Paper Name	Paper Code	BT	
Humanities and social sciences (HS)			
ENGLISH	HU101		
	HU101.1	Understand	Comprehend and communicate in English through exposure to communication skills theory and practice.
	HU101.2	Apply	Apply the basic grammatical skills of the English language through intensive practice.
	HU101.3	Apply	Develop listening and writing skill
	HU101.4	Apply	Write Official Letters , Technical report, memo, notice, minutes, agenda, resume, curriculum vitae.
	HU101.5	Apply	Apply/illustrate all sets of English language and communication skills in creative and effective ways in the professional sphere of their life
LANGUAGE LABORATORY	HU191		
	HU191.1	Remember	Demonstrate the skills necessary to be a competent Interpersonal communicator.
	HU191.2	Understand	Understand advanced skills of Technical Communication in English through Language Laboratory.
	HU191.3	Apply	Apply listening, speaking, reading and writing skills in societal & professional life.
	HU191.4	Apply	Adapt to multifarious socio-economical and professional arenas with the help of effective communication and interpersonal skills.
	HU191.5	Analyze	Analyze communication behaviors.
LANGUAGE LABORATORY	HU291.1	Understand	Able to understand advanced skills of Technical Communication in English through Language Laboratory
	HU291.2	Apply	Able to apply listening, speaking, reading and writing skills in societal and professional life.
	HU291.3	Apply	Able to demonstrate the skills necessary to be a competent Interpersonal communicator.
	HU291.4	Analyze	Able to analyze communication behaviours
	HU291.5	Apply	Able to adapt to multifarious socio-economical and professional arenas with the help of effective communication and interpersonal skills.
TECHNICAL REPORT WRITING & LANGUAGE LABORATORY PRACTICE	HU381		
	HU381.1	Remember	Speak in English, using appropriate vocabulary and pronunciation in contextualized situations
	HU381.2	Understand	Understand and make use of a wide taxonomy of listening skills & sub-skills for comprehending & interpreting data in English
	HU381.3	Understand	Understand and put into effective practice the pragmatics of Group Discussion
	HU381.4	Understand	Understand and write a detailed technical report as per organizational needs
	HU381.5	Understand	Understand and interact in professional presentations and interviews

ENVIRONMENTAL SCIENCE	HU501		
	HU501.1	Remember	Acquire skills for scientific problem-solving related to air, water, noise & land pollution.
	HU501.2	Understand	Understand the natural environment and its relationships with human activities.
	HU501.3	Understand	Develop guidelines and procedures for health and safety issues obeying the environmental laws and regulations.
	HU501.4	Apply	Apply the fundamental knowledge of science and engineering to assess environmental and health risk.
VALUES AND ETHICS IN PROFESSION	HU401		
	HU401.1	Understand	Understand the core values that shape the ethical behavior of an engineer and Exposed awareness on professional ethics and human values.
	HU401.2	Understand	Understand the basic perception of profession, professional ethics, various moral issues
	HU401.3	Understand	Understand various social issues, industrial standards, code of ethics and role of professional ethics in engineering field
	HU401.4	Understand	Aware of responsibilities of an engineer for safety and risk benefit analysis, professional rights and responsibilities of an engineer.
	HU401.5	Understand	Acquire knowledge about various roles of engineers in variety of global issues and able to apply ethical principles to resolve situations that arise in their professional lives.
INDUSTRIAL & FINANCIAL MANAGEMENT	HU703		
	HU 703.1	Understand	Explain and describe various technology-based business models and the dynamics of value creation, value proposition, and value capture in industrial enterprises.
	HU 703.2	Understand	Select, interpret and use different costing techniques as a basis for decisions in various business situations
	HU 703.3	Understand	Understand the basic principles of financial accounting and reporting.
	HU 703.4	Understand	Explain how the industrial company markets and price it‘s products considering GST.
PRINCIPLES OF MANAGEMENT	HU801		
	HU801.1		Recall and identify the relevance of management concepts
	HU801.2		Apply management techniques for meeting current and future management challenges faced by the organization
	HU801.3		Compare the management theories and models critically to solve real life problems in an organisation.
	HU801.4		Apply principles of management in order to execute the role as a manager in an organisation.
Basic science (BS)			
MATHEM	M101		

ATICS I	M101.1	Remember	Recall the distinctive characteristics of Matrix Algebra, Calculus of Single and Several Variables and Vector Analysis.
	M101.2	Understand	Understand the theoretical concept of Matrix Algebra, Calculus of Single and Several Variables and Vector Analysis.
	M101.3	Apply	Apply the principles of Matrix Algebra, Calculus of Single and Several Variables and Vector Analysis to solve various problems.
	M101.4	Analyze	Examine the nature of system using the concept of matrix algebra and calculus
CHEMISTRY	CH101		
	CH101.1	Understand	Able to describe the fundamental properties of atoms & molecules, atomic structure and the periodicity of elements in the periodic table.
	CH101.2	Understand	Able to apply fundamental concepts of thermodynamics in different engineering applications.
	CH101.3	Understand	Able to apply the knowledge of water quality parameters, corrosion control & polymers to different industries
	CH101.4	Understand	Able to determine the structure of organic molecules using different spectroscopic techniques
	CH101.5	Understand	Capable to evaluate theoretical and practical aspects relating to the transfer of the production of chemical products from laboratories to the industrial scale, in accordance with environmental considerations.
CHEMISTRY LAB	CH191		
	CH191.1	Understand	Operate different types of instruments for estimation of small quantities chemicals used in industries and scientific and technical fields.
	CH191.2	Understand	Work as an individual also as an team member
	CH191.3	Analyze	Analyse different parameters of water considering environmental issues
	CH191.4	Analyze	Synthesize nano and polymer materials.
	CH191.5	Create	Design innovative experiments applying the fundamentals of chemistry
MATHEMATICS II	M201		
	M201.1	Remember	Use mathematical tools to evaluate multiple integrals and vector integrals
	M201.2	Understand	Apply effective mathematical tools for the solutions of ordinary differential equations that model physical processes.
	M201.3	Apply	Recall the properties of Laplace Transform to evaluate multiple integrals and their usage
	M201.4	Understand	Understand the concept of Laplace transform to solve ordinary differential equations.
PHYSICS I	PH201		
	PH201.1	Remember	Describe various types mechanical resonance and its electrical equivalence.

	PH201.2	Understand	Explain basic principles of Laser, Optical fibers and various types of semiconductors.
	PH201.3	Apply	Apply superposition to explain interference and diffraction as well as apply wave mechanics to attainment of Heisenberg‘s uncertainty principle.
	PH201.4	Analyze	Analyze importance of light as a carrier of information and examine different crystallographic structures according to their co-ordination number and packing factors
	PH201.5	Analyze	Justify the need of a quantum mechanics as remedy to overcome limitations imposed by classical physics.
PHYSICS I LAB.	PH291		
	PH291.1	Remember	Demonstrate experiments allied to their theoretical concepts
	PH291.2	Understand	Conduct experiments using LASER, Optical fiber, Torsional pendulum, Spctrometer.
	PH291.3	Understand	Participate as an individual, and as a member or leader in groups in laboratory sessions actively
	PH291.4	Understand	Analyze experimental data from graphical representations, and to communicate effectively them in Laboratory reports including innovative experiments.
MATHEMATICS III	M(EE)301		
	M(EE)301.1	Remember	Recall the underlying principle and properties numerical analysis, Statistics, partial differential equation and ordinary differential equation.
	M(EE)301.2	Understand	Exemplify the variables, functions and differential equations and find their distinctive measures using the underlying concept partial differential equation and ordinary differential equation, numerical methods and statistics
	M(EE)301.3	Apply	Apply numerical methods used to obtain approximate solutions to intractable mathematical problems
	M(EE)301.4	Apply	Solve partial differential equation using method of separation of variables and ordinary differential equation using techniques of series solution and special function (Legendre‘s and Bessel‘s).
	M(EE)301.5	Analyze	Interpret complex statistical findings using the understanding of inferential statistics.
PHYSICS II	PH401		
	PH401.1	Remember	Explain electron transport in metal-insulators and semiconductors using energy Band theory.
	PH401.2	Understand	Apply Schrödinger equation in variety of atomic scale problems including nanomaterials
	PH401.3	Apply	Apply Schrödinger equation in variety of atomic scale problems including nanomaterials
	PH401.4	Analyze	Justify the importance of Fermi energy level in turning electronic properties of various.
PHYSICS II LAB	PH491		
	PH491.1	Remember	Demonstrate experiments allied to their theoretical concepts

	PH491.2	Understand	Conduct experiments using semiconductors , dielectric and ferroelectrics
	PH491.3	Remember	Classify various types of magnetic materials.
	PH491.4	Understand	Participate as an individual, and as a member or leader in groups in laboratory sessions actively.
	PH491.5	Analyze	Analyze experimental data from graphical representations, and to communicate effectively them in laboratory reports including innovative experiments.
BASIC ELECTRICAL ENGINEERING	EE101		
	EE101.1	Understanding	Apply basic engineering knowledge to understand basics of electrical dc and ac circuits and formulate the solution plan and methodology for electrical analysis using Network Theorem and RLC Circuits
	EE101.2	Understanding	Apply basic engineering knowledge to understand basics of three phase system and determine the power by two watt meters method
	EE101.3	Understanding	Apply basic engineering knowledge to study constuction, classification, working principles, performance characteristics of dc machines, transformer and three phase induction motor.
	EE101.4	Understanding	Apply basic engineering knowledge to understand basics of power system, earthing of electrical equipment and electrical wiring
BASIC ELECTRICAL ENGINEERING LAB	EE191		
	EE191.1	Understanding	Identify common electrical components and their ratings.
	EE191.2	Understanding	Make Circuit connection by wires of appropriate ratings.
	EE191.3	Understanding	Understand the usage of common electrical measuring instruments
	EE191.4	Understanding	Understand the basic characteristics of transformers and electrical machines
ENGINEERING MECHANICS	ME101		
	ME101.1	Understand	Construct free body diagram and calculate the reactions necessary to ensure static equilibrium.
	ME101.2	Understand	Study the effect of friction in static and dynamic conditions.
	ME101.3	Understand	Understand the different surface properties, property of masses and material properties.
	ME101.4	Apply	Analyze and solve different problems of kinematics and kinetics.
ENGINEERING DRAWING AND GRAPHICS	ME191		
	ME191.1	Understand	Get introduced with Engineering Graphics and visual aspects of design
	ME191.2	Understand	Know and use common drafting tools with the knowledge of drafting standards.
	ME191.3	Understand	Apply computer aided drafting techniques to represent line, surface or solid models in different Engineering viewpoints
	ME191.4	Understand	Produce part models; carry out assembly operation and show working procedure of a designed project work

			using animation.
BASIC ELECTRONICS ENGINEERING	EC201		
	EC201.1	Understand	Study PN junction diode, ideal diode, diode models and its circuit analysis, application of diodes and special diodes.
	EC201.2	Understand	Learn how operational amplifiers are modeled and analyzed, and to design Op-Amp circuits to perform operations such as integration, differentiation on electronic signals.
	EC201.3	Understand	Study the concepts of both positive and negative feedback in electronic circuits.
	EC201.4	Understand	Develop the capability to analyze and design simple circuits containing non-linear elements such as transistors using the concepts of load lines, operating points and incremental analysis.
BASIC ELECTRONICS ENGINEERING LAB	EC291		
	EC191.1	Understand	Knowledge of Electronic components such as Resistors, Capacitors, Diodes, Transistors measuring equipment like DC power supply, Multimeter, CRO, Signal generator, DC power supply.
	EC191.2	Understand	Analyze the characteristics of Junction Diode, Zener Diode, BJT & FET and different types of Rectifier Circuits.
	EC191.3	Understand	Determination of input-offset voltage, input bias current and Slew rate, Common-mode Rejection ratio, Bandwidth and Off-set null of OPAMPs.
	EC191.4	Understand	Able to know the application of Diode, BJT &OPAMP.
	EC191.5	Understand	Familiarization and basic knowledge of Integrated Circuits
PROGRAMMING FOR PROBLEM SOLVING	CS201		
	CS201.1	Understand	Understand and differentiate among different programming languages for problem solving
	CS201.2	Understand	Describe the way of execution and debug programs in C language.
	CS201.3	Understand	Define, select, and compare data types, loops, functions to solve mathematical and scientific problem
	CS201.4	Understand	Understand the dynamic behavior of memory by the use of pointers
	CS201.5	Understand	Design and develop modular programs using control structure, selection structure and file.
PROGRAMMING FOR PROBLEM SOLVING LAB	CS291		
	CS291.1	Understand	Learn the concept of DOS system commands and editor
	CS291.2	Understand	To formulate the algorithms for simple problems and to translate given algorithms to a working and correct program.
	CS291.3	Understand	To be able to identify and correct syntax errors / logical errors as reported during compilation time and run time.
	CS291.4	Understand	To be able to write iterative as well as recursive programs
	CS291.5	Understand	Learn the concept of programs with Arrays, Pointers, Structures, Union and Files
ENGINEERING	ME201		
	ME201.1	Remember	Know about thermodynamic equilibrium, heat & work transfer, First law and its application.

MECHANICS	ME201.2	Remember	Know the thermodynamic characteristics of a pure substance and its application in power cycles (Simple Rankine cycles, Air Standard cycles)
	ME201.3	Remember	Knowledge of basic principles of fluid mechanics, and ability to analyze fluid flow problems with the application of the momentum and energy equations
	ME201.4	Understand	Understand the basic concepts of Heat Engine, Entropy from Second law of thermodynamics.
WORKSHOP PRACTICE	ME292		
	ME292.1	Understand	Gain basic knowledge of Workshop Practice and Safety useful for our daily living.
	ME292.2	Understand	Identify Instruments of a pattern shop like Hand Saw, Jack Plain, Chisels etc and performing operations like such as Marking, Cutting etc used in manufacturing processes.
	ME292.3	Understand	Gain knowledge of the various operations in the Fitting Shop using Hack Saw, various files, Scriber, etc to understand the concept of tolerances applicable in all kind of manufacturing.
	ME292.4	Understand	Get hands on practice of in Welding and various machining processes which give a lot of confidence to manufacture physical prototypes in project works.
DATA STRUCTURE	EE504A		
	EE504A.1	Understand	Differentiate how the choices of data structure and algorithm methods impact the performance of program
	EE504A.2	Understand	Solve problems based upon different data structure and also write programs.
	EE504A.3	Understand	Identify appropriate data structure and algorithmic methods in solving problem
	EE504A.4	Understand	Discuss the computational efficiency of the principal algorithms for sorting, searching, and hashing.
	EE504A.5	Understand	Compare and contrast the benefits of dynamic and static data structures implementations.
DATA STRUCTURE LAB	EE594A		
	EE594A.1	Remember	Choose appropriate data structure as applied to specified problem definition.
	EE594A.2	Remember	Handle operations like searching, insertion, deletion, traversing mechanism on various data structures.
	EE594A.3	Understand	Have practical knowledge on the applications of data structures
	EE594A.4	Apply	Able to store, manipulate and arrange data in an efficient manner.
	EE594A.5	Apply	Able to implement queue and stack using arrays and linked list. Implementation of queue, binary tree and binary search tree.
DIGITAL	EE403		

ELECTRONICS	EE403.1	Apply	Apply fundamental engineering knowledge to perform mathematical and logical operation related to number system and Boolean algebra in addition to use the existing rules like K-Map, Quine-McCluskey for circuit minimization.
	EE403.2	Apply	Apply engineering knowledge to design and analyze various combinational circuit to perform mathematical and logical operation and also to identify the limitations of the same circuit.
	EE403.3	Apply	Apply engineering knowledge to design and analyze various Sequential circuit to perform logical operation using State Diagrams & Tables.
	EE403.4	Apply	Apply engineering knowledge to analyze different complex circuit like DAC, ADC and to understand the operation of different logics.
ANALOG ELECTRONICS	EE 303		
	EE303.1	Understand	Students will be able to design D.C power supplies
	EE303.2	Understand	Apply the knowledge of OPAMP (IC-741) to understand and used it in linear and nonlinear applications.
	EE303.3	Apply	Design the D.C power supply circuit used in various electrical & electronic devices.
	EE303.4	Apply	Design the power amplifier circuit used in various electrical & electronic devices.
	EE303.5	Analyze	Analyze transistor amplifier circuit.
	EE303.6	Analyze	Analyze signal generator circuit.
ANALOG ELECTRONIC CIRCUITS LAB	EE393		
	EE393.1	Remember	Know how to interface digital circuits with ADC & DAC.
	EE393.2	Understand	Understand the fundamental concepts and techniques used in digital electronics.
	EE393.3	Understand	Understand and examine the structure of various number systems, De-Morgan's law, Boolean algebra and its application in digital design.
	EE393.4	Analyze	Understand, analyse the analog circuits pertaining to applications like amplifier, oscillators and timer.
DIGITAL ELECTRONICS LAB	EE493		
	EE493.1	Apply	Apply engineering knowledge to verify different logic gates and Universal logic gates.
	EE493.2	Apply	Apply engineering knowledge to design, construct and verify different combinational logic circuit.
	EE493.3	Apply	Apply engineering knowledge to design, construct and verify different sequential logic circuit.
	EE493.4	Creation	Develop the ability of team work, effective communication skills and the way of report
ELECTRICAL CIRCUIT ANALYSIS	EE301		
	EE301.1	Apply	Apply Engineering knowledge to solve different electrical circuits by using the concept of Network theorem, Graph Theory and Magnetically Coupled Circuit.
	EE301.2	Analysis	Analyse different circuit by using the concept of Laplace, Inverse laplace and Fourier series analysis
	EE301.3	Understand	Understand different circuit concept regarding Two port network and Filter circuit
ELECTRIC	EE391		

AL CIRCUIT ANALYSIS LAB	EE391.1	Apply	Apply Engineering knowledge to analyse electrical circuits to check different response and characteristics
	EE391.2	Apply	Apply software and simulator tools to simulate electric circuits, signals and algorithms
	EE391.3	Understand	Understand and verify different network theorems, laplace and Inverse Laplace transformation.
	EE391.4	Creation	Develop the ability of team work, effective communication skills and the way of report
ELECTRO MAGNETI C FIELDS	EE404		
	EE404.1	Remember	Apply the knowledge of the orthogonal co-ordinates & their transformation to solve & analyze problems on vector calculus
	EE404.2	Remember	Apply the knowledge of the basic laws of electrostatics and electromagnetism and define associated terms
	EE404.3	Understand	Apply the knowledge of electromagnetism to understand Maxwell's equation and in both its differential and integral form
	EE404.4	Understand	Apply the knowledge of electromagnetic waves (EM) to understand the propagation of EM waves associated with power system transmission line
ELECTRIC AL MACHINE S I	EE401		
	EE401.1	Remember	Able to understand the knowledge of electrical machine priciple to conducting different tests to determine the performance of d.c. machine, induction motor and transformer.
	EE401.2	Understand	Understand the knowledge of Electromechanical Energy Conversion principle and concept of magnetic circuit to understand the basic principles of electrical machine and define terms associated with rotating electrical machine.
	EE401.3	Apply	Apply the knowledge of applications of d.c. machine, induction motor and transformer to select the machine for a given application
	EE401.4	Apply	Apply the basic knowledge of d.c. machine, induction motor and transformer to understand and analyze the performance of these machine.
ELECTRIC AL MACHINE-I LAB	EE491		
	EE491.1	Analyze	Conduct different tests on d.c. machine, induction motor and transformer indivisually or as a team to comprehend and write an effective reports.
	EE491.2	Analyze	Apply the theoretical knowledge of electrical machine operating principle to interpret the observed test result and hence calculate unknown parameters indivusually.
	EE302		
MEASURE MENT & INSTRUM ENTATIO N	EE302.1	Remember	Apply the knowledge fundamentals of measurement to measure the Resistance, Inductance, Capactance, Power, Energy, PF and Insulation resistance.
	EE302.2	Understand	Apply the knowledge of measurement to understand the basics of electrical measuring system.
	EE302.3	Remember	Apply the knowledge engineering fundamentals to study different measuring instruments.
	EE392		
MEASURE	EE392.1	Understand	Conduct experiment to measure of Resistance, Inductance, Capacitance, Power, and Energy.

MENT AND INSTRUMENTATION LABORATORY	EE392.2	Apply	Apply theoretical knowledge and hence calculate unknown parameters
	EE392.3	Creation	Develop the ability of team work, effective communication skills and the way of report
ELECTRICAL MACHINES-II	EE501		
	EE501.1	Understand	Understand the knowledge of electrical machine priciple to conducting different tests to understand the different performance of synchronous machine.
	EE501.2	Apply	Apply the knowledge of applications of synchronous machine and fractional kW motors to select the machine for a given application
	EE501.3	Apply	Apply the knowledge of Electromechanical Energy Conversion principle and concept of magnetic circuit to understand the principle of operation and know performance of synchronous machine and fractional kW motors.
ELECTRICAL MACHINES-II LAB	EE591		
	EE591.1	Analyze	Conduct different tests on synchronous machine and single phase induction motor indivisually or as a team to comprehend and write an effective reports.
	EE591.2	Analyze	Apply the theoretical knowledge of electrical machine operating principle to interpret the observed test result and hence calculate unknown parameters
POWER SYSTEMS-I	EE502		
	EE502.1	Remember	Acquire knowledge about different type of power generation
	EE502.2	Understand	Apply the knowledge of engineering fundamentals to understand the concept of power system, know various power system components and define associated terms.
	EE502.3	Understand	Apply the knowledge of fundamentals of power system to understand basic performances of power system
POWER SYSTEMS-I LAB	EE592		
	EE592.1	Remember	Apply the knowledge of basics of power system to select the line support for a particular transmission line.
	EE592.2	Remember	Apply the knowledge of fundamentals of power system to explain and write report about the active and reactive power control methods.
	EE592.3	Understand	Conduct experiments as a tem to estimate performance of Transmission Line and Distribution Line and write report to make a documentation
	EE592.4	Understand	Conduct Tests as a tem to determine the reliability of different components of Transmission Line and Distribution Line and write report to make a documentation
CONTROL SYSTEMS-I	EE503		
	EE503.1	APPLY	Use the knowledge of basic science and engineering fundamentals to summarize basic structure of control systems and its mathematical modeling.

	EE503.2	APPLY	Sketch time domain behaviour of 1st and 2nd order systems for common input signals and identify different time domain specification parameters applying different mathematical techniques and engineering knowledge
	EE503.3	ANALYZE	Conclude control systems stability using different stability analysis tools using knowledge of control engineering and mathematics
	EE503.4	UNDERSTAND	Summarize PID controller and Lead-Lag compensator action on system performance improvement.
	EE503.5	UNDERSTAND	Explain different control system components and their use in simple interconnected control systems
CONTROL SYSTEMS-I LAB	EE593		
	EE593.1	Analyze	Use software/hardware tools to simulate and analyze time domain and frequency domain behaviour of physical systems
	EE593.2	Analyze	Use software/hardware tools to simulate and analyze controllers and compensators behaviour
MICROPROCESSOR AND MICROCONTROLLER	EE601		
	EE601.1	Remember	Acquire knowledge to recognize 8051 micro controller hardware, input/output pins, ports, external memory, counters and timers, instruction set, addressing modes, serial data i/o and interrupts.
	EE601.2	Understand	Get knowledge about the architecture, instructions, timing diagrams, addressing modes, memory interfacing, interrupts, data communication of 8085.
	EE601.3	Understand	Interprete the 8086 microprocessor - Architecture, Pin details, memory segmentation, addressing modes, basic instructions, interrupts.
	EE601.4	Apply	Apply the knowledge of assembly language programs of 8085, 8086 and 8051 to construct the instructions set.
	EE601.5	Apply	Apply instructions for design peripheral interfacing model using IC 8255, 8253, 8251 with IC 8085, 8086 and 8051.
	EE505		
Electrical Energy Conservation and Auditing	EE505A.1	Analyze	Apply the knowledge of power system and analyze the different harmonics generated by the converters and their variation with the change in firing angles.
	EE505A.2	Remember	Apply the knowledge of power system to identify the demand supply gap of energy in Indian scenario.
	EE505A.3	Remember	Apply the knowledge of power system to select appropriate energy conservation method to reduce the wastage of energy.
	EE505A.4	Apply	Apply the knowledge of power system to carry out energy audit of an industry/organization.
	EE505A.5	Apply	Apply the knowledge of power system and draw the energy flow diagram of an industry and identify the energy wasted or a waste stream.
ILLUMINATION ENGINEERING	EE505C		
	EE505C.1	Understand	Understand the fundamentals of illumination and its measurements with different apparatus.
	EE505C.	Understand	Understand the construction, working principle and characteristics of various types of lamp with their

	2		accessories and their control circuits.
	EE505C.3	Apply	Apply the engineering knowledge to design the interior and exterior lighting.
MICROPROCESSOR AND MICROCONTROLLER LAB	EE691		
	EE694.1	Remember	Apply the knowledge of assembly language programs to write 8085 assembly language programs like Addition, Subtraction, Multiplication, Square, Complement, Look up table, Copying a block of memory, Shifting ,Packing and unpacking of BCD numbers, Ascending order, Descending order etc. using trainer kit.
	EE694.2	Understand	Conduct investigation to solve small assignments using the 8085 basic instruction sets and memory mapping through trainer kit and simulator individually or as a team.
	EE694.3	Understand	Validate the interfacing technique using 8255 trainer kit through subroutine calls and IN/OUT instructions like glowing LEDs accordingly, stepper motor rotation etc individually or as a team.
	EE694.4	Understand	Conduct test on 8051 trainer kit to understand fundamentals of 8051 programs individually or as a team.
CONTROL SYSTEM II	EE603		
	EE603.1	UNDERSTAND	Apply the concept of state variable representation of dynamic systems to analyze time behaviour of continuous systems
	EE603.2	Apply	Sketch the behaviour of digital control systems using Z transform.
	EE603.3	Analyze	Explain non linear system behaviour and conclude its stability using different stability analysis tools.
CONTROL SYSTEM II LAB	EE693		
	EE693.1	Apply	Examine the behaviour of lead-lag compensators and controllers using simulation tools.
	EE693.2	Understand	Illustrate the effects of different non linearities introduced to a practical systems.
	EE693.3	Understand	Examine the characteristics of AC Servo motors and Synchro devices.
	EE693.4	Apply	Explain behaviour of continuous and discrete systems using State variable analysis and Digital control system tools.
POWER SYSTEMS-II	EE602		
	EE602.1	Remember	Apply the knowledge of basics of power system to learn about advance structure of power system.
	EE602.2	Understand	Get and apply the knowledge of different types of power system protection, fault, stability analysis and load flow method.
	EE602.3	Apply	Apply the knowledge of fundamentals to design and analysis of different types of substation and implement these ideas to solve the industry or real life problem.
POWER SYSTEMS-II LAB	EE692		
	EE692.1	Remember	Conduct experimental investigation as an individual or as member in team and gain knowledge about various parts of relays and its operation.
	EE692.2	Understand	Apply the knowledge of measuring to incorporate the measuring error with actual value and calibrate the instruments transformer.

	EE692.3	Apply	Apply software and simulator tools to enhance the capability of software analysis by load flow solution in ETAP and MATLAB.
	EE692.4	Analyze	Conduct different testing and analyze the operation and response of protection of electrical instruments.
POWER ELECTRONICS	EE402		
	EE402.1	Understand	Able to understand the characteristics of different power electronic switches along with their turn-on, turn-off, triggering and protection circuits.
	EE402.2	Understand	Apply the knowledge of power electronics to identify basic requirements for power electronics based design application.
	EE402.3	Apply	Apply the knowledge of power electronics to understand the use of power converters in commercial and industrial applications.
	EE402.4	Understand	Apply the knowledge of power electronics to develop skills to build, and troubleshoot power electronics circuits.
	EE402.5	Analyze	Apply the knowledge of power electronics to analyze various single phase and three phase power converter circuits and understand their applications.
POWER ELECTRONICS LAB	EE693		
	EE693.1	Remember	Able to select suitable power electronics devices for a given application.
	EE693.2	Understand	Apply the knowledge of power electronics to understand how to control and convert output signal as per requirements.
	EE693.3	Analyze	Conduct experiments as an individual or as member in team and analyze the response of any power electronics devices.
	EE693.4	Apply	Apply the knowledge of power electronics to construct any power electronics circuits as needed in operation.
ELECTRIC DRIVES	EE701		
	EE701.1.	Understand	Understand the principle of electrical drives & be able to understand the dynamics of electrical drive systems.
	EE701.2.	Apply	Apply the knoledge of electric drives to operate and maintain solid state drives for speed control of DC machines & other various special electrical machines.
	EE701.3.	Understand	Understand various starting and braking methods on electric drives including their effects on power supply, motor and load.
	EE701.4	Apply	Accrue the knowledge of power electronic converters used for DC motor and Induction motor speed control.
ELECTRIC DRIVES LAB	EE791		
	EE791.1	Apply	Apply the knowledge of power electronic converters to conduct experiments for motor speed control as an individual or as member in team
	EE791.2	Analyze	Conduct experiments as an individual or as member in team to analyze the characteristics of electric motors for different type of loads.

ELECTIVE I	EE605		
HIGH VOLTAGE ENGINEERING	EE605B.1	Understand	Apply the knowledge of basic physics associated with various breakdown processes in different insulating materials.
	EE605B.2	Understand	Apply the knowledge of basic physics to know the generation and measurement of A. C., D.C.,Impulse voltages and currents
	EE605B.3	Analyze	Analyze the process of testing on H.V. equipment and on insulating materials, as per the standards.
	EE605B.4	Apply	Apply the knowledge of basic physics to understand the causes of Overvoltages in power system and Insulation Coordination in a substation.
COMPUTER ARCHITECTURE	EE605C.1	Remember	Learn pipelining concepts with a prior knowledge of stored program methods.
	EE605C.2	Understand	Learn about memory hierarchy and mapping techniques
	EE605C.3	Understand	Study of parallel architecture and interconnection network.
ELECTIVE III	EE702		
OBJECT ORIENTED PROGRAMMING USING JAVA	EE702A.1	Remember	Design the process of interaction between Objects, classes & methods w.r.t. Object Oriented Programming.
	EE702A.2	Understand	Acquire a basic knowledge of Object Orientation with different properties as well as different features of Java
	EE702A.3	Analyze	Analyze various activities of different string handling functions with various I/O operations.
	EE702A.4	Apply	Discuss basic code reusability feature w.r.t. Inheritance, Package and Interface
	EE702A.5	Analyze	Implement Exception handling, Multithreading and Applet (Web program in java) programming concept in Java
DIGITAL IMAGE PROCESSING	EE702C.1	Understand	Explain the structure of human eye, image formation, Brightness, sensing and acquisition, storage, Processing, Communication, Display Image Sampling and quantization, spectrum analysis.
	EE702C.2	Analyze	Illustrate image Enhancement in the Spatial and Frequency Domain, image transformations, Histogram processing, time and Spatial filtering
	EE702C.3	Apply	Evaluate Image and video Data Compression, Redundancies.
	EE702C.4	Apply	Develop Morphological Processed Image using Dilation, Erosion, Opening, closing, Hit -or-miss transformation

	EE702C.5	Apply	Evaluate Image Segmentation by detection of discontinuities, Edge linking and Boundary detection, Thresholding, Image Representation schemes, Boundary descriptors, and Regional descriptors.
ELECTIVE III LAB	EE 792		
OBJECT ORIENTED PROGRAMMING	EE792A.1	Apply	Create the procedure of communication between Objects, classes & methods
	EE792A.2	Understand	Understand the elementary facts of Object Orientation with various characteristics as well as several aspects of Java.
	EE792A.3	Analyze	Analyze distinct features of different string handling functions with various I/O operations.
	EE792A.4	Analyze	Discuss simple Code Reusability notion w.r.t. Inheritance, Package and Interface
	EE792A.5	Apply	Apply Exception handling, Multithreading and Applet (Web program in java) programming concept in Java
Digital Image Processing	EE792C.1	Apply	Build knowledge on Digital Imaging fundamentals and Digital Image Transform.
	EE792C.2	Understand	Understanding Digital Image enhancement techniques in spatial and frequency domain.
	EE792C.3	Understand	Explaining the requirements and types of Image Compression and its standards.
	EE792C.4	Understand	Demonstrate the Digital Image Restoration and Segmentation of Digital Images
	EE792C.5	Apply	Build ideas on Edge detection techniques and concepts on Digital Image security.
ELECTIVE IV	EE703		
POWER SYSTEM III	EE703A.1	Remember	Demonstrate various power systems components, models and their operation, optimization of cost criteria.
	EE703A.2	Understand	Apply fundamentals and concepts to analyze, formulate and solve complex problems of electrical power systems and its components and control of frequency and voltages.
	EE703A.3	Apply	Analyze advanced techniques, skills and modern scientific and engineering tools for professional practice for power system to enhanced power quality, Stability, reliability, security and load ability
RESTRUCTURED ELECTRIC POWER	EE703B.1	Understand	Understand the need for restructuring of Power Systems, discuss different market models, different stakeholders and market power.
	EE703B.2	Understand	Understand and generalize the functioning and planning activities of Independent System Operator (ISO)

SYSTEM	EE703B.3	Understand	Understand transmission open access pricing issues and congestion management
	EE703B.4	Understand	Define transfer capability and estimate the transfer capability of small power systems with numerical examples.
	EE703B.5	Understand	Define ancillary services and understand reactive power as ancillary service and management through synchronous generator
ELECTIVE VI	EE704		
HVDC TRANSMISSION	EE704C.1	Remember	Apply the knowledge of power system to acquire knowledge of HVDC transmission and HVDC converters and the applicability and advantage of HVDC transmission over conventional AC transmission.
	EE704C.2	Understand	Apply the knowledge of power system to study and understand the nature of faults happening on both the AC and DC sides of the converters and formulate protection schemes for the same. links.
	EE704C.3	Apply	Apply the knowledge of power system to analyze the different harmonics generated by the converters and their variation with the change in firing angles
	EE704C.4	Apply	Apply the knowledge of power system to formulate and solve mathematical problems related to rectifier and inverter control methods and learn about different control schemes as well as starting and stopping of DC links.
	EE704C.5	Understand	Apply the knowledge of power system to understand the existing HVDC systems along with MTDC systems and modern transmission system.
POWER QUALITY AND FACTS	EE704B.1	Understand	Describe the characteristics of ac transmission and the effect of shunt and series reactive compensation.
	EE704B.2	Understand	Demonstrate the working principles of FACTS devices and their operating characteristics.
	EE704B.3	Understand	Illustrate the basic concepts of power quality.
	EE704B.4	Understand	Categorize the working principles of devices to improve power quality
ELECTIVE VII	EE801		
WIND AND ENERGY SYSTEMS	EE801A.1	Analyze	Analyze the fundamental principle of wind and solar power generation.
	EE801A.2	Remember	Categorize different types wind generators and solar power plants.
	EE801A.3	Apply	Apply power electronic interfaces for wind and solar generation.

UTILIZATION OF ELECTRIC POWER	EE801B.1	Remember	Demonstrate the working of traction motor and their control under different working conditions
	EE801B.2	Analyze	Anlyze illumination level for a given application and select the suitable specification for installation.
	EE801B.3	Apply	Illustrate the working of Electric Heating, welding processes.
	EE801B.4	Analyze	Explain the process of electrolysis.
ELECTIVE VIII	EE802		
ADVANCED ELECTRIC DRIVES	EE802A.1	Analyze	Analyze the operation of power electronic converters and their control strategies.
	EE802A.2	Apply	construct the modelling of AC motors in different reference frames.
	EE802A.3	Understand	Understand the vector control strategies for ac motor drives.
INDUSTRIAL ELECTRICAL SYSTEM	EE802C.1	Understand	Understand the electrical wiring systems for residential, commercial and industrial consumers, representing the systems with standard symbols and drawings, SLD.
	EE802C.2	Understand	Understand various components of industrial electrical systems
	EE802C.3	Analyze	Analyze and select the proper size of various electrical system components.
ELECTIVE II	EE 604A		
DATABASE MANAGEMENT	EE 604A.1	Apply	Apply the knowledge of Entity Relationship (E-R) diagram for an applicatio
	EE 604A.2	Analyze	Create a normalized relational database model.
	EE 604A.3	Analyze	Analyze real world queries to generate reports from it.
	EE 604A.4	Apply	Determine whether the transaction satisfies the ACID properties.
	EE 604A.5	Apply	Create and maintain the database of an organization.

EMBEDDED SYSTEM	EE604B.1	Remember	To familiarize with concepts related to the fundamental principles embedded systems design, explain the process and apply it.
	EE604B.2	Understand	To understand knowledge of the advanced Embedded technology both for hardware and software.
	EE604B.3	Understand	To understand Hardware/Software design techniques for microcontroller-based embedded systems and apply techniques in design problems.
	EE604B.4	Apply	To develop Embedded System programming in C and assembly language using Integrated Development Environments and using debugging technique.
ELECTIVE II LAB	EE694		
Data Base Management System Laboratory	EE694.1	Remember	Understand the basic concepts regarding database, know about query processing and techniques involved in query optimization and understand the concepts of database transaction and related database facilities including concurrency control, backup and recovery.
	EE694.2	Understand	Understand the introductory concepts of some advanced topics in data management like distributed databases, data warehousing, deductive databases and be aware of some advanced databases like partial multimedia and mobile databases
	EE694.3	Apply	Differentiate between DBMS and advanced DBMS and use of advanced database concepts and become proficient in creating database queries
	EE694.4	Apply	Analyse database system concepts and apply normalization to the database
	EE694.5	Apply	Apply and create different transaction processing and concurrency control applications.
Embedded Systems Laboratory	EE694B.1	Remember	Familiarization with PIC Microcontroller, ARM Microcontroller, FPGA and their interfacing.
	EE694B.2	Apply	Design of different types real time projects with digital controllers.
ELECTIVE V	EE504		
Electrical Energy Conservation and Auditing	EE505A.1	Analyze	Apply the knowledge of power system and analyze the different harmonics generated by the converters and their variation with the change in firing angles.
	EE505A.2	Remember	Apply the knowledge of power system to identify the demand supply gap of energy in Indian scenario.
	EE505A.3	Remember	Apply the knowledge of power system to select appropriate energy conservation method to reduce the wastage of energy.
	EE505A.4	Apply	Apply the knowledge of power system to carry out energy audit of an industry/organization.
	EE505A.5	Apply	Apply the knowledge of power system and draw the energy flow diagram of an industry and identify the energy wasted or a waste stream.

COMPUTER NETWORK	EE504B.1	Understand	Understand OSI and TCP/IP models.
	EE504B.2	Analyze	Analyze MAC layer protocols and LAN technologies
	EE504B.3	Apply	Design applications using internet protocols.
	EE504B.4	Apply	Implement routing and congestion control algorithms
	EE504B.5	Apply	Develop application layer protocols and understand socket programming.
ELECTIVE V LAB	EE594B		
COMPUTER NETWORKING LAB	EE594B.1	Understand	Demonstrate the socket program using TCP & UDP.
	EE594B.2	Analyze	Develop simple applications using TCP and UDP.
	EE594B.3	Analyze	Develop the code for Data link layer protocol simulation.
	EE594B.4	Apply	Examine the performances of Routing protocol
	EE594B.5	Apply	Experiment with congestion control algorithm using network simulator
Behavioral & Interpersonal Skills	MC481		
	MC481.1	Remember	Prepare lists of material for a mini project.
	MC481.2	Understand	Design an electric circuit as per the requirement of application.
GROUP DISCUSSION & SEMINAR	MC581		
	MC581.1	Understand	Exploring live recorded GD sessions for mending students' attitude/approach and for taking remedial measures.
	MC581.2	Understand	SWOT analysis and its application in fixing targets.
	MC581.3	Understand	Develop interest towards research oriented field with ability to search the literature and brief report preparation.
	MC581.4	Understand	Develop the skills, competencies and points of view needed by professionals in the field most closely related to the course
	MC581.5	Understand	Strategies and standard practices of seminar presentation.
	MC581.6	Understand	Develop presentation and technical writing skills.

Technical Lecture Presentation & Group Discussion – II			
	MC781.1	Understand	Develop idea generation, creative and innovative skills for engineering problems.
	MC781.2	Understand	Aware of different opportunities and successful growth stories
	MC781.3	Understand	Learn how to start an enterprise and design business plans those are suitable for funding by considering all dimensions of business.
	MC781.4	Understand	Understand entrepreneurial process by way of studying different case studies and find exceptions to the process model of entrepreneurship.
	MC781.5	Understand	Run a small enterprise with small capital for a short period and experience the science and art of doing business.
ENVIRONTAL SCIENCE			
	MC301.1	Understand	To understand the natural environment and its relationships with human activities
	MC301.2	Apply	To apply the fundamental knowledge of science and engineering to assess environmental and health risk.
	MC301.3	Apply	To develop guidelines and procedures for health and safety issues obeying the environmental laws and regulations.
	MC301.4	Apply	Acquire skills for scientific problem-solving related to air, water, noise & land pollution
	MC 501		
Constitution of India	MC501.1	Understand	Develop human values, create awareness about law ratification and significance of Constitution.
	MC501.2	Understand	Comprehend the Fundamental Rights and Fundamental Duties of the Indian Citizen to implant morality, social values and their social responsibilities.
	MC501.3	Apply	Create understanding of their Surroundings, Society, Social problems and their suitable solutions.
	MC501.4	Understand	Familiarize with distribution of powers and functions of Local Self Government.
	MC501.5	Understand	Realize the National Emergency, Financial Emergency and their impact on Economy of the country
	MC804		
ESSESNCE OF INDIAN KNOWLEDGE TRADITION	MC804.1	Understand	Identify the concept of Traditional knowledge and its importance
	MC804.2	Understand	Explain the connection between Modern Science and Indian Knowledge System.
	MC804.3	Understand	Understand the importance of Yoga for health care
	MC804.4	Analyze	Interpret the effect of traditional knowledge on environment.