand the working of various measuring instruments like PMMC, MI, Electrodynamometer, and Induction type instruments for measurement of current, voltage, power, and energy.

CO2. Analyse various power measurement methods.

CO3. Demonstrate the construction & working of Instrument Transformers and special purpose meters.

CO4. Analyse various methods for measurement of resistance, inductance, and capacitance using AC/DC bridges.

CO5. Explain the working of various Digital measuring instruments.

CO6. Explain the generalized Instrumentation system & working of different transducers.

4EE057 POWER SYSTEM – 1 LAB

After successfully completing the course, the students will be able to:

CO1. Analyze T and Pi Model of transmission Network.

CO2. To calculate ABCD parameter of transmission line

CO3. To Understand and draw circle diagram of typical power system.

CO4. To understand flashover test on suspension type insulator

CO5. To analyses tap changing transformer.

4EE08 ANALOG AND DIGITAL CIRCUIT LAB

After successfully completing the course, the students will be able to:

CO1. Demonstrate linear applications of op-amp.

CO2. Demonstrate non-linear applications of op-amp.

CO3. Understand performance and verify truth tables of logic gates.

CO4. Verify the performance of combinational logic circuits.

CO5. Demonstrate the performance of sequential logic circuits.

4EE09 ELECTRONIC TECHNOLOGY LAB

After successfully completing the course, the students will be able to:

CO1. Identify and study electronic components used in the electronic circuits.

CO2. Perform testing of various electronic components and execute the same in assembled form.

CO3. Develop and install electronic components as per designs on PCB's.

CO4. Understand the procedure of PCB Design and components used during its manufacturing.

Semester V

5EE01 CONTROL SYSTEMS

After successfully completing the course, the students will be able to:

CO1. Demonstrate the fundamental concepts of automatic Control and mathematical modelling of the Systems.

CO2. Determine the transfer function of control system components.

CO3. Analyse the time response of various systems and performance of controllers.

CO4. Evaluate the stability of linear systems using various methods.

5EE02 MICROPROCESSOR & MICROCONTROLLER

After successfully completing the course, the students will be able to:

CO1. Recite Fundamentals and Architecture of Microprocessor 8085, Microcontroller 8051

CO2. Interpret Assembly Language Programming of Microprocessor 8085, Microcontroller 8051

CO3. Illustrate interfacing with Microprocessor 8085, Microcontroller 8051

CO4. Develop applications of Microprocessor 8085, Microcontroller 8051.

5EE03 ELECTRICAL MACHINE – II

After successfully completing the course, the students will be able to:

CO1. Describe the construction, working operation & performance characteristics of the three phase Induction Motor

CO2. Analyze the starting, braking and speed control of three phase induction motors by various methods.

CO3. Describe the construction, working operation & performance characteristics of single – phase Induction Motor

CO4. Demonstrate the construction, working operation & performance characteristics of synchronous machine

CO5. Explain the construction & working of special motors like Universal, Reluctance, PMSM, BLDC Motor.

5EE04 PROFESSIONAL ELECTIVE -1 POWER SYSTEM OPERATION & CONTROL

After successfully completing the course, the students will be able to:

CO1. To impart knowledge to describe, calculate and analyse energy generation, unit commitment problem in thermal power plant, power system behaviour and economics of generating costs.

CO2. To understand and analyse optimal dispatch with transmission losses, penalty factor and automatic load dispatch.

CO3. To learn the concept of real and reactive power flow and its control in power system.

CO4. To learn the automatic voltage regulator and automatic load frequency control.

CO5. To learn tie line interchange between interconnected utilities.

CO6. To illustrate various ways of interchange of power between interconnected utilities.

CO7. To impart knowledge about various advanced controllers such as FACTs controllers with its evolution, principle of operation, circuit diagram and applications

5EE04 PROFESSIONAL ELECTIVE -1 ELECTRICAL ENGINEERING MATERIAL

After successfully completing the course, the students will be able to:

CO1. Understand importance of electrical engineering materials

CO2. Understand how electric conduction takes place in conductors

CO3. Understand importance of semiconductors and magnetic materials in electrical engineering.

CO4. Understand importance of dielectric materials in electrical engineering.

CO5. Identify the need of special materials in electrical engineering.

5EE05: OPEN ELECTIVE - 1 POWER PLANT ENGNIEERING

After successfully completing the course, the students will be able to:

CO1. Describe different Sources of Energy Generation.

CO2. Explain the Working and layout of steam power plant & hydro power plant.

CO3. Discuss the working principle and basic component of Nuclear, Diesel & gas power plant

CO4. Illustrate various terms related to power plant economics & tariff.

5EE06: CONTROL SYSTEM LAB

CO1. Analyze the response of control system by measuring relevant parameters.

CO2. Interpret the role of various components in control system.

CO3. Compare theoretical predictions with experimental results and attempt to resolve any apparent differences.

CO4. Ability to determine control system's parameters and transfer function parameters.

5EE07: MICROPROCESSOR & MICROCONTROLLER LAB

After successfully completing the course, the students will be able to:

CO1: Describe the architecture & organization of 8085 Microprocessor

CO2: Relate the addressing modes used in the instructions

CO3: Realize the Interfacing of memory & various I/O devices with 8085 microprocessors

CO4: Familiarise the architecture and operation of Programmable Interface Devices and realize the programming & interfacing of it with 8085 microprocessors.

CO5: Build systems using microcontrollers for real time applications.

5EE08: ELECTRICAL MACHINES-II LAB

After successfully completing the course, the students will be able to:

CO1: Understand the different Starting and speed control methods of 3-Phase Induction Motor.

CO2: Perform no-load and blocked rotor test to analyse the performance of 3-Phase Induction Motor.

CO3: Determine equivalent circuit parameters of an alternator and also its voltage regulation by different methods.

CO4: Perform the synchronization of an alternator to infinite bus and control load sharing.

CO5: Analyze the behaviour of Synchronous motor at different loading conditions using V and inverted V curve

5EE09: INFORMATION & COMMUNICATION TECHNOLOGY LAB

CO1. To understand basic operations- Editing and Formatting text, paragraphs and pages, printing. Working with tables, figures, images. Mail merge. Working with Charts, Equations, Symbols.

CO2. To understand data Entry techniques Setting, Previewing, and Printing under MS-Excel. Performing Calculations, using Excel Formulas, Functions and Charts. Sorting / Filtering data in excel sheet.

CO3. To understand presentation Basics. Adding more components to the slides, printing the slides. Formatting Presentations, backgrounds and layout. Applying Themes. Using Slide Master.

CO4. To understand working with Graphics, Images and Clips. Multimedia. Inserting Sound and Narration Delivering Presentations. Animating Objects. Adding Action effects. Live Presentation. Using Custom Shows. Saving / Protecting the Presentation.

Semester VI

6EE01: POWER ELECTRONICS

After successfully completing the course, the students will be able to:

CO1. Explain the concepts and techniques used in power electronics

CO2. Apply the knowledge of series and parallel connection of SCRs in power control applications

CO3. Analyze various power converter circuits

CO4. Analyze the single phase and three phase Inverter circuits

CO5. Explain the operation of DC/DC converter circuits

CO6. Demonstrate the applications of power electronic circuits.

6EE02: POWER SYSTEM-II

After successfully completing the course, the students will be able to:

CO1. Understand power factor improvement, capacitor bank installation in distribution system, metering system in industries and residential area.

CO2. Understand Positive Sequence, Negative & zero sequence system and fault analysis.

CO3. Create computational models for analysis of both symmetrical and unsymmetrical conditions in power systems,"

CO4. Analyse the system performance where there is an unbalanced fault, and also calculate the corresponding fault current.

CO5. Examine the need of various analysis like fault analysis, short circuit analysis stability analysis, steady state and transient analysis.

6EE03: COMPUTER AIDED MACHINE DESIGN

After successfully completing the course, the students will be able to:

CO1. Explain the Basics of Computer aided machine design & material selection.

CO2. Derive the design parameters of single & three phase transformer core.

CO3. Calculate the winding& cooling system parameters of the transformer

CO4. Develop the armature winding diagram for three phase Induction Motor

CO5. Determine the stator core dimensions of three phase Induction motor

CO6. Design the squirrel cage & wound type rotor for three phase Induction motor

6EE04: PROFESSIONAL ELECTIVE -II INDUSTRIAL ELECTRICAL SYSTEMS

After successfully completing the course, the students will be able to:

CO1. Understand the electrical wiring systems for residential, commercial and industrial consumers.

CO2. representing the systems with standard symbols and drawings, SLD.

CO3. Understand various components of industrial electrical systems.

CO4. Analyze and select the proper size of various electrical system components.

6EE05: OPEN ELECTIVE - II ELECTRICAL ESTIMATING & COSTING

After successfully completing the course, the students will be able to:

CO1. Understand methods of installation and estimation of service connection

CO2. Decide type of wiring, its estimation and costing for residential building

CO3. Carry out electrification of commercial complex, factory unit installations

CO4. Design & estimate for feeders & distributors

CO5. Understand contract, tendering and work execution process.

6EE06 POWER ELECTRONICS LAB

After successfully completing the course, the students will be able to:

CO1. Understand the operation of power electronic devices and its applications.

CO2. Analyze the I-V characteristics of SCR, DIAC and TRIAC.

CO3. Analyze the characteristics of MOSFET, IGBT and UJT.

CO4. Illustrate the functioning of rectifiers and firing circuits.

6EE07 POWER SYSTEM-II LAB

After successfully completing the course, the students will be able to:

CO1: Evaluate the various parameter of a power system network (min 3 bus) using different load flow techniques.

CO2: Investigate the transient stability of power system network (min 3 bus).

CO3: Find optimal power flow with the help of analytical and iterative methods.

CO4: Design a power system network (min 3 bus) and analyze the severity of various types of faults.

CO5: Comprehend the necessity of limits of voltage and overload in power system and perform the voltage and overload security analysis of power system network

6EE08 COMPUTER AIDED MACHINE DESIGN LAB

After successfully completing the course, the students will be able to:

CO1. To develop a computer programme for core design of a single-phase core type transformer.

CO2. To develop a computer programme for optimum core design of a three-phase core type transformer for minimum cost or maximum efficiency.

CO3. To develop a computer programme to calculate Main dimensions (D & L) of a three phase Induction motor.

CO4. To develop a computer programme for stator core design of three phase induction motor.

CO5. To develop a computer programme for Estimation of Iron losses in a three-phase core type transformer.

CO6. To develop a computer programme for calculating the No load current of a single-phase transformer.

6EE09 COMPUTER TECHNOGY LAB

After successfully completing the course, the students will be able to:

CO1. To understand basic Hardware and Terminology in networks, Classifications, The Internet, The Intranet and Extranet.

CO2. To understand Installation of Operating systems, Application software in Personnel Computer or laptop.

CO3. To Study of PLCs used for Industrial automation, developing the ladder diagram for given task in automation using PLC.

CO4. To Develop the simulation models for various tasks in electrical engineering using Simulation software.

CO5. To Develop the computer programme for various tasks in electrical engineering using software.

CO6. To understand Basics of IoT, IoT based Monitoring & Controlling of various Electrical Equipment

Semester VII

7EE01 ELECTRICAL ENERGY DISRIBUTION AND UTILIZATION

After successfully completing the course, the students will be able to:

CO1. Demonstrate the knowledge of distribution substation

CO2. Compare different power distribution systems

CO3. Describe elements of distribution Automation system

CO4. Select proper electrical drive for industrial applications

CO5. Explain the working of electric traction system

CO6. Describe an illumination system & electric heating

7EE02 DIGITAL SIGNAL PROCESSING

After successfully completing the course, the students will be able to:

CO1. Analyze the discrete time signals in time domain.

CO2. Analyze the discrete time systems using DTFT and DFT

CO3. Apply the concept of Bandpass sampling.

CO4. Design the structures of different types of digital filters

CO5. Analyze the frequency response of various digital filters

CO6. Apply the knowledge of multi-rate signal processing.

7EE03 ENTREPRENEURSHIP AND PROJECT MANAGEMENT

After successfully completing the course, the students will be able to:

CO1. Understand the concept of entrepreneurship and its role in economic development.

CO2. Compare the various business models and select the most suitable.

CO3. Identify & formulate the project report and Source of finance for a project.

CO4. Estimate the cost, time & resources for the project work

CO5. Understand the concept and planning of project management

CO6. Understand the concept of entrepreneur and entrepreneurial model

7EE04 PROFESSIONAL ELECTIVE-III WIND AND SOLAR SYSTEMS

After successfully completing the course, the students will be able to:

CO1. Understand the energy scenario and the consequent growth of the power generation from renewable energy sources.

CO2. Understand the basic physics of wind and solar power generation.

CO3. Understand the power electronic interfaces for wind and solar generation.

CO4. Understand the issues related to the grid-integration of solar and wind energy systems.

CO5. Understand the various technologies of solar photovoltaic.

CO6. Understand the concept and need of solar thermal power generation

7EE05 PROFESSIONAL ELECTIVE-IV ELECTRICAL DRIVES & CONTROL

After successfully completing the course, the students will be able to:

CO1. Explain the basic Concept of electrical drives

CO2. Demonstrate various modern speed, torque control techniques of DC drives

CO3. Demonstrate various modern speed, torque control techniques of AC drives.

CO4. To work on the drives used in the Industry

CO5. To work with PLC's in the Industry

CO6. To gain an insight in the working of drives used in traction

7EE06 ELECTRICAL ENERGY DISTRIBUTION &UTILIZATION LAB

After successfully completing the course, the students will be able to:

CO1. Gain practical knowledge related to distribution substation.

CO2. Learn the concepts of distribution automation.

CO3. Understand various types of AC And DC drives experimentally

CO4. Understand and gain practical knowledge related to processes of various industries.

CO 5. To practically verify the illumination of various sources of lights.

7EE07 DIGITAL SIGNAL PROCESSING LAB

After successfully completing the course, the students will be able to:

CO1. To understand Continuous time and Discrete time signals and systems.

CO2. Investigate the behavior of LTI system.

CO3. To understand multi-rate signal processing.

CO4. Examine the impact of sampling & reconstructions of signals, and its effect on communication systems.

7EE08 ENTREPRENEURSHIP AND PROJECT MANAGEMENT LAB

After successfully completing the course, the students will be able to:

CO1. Understand the concept of management, organization, planning, staffing.

CO2. Understand the importance of Directing and controlling, leadership styles, Communication, Coordination and Controlling.

CO3. Understand the role of entrepreneurs in economic development, and barriers, Identification of business opportunities, feasibility studies

CO4. Understand the contents of project report, ERP and project.

CO5. Understand institutional support in entrepreneurship, Case Study of Entrepreneurs.

7EE09 PROJECT & SEMINAR

After successfully completing the course, the students will be able to:

CO1: Identify important practical concepts from the industry exposure and grasp the depth knowledge of the topic.

CO2: Understand organizational issues including teams, attitudes and define work-life balance and its impact on organizations and employees.

CO3: Get in touch with recent technologies.

CO4: Solve industrial problems as a part of industrial training curriculum.

CO5: Sharpen their personality and intelligence, develop effective group communication, presentation, self-management and report writing skills

Semester VIII

8EE01 EMBEDED SYSTEMS

After successfully completing the course, the students will be able to:

CO1. Acquire a basic knowledge about fundamentals of microcontrollers

CO2. Acquire a basic knowledge about programming and system control to perform a specific task

CO3. Acquire knowledge about devices and buses used in embedded networking

CO4. Develop programming skills in embedded systems for various applications

CO5. Acquire knowledge about Life cycle of embedded design and its testing.

CO6. Understand the key concept of embedded system such as I/0, timers and interaction with peripheral devices

8EE02 POWER SYSTEM PROTECTION

After successfully completing the course, the students will be able to:

CO1. Explain the need, desirable features & main components of protection system

CO2. Explain the need, desirable features & main components of circuit Breaker

CO3. Design the various protection scheme for transmission line

CO4. Develop the protection scheme for Alternator, Transformer, Motors & Busbar

CO5. Demonstrate the knowledge of static relays & Numerical relays

CO6. Select the proper type & rating of circuit breaker and fuses for various applications

8EE03 PROCESS CONTROL SYSTEMS

After successfully completing the course, the students will be able to:

CO1. Explain the various Electronic Instruments for measurement of electrical parameters.

CO2. Analyse the different signals

CO3. Demonstrate the signal counting, recording and working of digital readout devices

CO4. Demonstrate the Various techniques of A/D and D/A conversions.

CO5. Apply various signal processing tools as per requirement

CO6. Develop ladder diagrams &programmes for PLC

8EE04 ELECTRIC AND HYBRID VEHICLES

After successfully completing the course, the students will be able to:

CO1. Understand the models to describe various Conventional vehicles and their performance

CO2. Understand the models to describe hybrid vehicles and their performance

CO3. Understand the concept of hybrid traction system

CO4. Understand the models to Electric Drive trains

CO5. Understand the different possible ways of energy storage

CO6. Understand the different strategies related to energy storage systems

8EE05 EMBEDED SYSTEMS LAB

After successfully completing the course, the students will be able to:

CO1: Able to explain embedded systems and its applications.

CO2: Able to explain architecture, data transfer and different addressing modes in microcontrollers.

CO3: Able to use different components in embedded systems and their assembly.

CO4: Able to test their designs using circuit emulators.

CO5: Able to appraise circuit emulator results with hardware implementation and real time applications.

8EE06 POWER SYSTEM PROTECTION LAB

After successfully completing the course, the students will be able to:
CO1: Determine fault type, fault impedance and fault location during single line to ground fault, line-to line fault and double line to ground fault.

CO2: Explain the operation of micro-controller based over current relay in DMT type and IDMT type.

CO3: Explain the operation of micro-controller based under voltage relay, and micro-controller based over voltage relay.

CO4: Explain the operation of micro-controller based un-biased single-phase differential relay.

CO5: Explain the operation of micro-controller un-based biased three phase differential relay.

8EE07 PROJECT & SEMINAR

CO1: Demonstrate literature survey and technical pre-requisites of the selected project topic

CO2: Predict the challenges in practical implementation of the project hardware/software and draft their possible alternate solutions.

CO3: Design engineering solutions of complex problems utilizing systems and engineering approach

CO4: Practically fabricate /implement, test /debug and run/simulate the project (hardware/software)

CO5: Communicate with the engineering community in written and oral forms