3.1. (A) EVIDENCE OF CO'S BEING DEFINED FOR EVERY COURSE 2020-2024 ADMITTED BATCH	
I-I (AY-2020-2021)	
	Course Outcome Statement
C111 Mathematics-I	CO1.Solve Linear System Of Equations In Engineering Problems
	CO2.Find Eigen-Values and Eigenvectors of a Matrix in Engineering Studies
	CO3.Model Engineering Problems as Differential Equations and Solve Analytically
	CO4.Find Out Local /Global Optimum of Functions of Several Variables
	CO5.Compute Areas and Volumes by Integrals
C112 Applied Chemistry	CO1.Recall the information related to polymers and their application
	CO2.Distinguish between different parts in electrochemical cell, batteries and fuel cells
	CO3.Understand about the different analytical techniques and its applications and design the technologies related to renewable energy sources
	CO4.Understand the conductivity phenomenon and applications of solids
	CO5.Choose the materials like nano materials, liquid crystals, superconductors, and green synthetic methods to solve the Engineering problems
C113 Communicative English	CO1.Facilitate effective listening skills for better comprehension of academic lectures and English spoken by native speakers
	CO2. Focus on appropriate reading strategies for comprehension of various academic texts and authentic materials
	CO3. Help improve speaking skills through participation in activities such as role plays, discussions and structured talks/oral presentations
	CO4. Impart effective strategies for good writing and demonstrate the same in summarizing, writing well organized essays, record and report useful information
	CO5. Provide knowledge of grammatical structures and vocabulary and encourage their appropriate use in speech and writing
C114 Engineering Graphics & Design	CO1.To introduce the students to use drawing instruments and to draw polygons, Engg. Curves and use scales
	CO2To familiarize the students orthographic projections, projections of points & lines
	CO3.To enable the students draw the projections of the plane inclined to both the planes
	CO4 To train the students draw the projections of the various types of solids in different positions inclined to one of the planes
	CO5. To develop the ability to represent object in 3D view through isometric views. The student will be able to represent and convert the isometric view to orthographic view and vice versa

C115 Computational Thinking and Programming	CO1. To teach problem solving through Algorithms and Flowcharts
	CO2. To elucidate problem solving through Python programming language
	CO3. To train in the development of solutions using modular concepts
	CO4. To explain the role of data structures in programming
	CO5. To introduce object oriented programming paradigm through Python
C116 English Communication Skills Lab	CO1. Understand Non Verbal Communication and Identify the topic, the context, specificquestions and overall idea by listening to short audio texts and answering a series of questions and will also be able to introduce themselves and others
	CO2. Articulate Vowels and Consonants properly and answer a series of questions about main idea and supporting ideas after listening to audio texts and will be able to use expressions for Greetings and Leave takings, Complaining and Apologizing
	CO3. Understand stress and listen for global comprehension and summarize what is listened to and will be able to use expressions for Permissions, Requesting, Inviting
	CO4. Apply the rules of stress and intonation while reading a text; will be able to speak on short topics and will also be able to use expressions for Asking for and giving Information/Directions; Suggesting/Opinion giving
	CO5. Write and enact Dialogues/Role Plays and practice topics from Science and Technology - using PPT slides and neutralize accent
C117 Applied Chemistry Lab	CO1-Ability to find the Fe^{+2}, Ca, Mg, Cu and Cl- present in unknown samples/ores using titrimetric and instrumental methods
	CO2- The students will get the ability to identify any unknown chemical and its nature according to its functionality
	CO3- Differentiate between hard and soft water. Understand the disadvantages of using hard water domestically and industrially. Select and apply suitable treatments domestically and industrially
	CO4Understand the principles of Stoichiometric, Potentiometric and Conduct metric measurements
	CO5-Understand the practical way of thinking through the prescribed experiments given to them
C118 Computational Thinking and Programming Lab	CO1. Master core python scripting elements by solving more number of problems
	CO2. Identify right data structure to solve the problem
	CO3. Design Python functions to facilitate code reuse
	CO4. Solving I/O related problems using Python.
I-II (AY-2020-2021)	
C121 Mathematics - II	CO1.understand gradient, divergence, curl and their physical significance
	CO2.compute line, surface and volume integrals and evaluate the work done, flux, potential functions
	CO3.make use of Laplace transforms in solving the differential equations with the initial and boundary conditions

	CO4.compute Fourier series of periodic functions
	CO5.solve problems related to engineering applications using transform techniques
C122 Applied Physics	CO1. Analyze the need for coherent sources, conditions for sustained interference, interference-diffraction differences, and light polarization with applications
	CO2. Explain radiation emission types, laser principles, and optical fiber construction, classification, and applications
	CO3. Evaluate dielectric constant, polarization, magnetic material classification, and their applications in devices
	CO4. Apply the dual nature of matter, wave function significance, Schrodinger's equation, and classical free electron theory in electrical conductivity
	CO5. Assess quantum free electron theory, energy band classification, charge carrier properties, semiconductor identification using the Hall effect, and their applications in electronics
C123 Programming for Problem Solving	CO1. Identify various building blocks to write a C program
	CO2. Use Control Statements for solving a given problem
	CO3. Write programs using arrays and pointers to store and manipulate the data
	CO4. Build programs with functions for organizing a complex task
	CO5. Make use of strings and structures to store and retrieve the data.
C124 Electrical Circuit Analysis - I	CO1. To study the basic concepts of DC circuits and various network reduction techniques
	CO2. To study the concept of magnetic coupled circuit
	CO3. To study the basic concepts of single phase AC circuits.
	CO4. To understand the behaviour of RLC networks for Sinusoidal excitations and learn the concept of resonance.
	CO5. To understand the applications of network theorems for analysis of electrical networks.
C125 Elements of Civil and Mechanical Engineering	CO1. To impart basic knowledge on civil engineering materials.
	CO2. To explore basic knowledge on building construction materials.
	CO3. The students will be able to analyze the material on the basis of their properties and thus assigning different weight age to their use for technical purposes and to provide exposure on the fundamental elements of civil engineering structures.
	CO4. To explore the knowledge on steel connections and pre-stressed members
	CO5. The student will be able to know about pavements and water treatment methods.
C126 Programming for Problem Solving Lab	CO1.Select right identifiers, data types and operators for effective computation.
	CO2.Write programs using control statements.
	CO3.Write programs demonstrating use of arrays, strings and their applications.
	CO4.Demonstrate the applications of function and recursion and simple real life problems using pointers and structures.

C127 Applied Physics Lab	CO1.Analyze and understand the concepts of oscillations and standing waves. (Sonometer, Melde's experiment).
	CO2.Know how to determine the acceleration due to gravity at a place using Compound pendulum.
	CO3.Perform experiments on Properties of matter such as the determination of moduli of elasticity viz., Young's modulus, Rigidity modulus of certain materials;
	CO4.Gain hands-on experience of using various optical instruments like spectrometer, and making finer measurements of wavelength of light using Newton Rings experiment, diffraction grating etc.
	CO5.Demonstrate simple electronic circuits consisting of basic circuit elements, and understand applications and of various electrical & Electronic devices.
C128 Workshop (Electrical & IT)	CO1.Identify and describe the peripherals of a computer and electrical components, including their configurations, functionalities, and practical applications.
	CO2.Demonstrate proficiency in assembling and disassembling a PC, performing residential wiring, and handling electrical tools, meters, and circuit components.
	CO3.Utilize Microsoft Word for structured documentation, Excel for data analysis, and measurement tools for evaluating electrical quantities.
	CO4.Design effective PowerPoint presentations and web pages using HTML5, CSS3, multimedia elements, and structured layouts for technical communication.
	CO5.Understand IoT fundamentals, communication models, and protocols while leveraging computational tools for automation and problem-solving.
C129 Constitution of India	CO1. Understand and explain the significance of Indian constitution as the fundamental law of the land
	CO2.Exercise his fundamental rights in proper sense at the same time identifies his responsibilities in national building
	CO3.Analyse the Indian political system, the powers and functions of the union ,state and local government in detail
	CO4. Understand the judiciary, executive and legislature and its functions.
	CO5.Understand electoral process, emergency provisions and amendment procedure.
II-I (AY-2021-2022)	
C211 Mathematics - III	CO1. Understand the differentiability and analyticity for complex variable functions and learn sufficient conditions for analyticity
	CO2 Evaluate the integration of complex valued functions
	CO3. Expand the functions in power series, classify the singularities of complex function
	CO4. Model first order linear and non-linear partial differential equations and solve
	CO5. Model higher order partial differential equations and solve analytically and physical

C212 Electrical Circuit Analysis - II	CO1 Analyze three-phase circuits under balanced condition using circuit analysis techniques
	CO2 Analyze three-phase circuits under unbalanced condition using circuit analysis techniques
	CO3 Evaluate the transient response of electrical networks for different types of excitations.
	CO4 Determine and interpret the parameters of a two-port network for various circuit applications.
	CO5 Realize electrical equivalent networks for a given network transfer function.
C213 Electromagnetic Fields	CO1. To determine the location of a point in three dimensional space.
	CO2. To determine electric fields and potentials using gauss's law for various electric charge distributions and to Calculate capacitance, energy stored in dielectrics.
	CO3. To Calculate the magnetic field intensity due to current, the application of ampere's law and the Maxwell's second and third equations.
	CO4. To determine the magnetic forces and torque produced by currents in magnetic field
	CO5. To determine self and mutual inductances and the energy stored in the magnetic field.
	CO6. To Calculate induced e.m.f., understand the concepts of displacement current and time varying fields
C214 Electronics Devices & Circuits	CO1. The basic concepts of semiconductor physics.
	CO2. The physical phenomena such as conduction, transport mechanism and electrical
	CO3. The application of diodes as rectifiers with their operation and characteristics with and without filters and the principle of working and operation of bipolar Junction transistor and field effect transistor and their characteristics.
	CO4. The need of transistor biasing and its significance along with the quiescent point or operating point.
	CO5. Small signal equivalent circuit analysis of BJT and FET transistor amplifiers in different configurations.
C215 Electrical Machines -I	CO1.Understand the principles of electromechanical energy conversion and operation of DC generators.
	CO2. Learn the operating characteristics and performance of DC motors.
	CO3.Understand the testing methods of DC motors and operating principles of single phase transformers
	CO4.Understand the performance and methods of testing of single phase transformers
	CO5.Analyze the three phase transformers and achieve three phase to two phase conversion
	CO1. Articulate the basic structure, functions and processes of key societal systems affecting the environment.
	CO2. Explain how Natural Resources should be used.
	CO3. Identify the threats to biodiversity.

C216 Environmental Science	CO4. Understand causes, effects, and control measures of Environmental pollution.
	CO5. Knowledge about Watershed management and Environmental ethics and a rigorous foundation in various scientific disciplines as they apply to environmental science such as ecology, evolutionary biology, hydrology, and human behaviour.
C217 Electrical Machines –I Lab	CO1. Draw the magnetizing characteristics of DC shunt generator.
	CO2. Control the speed of the DC motors.
	CO3. Determine the performance characteristics of DC machines.
	CO4. Predetermine the efficiency of DC machines.
	CO5. Separate the no load losses in DC machines and transformers.
C218 Electronics Devices & Circuits Lab	CO 1.Understand the diode and Zener diode characteristics.
	CO 2. Verify the rectifier circuits using diodes without and with filter
	CO 3.Learn the characteristics of BJT, FET and UJT.
	CO 4.Obtain the frequency response of BJT and FET amplifiers.
C219 Electrical Circuit Analysis Lab	CO1 Able to apply various theorems,
	CO2 Able to determine of self and mutual inductances of a single phase transformer
	CO3 Able to find two port parameters of a given electric circuit
	CO4 Able to analyse Waveforms and phasor diagram for lagging and leading networks.
C2110 Design of Electrical Circuits using Engineering Software Tools	CO1.write the MATLAB programs to simulate the electrical circuit problems
	CO2.Simulate various circuits for electrical parameters
	CO3.Simulate various wave form for determination of wave form parameters
	CO4.Simulate RLC series and parallel resonance circuits for resonant parameters
	CO5.Simulate magnetic circuits for determination of self and mutual inductances
II-II (AY-2021-2022)	
C221 Digital Logic Design	CO1.Classify different number systems and apply to generate various codes.
	CO2. Use the concept of Boolean algebra in minimization of switching functions
	CO3. Design different types of combinational logic circuits.
	CO4. Apply knowledge of flip-flops in designing of Registers and counters
	CO5.The operation and design methodology for synchronous sequential circuits and algorithmic state machines
C222 Mathematics - IV	CO1. Apply standard numerical methods to solve fundamental and practical engineering problems and understand the concepts of interpolation to estimate the unknown functional values
	CO2. Evaluate finite integrals and solving differential equations using numerical techniques
	CO3. Understand the discrete and continuous probability distributions and apply relevant engineering problems
	CO4. Perform inferential statistics to test hypothesis for large

	samples
	CO5. Apply the concept of testing hypothesis for small samples to draw the inferences and estimate the goodness of fit
C223 Control Systems	CO1. Determine the transfer function of physical systems using block diagram algebra and signal flow graphs.
	CO2. Determine time response specifications of second order systems and error constants.
	CO3. Analyze absolute and relative stability of LTI systems using Routh's stability criterion and root locus method.
	CO4. Analyze the stability of LTI systems using frequency response methods.
	CO5. design Lag, Lead, Lag-Lead compensators to improve system performance
	CO6. Understand the State Space Analysis of Continuous systems.
C224 Electrical Machines - II	CO1.To understand the principle of operation and power developed in 3-phase induction motor.
	CO2.To understand the performance and various starting methods of induction motor.
	CO3.To understand the concept of double revolving field theory and applications of a.c series motor.
	CO4.To understand the armature winding designs, armature reaction and regulation concept of synchronous generator
	CO5.To understand the performance characteristics of synchronous motor
C225 Universal Human Values 2. Understanding Harmony	CO1.Holistic vision of life and Socially responsible behavior
	CO2.Environmentally responsible work
	CO3.Ethical Human conduct
	CO4.Having Competence and Capabilities for Maintaining Health and Hygiene
	CO5.Appreciation and aspiration for excellence (merit) and gratitude for all
C226 Data Structures Lab	CO1. Use various searching and sorting algorithms.
	CO2.Use basic data structures such as arrays and linked list.
	CO3.Implement various data structures like stacks, queues, trees & graphs, and use them for various applications
C227 Control Systems Lab	CO1.Analyze the performance and working of magnetic amplifier, DC & AC servo motors and synchro's.
	CO2. Design of lag, lead and lag–lead compensators
	CO3. Determine the transfer function of DC Motor
	CO4. Verify the Boolean expressions using PLC
	CO5.Test the controllability and observability. Judge the stability in both time and frequency domain.
C228 Electrical Machines – II Lab	CO1.Able to learn the speed control methods of three phase induction motor
	CO2.Able to understand the performance characteristics of three phase and single phase induction motors

	CO3.Able to understand the concept of power factor improvement in single phase induction motor
	CO4.Able to understand the various voltage regulation methods in three phase alternator.
C229 IoT Applications of Electrical Engineering	CO1.Apply various technologies of Internet of Things to real time applications.
	C02.Apply various communication technologies used in the Internet of Things.
	CO3. Connect the devices using web and internet in the IoT environment.
	CO4.Implement IoT to study Smart Home, Smart city, etc.
	CO1.Apply various technologies of Internet of Things to real time applications.
C2210 Critical Reading and Creative Writing	CO1. Understand and explain the characteristics of a literary text.
	CO2. Critically analyze the quality of a Short Story
	CO3. Produce essays like personal essays or descriptive essays applying the principles of good writing.
	CO4. Identify facts, themes and critical ideas in a passage.
	CO5. Articulate an awareness of the basic elements of a speech.
III-I (AY-2022-2023)	
C311 Electrical Power Generation & Transmission	CO1.Understand the function of different components of thermal and nuclear power plants.
	CO2.Identify the different components of air and gas insulated substations.
	CO3.Evaluate the different parameters of transmission lines.
	CO4. Model and evaluate the performance of different transmission lines
	CO5.Analyze the various electrical factors governing the performance of transmission lines and understand the concepts of sag and string efficiency
C312 Electrical Measurements & Instrumentation	CO1 Able to choose right type of instrument for the measurement of voltage and current for ac and dc
	CO2 Able to choose right type of instrument for the measurement of single and three phase power
	CO3 Able to measure energy using energy meters and understand the working of instrument transformers
	CO4 Able to select suitable bridge for the measurement of electrical parameters
	CO5 Able to understand about electronic instruments and transducers
C313 Power Electronics	CO1.Explain the characteristics of various power semiconductor devices and analyze the static and dynamic characteristics of SCR's. And design of firing circuits of SCR.
	CO2.Explain the operation of single phase full–wave converters and three phase full–wave converters.
	CO3.Analyze the operation of different types of DC-DC converters.
	CO4. Explain the operation of inverters and application of PWM techniques for voltage control.
	CO5. Explain the operation of AC-AC regulators.

C314 Object Oriented Programming through Java	CO1.Able to realize the concept of Object Oriented Programming & Java Programming Constructs
	CO2.Able to describe the basic concepts of Java such as, classes, objects, packages, Enumeration and various keywords
	CO3.Develop applications using various types of Inheritance and Interfaces.
	CO4.Able to handle exceptions and perform various input/output operations on strings and files.
	CO5.Write programs using multithreading and interface with databases from Java program.
C315 Pulse and Digital Circuits	CO1.Design linear wave shaping circuits such as RC, RL and RLC and apply the fundamental concepts of wave shaping for various switching and signal generating circuits.
	CO2. Design non-linear wave shaping circuits such as clippers and clampers and apply the fundamental concepts of wave shaping for various switching and signal generating circuits.
	CO3. Design different Multivibrators and apply the fundamental concepts to various digital circuits.
	CO4. Design different time base generators and can be used in different display devices
	CO5. Utilize the logic families, sampling gates and non-sinusoidal signals in many experimental research areas.
C316 Electrical Measurements Lab	CO1.To measure resistance, inductance and capacitance by using different bridges
	CO2. To measure 3-Φ active power and reactive power using different methods. C316.3. To calibrate and test single phase energy meter, PMMC voltmeter and LPF wattmeter
	CO3. To calibrate and test single phase energy meter, PMMC voltmeter and LPF wattmeter
	CO4. To test transformer oil for its effectiveness.
	CO5. To measure the parameters of inductive coil
C317 Power Electronics Lab	CO 1. Able to study the characteristics of various power electronic devices and analyze gate drive circuits of IGBT.
	CO 2. Able to analyze the performance of single–phase and three–phase full–wave bridge converters with both resistive and inductive loads.
	CO 3. Able to understand the operation of single-phase AC voltage regulator and Cyclo-converter with resistive and inductive loads.
	CO 4. Able to understand the working of Buck converter, Boost converter, single–phase square wave inverter and PWM inverter.
C318 Advanced English Communication Skills Lab	CO1. Choose vocabulary contextually.
	CO2. Comprehend, analyze and interpret the text in a definite time frame.
	CO3. Write resumes cohesively and coherently.
	CO4. Construct and elaborate on a given topic.
	CO5. Comprehend and practice the dynamics of group discussion.

	CO6. Comprehend the concept and process of interview; answering through mock interviews.
C319 Intellectual Property Rights and Patents	CO1. Understand the fundamentals of Intellectual Property Law, its types, registration processes, and issues related to infringement, overuse, and misuse.
	CO2. Explain the principles of Copyright Law, including subject matters, ownership rights, derivative works, distribution rights, and infringement issues.
	CO3. Analyze Patent Law concepts, covering rights, limitations, application processes, international laws, and recent developments in patent regulations.
	CO4. Demonstrate knowledge of Trademark and Trade Secret Laws, including registration, maintenance, infringement, litigation, and international legal frameworks.
	CO5. Apply key concepts of Cyber Law, focusing on the Information Technology Act, cybercrimes, data security, privacy, and international dimensions of online crime.
C3110 Summer Internship	CO1. Develop a comprehensive company profile by compiling key details, including history, management structure, products/services, achievements, and market performance of the internship organization.
	CO2. Conduct a SWOT (Strengths, Weaknesses, Opportunities, and Threats) analysis to evaluate the strategic position of the internship organization.
	CO3. Identify the challenges faced by the internship organization and assess its future growth potential within the industry sector.
	CO4. Apply theoretical knowledge to real-world scenarios by successfully executing assigned tasks during the internship period.
	CO5. Demonstrate essential soft skills, including time management, effective communication, and a positive work attitude, while performing tasks in the internship organization.
	CO6. Critically analyze the operational processes of the internship organization and propose recommendations for improvement.
III-II (AY-2022-2023)	
C321 Electric Drives	CO1. To learn the fundamentals of electric drive and different electric braking methods.
	CO2. To analyze the operation of three phase converter fed DC motors and four quadrant operation of DC motors using dual converters
	CO3. To discuss the converter control of dc motors in various quadrants.
	CO4. To understand the concept of speed control of an induction motor by using different power electronic converters
	CO5. To understand the control mechanism of synchronous motor drives
C322 Power Systems Analysis	CO1 Develop the per unit reactance diagram and form the Y-bus matrix for a power system network.
	CO2 Apply different load flow solution techniques to solve power system load flow problems.

	CO3 Construct the Z-bus matrix for power system networks using appropriate algorithms..
	CO4 Calculate symmetrical and unsymmetrical fault currents to aid in the design and selection of protective devices.
	CO5 Analyze the steady-state, transient, and dynamic stability of power system networks.
C323 Microprocessors & Microcontrollers	CO 1. Explain the 8086 microprocessor architecture and memory segmentation.
	CO 2. Write assembly language programs using 8086 instructions.
	CO 3. Demonstrate interrupt handling and memory interfacing in 8086.
	CO 4. Interface peripheral devices like 8255 PPI, stepper motors, and ADC/DAC with 8086.
	CO 5. Describe the 8051 microcontroller architecture and programming.
C324 Renewable Energy Systems	CO1 Analyze solar radiation data, extra-terrestrial radiation, and radiation on earth's surface.
	CO2 Design solar thermal collectors, solar thermal plants.
	CO3 Design solar photo voltaic systems and understand the MPPT concept.
	CO4 Explain wind energy conversion systems, wind generators, power generation and MPPT
	CO5 Explain basic principle and working of hydro, tidal, biomass, fuel cell and geothermal systems.
C325 Data Base Management Systems	CO1. Understand database concepts and the use of data models in describing database
	CO2. Create, maintain and manipulate a relational database using SQL
	CO3. Understand the importance of schema refinement & be able to refine the schema
	CO4. Understand how the DBMS manages the execution of transactions
	CO5. Understand and differentiate various file organizations for the representation of data
C326 Microprocessors & Microcontrollers Lab	CO1. Develop and execute 8086 and 8051 Assembly Language Programs (ALPs) to perform arithmetic, logical, and string operations using various addressing modes.
	CO2. Execute sorting algorithms, factorial computation, and bitwise manipulation in Assembly Language for efficient data processing using 8086.
	CO3. Demonstrate the ability to interface 8086 microprocessors with ADC, DAC, and stepper motor modules for real-time applications.
	CO4. Implement and verify timer/counter operations, UART communication, and LCD interfacing using 8051 microcontrollers.
	CO 5. Develop microcontroller based embedded applications such as traffic light controllers and serial/parallel communication systems.
	CO1. Analyze insulation characteristics through leakage current, breakdown, and dielectric strength tests using High voltage testing set-up.

C327 Power Systems Lab	CO2. Evaluate transmission line parameters and calibrate the given Tong tester using standard instrument..
	CO3. Evaluate Sequence impedances of 3phase alternator and load flow analysis using Gauss-Seidel methods.
	CO4. Optimize power system operation through transient stability and load frequency control.
C328 Electrical Simulation Lab	CO1. Analyze the performance of Basic circuits with different input signals.
	CO2. Analyze the balanced and unbalanced three phase circuit's behavior.
	CO3. Analyze opamp based circuits.
	CO4. Analysis of different power converters by using PSPICE and MATLAB software.
C329 Design of Photo Voltaic Solar Power System	CO1. Design and analyze solar PV systems using MATLAB
	CO2. Evaluate the effects of temperature and irradiation on PV performance.
	CO3. Design and analyze solar PV systems using PVsyst
	CO4. Evaluate solar PV systems for grid/off-grid solar plants.
C3210 Research Methodology	CO1. Understand the Fundamentals of Research and Research Methodology
	CO2. Conduct a Comprehensive Literature Survey and Review.
	CO3. Design a Research Study Using Proper Methodologies
	CO4. Analyze and Interpret Data Using Statistical and Mathematical Methods
	CO5. Prepare, Document, and Present Research Findings Professionally
C3211 Communitive Service Project	CO1. Positive impact on students' academic learning
	CO2. Improves students' ability to apply what they have learned in "the real world"
	CO3. Greater interpersonal development, leadership, and communication skills
	CO4. Improved social responsibility and citizenship skills
	CO5. Connections with professionals and community members for career opportunities
IV-I (AY-2023-2024)	
C411 High Voltage DC Transmission	CO1. The objective is to discuss phenomena of corona, losses, audible noise, radio interference and measurement of these quantities.
	CO2. To understand the phenomena of HVDC, HVDC equipment comparison with AC and the latest state of art in HVDC transmission.
	CO3.To understand method of conversion of AC to DC, performance of various level of pulse conversion and control characteristics of conversion.
	CO4. To understand the requirements of reactive power control and filtering technique in HVDC system
	CO5. To understand the harmonics in AC side of power line in a HVDC system and design of filters for various levels of pulse conversion.

C412 Utilization of Electrical Energy	CO1Able to identify the most appropriate electric heating and welding techniques for specific applications
	CO2 Able to develop a clear idea on various illumination techniques and hence design lighting scheme for specific applications.
	CO3Able to understand the operation and principle of different types of lamps.
	CO4Able to determine the speed/time characteristics of different types of traction motors.
	CO5 Able to estimate energy consumption levels at various modes of operation.
C413 Special Electrical Machines	CO1 Explain the performance and control of stepper motors, and their applications.
	CO2 Explain the theory of operation and control of switched reluctance motor.
	CO3 Understand the properties of magnetic materials and acquire the knowledge on PMBLDC
	CO4 Analyse the control and performance of permanent magnet synchronous motors.
	CO5 Acquire the knowledge on hysteresis, synchronous reluctance and repulsion motors.
C414 Operating Systems	CO1. Describe various generations of Operating System and functions of Operating System.
	CO2. Understand process management & various CPU scheduling algorithms.
	CO3. Apply the principles of concurrency, Design deadlock prevention and avoidancealgorithms.
	CO4. Compare and Contrast various memory management schemes.
	CO5. Design and Implement a prototype file systems and system protection.
C415 VLSI System Design	CO1. Identify the various IC fabrication methods.
	CO2. To use mathematical methods and circuit models in the analysis of CMOS digital electronic circuits.
	CO3. Express the Layout of simple MOS circuit using Lambda based design rules.
	CO4. To apply the scaling factors in determining the efficient MOS circuits for current semiconductor technology.
	CO5. To design the concepts of VLSI Subsystems.
C416 Fundamentals of Entrepreneurship	CO1. Understand the concept and importance of entrepreneurship.
	CO2. Know the various means of generating business ideas.
	CO3. Know the various legal aspects involved in forming the business.
	CO4. Able to write a business plan.
	CO5. Know the role of Government and Various Agencies in promoting entrepreneurship
	CO1. Understand the basics of Jupyter Notebook and Google Colaboratory Notebook.
	CO2. Learn the different Python libraries like Pandas, Scikit-learn, Matplotlib, NumPy and Seaborn and their applications.

C417 Machine Learning with Python for Electrical Engineers	CO3. Apply machine learning algorithms like Random Forest, Logistic Regression, K-Nearest Neighbour, Naive Bayes, Decision Tree, and Support Vector Machines for LG, LL, and LLL fault prediction
C418 Industrial/Research Internship	CO1**.** Develop a comprehensive company profile by compiling key details, including history, management structure, products/services, achievements, and market performance of the internship organization.
	CO2**.** Conduct a SWOT (Strengths, Weaknesses, Opportunities, and Threats) analysis to evaluate the strategic position of the internship organization.
	CO3**.** Identify the challenges faced by the internship organization and assess its future growth potential within the industry sector.
	CO4**.** Apply theoretical knowledge to real-world scenarios by successfully executing assigned tasks during the internship period.
	CO5**.** Demonstrate essential soft skills, including time management, effective communication, and a positive work attitude, while performing tasks in the internship organization.
	CO6**.** Critically analyze the operational processes of the internship organization and propose recommendations for improvement.
IV-II **(AY-2023-2024)**	
C421 Project	CO1. Identify and explore a research problem in advanced areas of Electrical and Electronics Engineering, considering recent technological trends.
	CO2. Conduct a comprehensive literature review to define the problem statement, objectives, and scope, ensuring relevance to real-world applications.
	CO3. Select and implement appropriate hardware and/or software tools for designing, developing, and testing the proposed solution.
	CO4. Apply systematic engineering processes, including simulation, prototyping, and validation, while considering societal, environmental, and ethical aspects.
	CO5. Effectively manage project activities, including teamwork, scheduling, and resource allocation, to ensure timely and successful completion.
	CO6. Analyze, document, and present the project findings in a structured technical report and defend the work through an effective presentation.

3.1 ESTABLISH THE CORRELATION BETWEEN COURSES AND POS &PSOS

COURSE ARTICULATION AND PROGRAM ARTICULATION MATRIX

2020-2024 ADMITTED BATCH

I –I (AY 2020-2021)

C111	**Mathematics-I**														
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C111.1	3	3	3	3	-	-	-	-	3	-	-	3	3	-	3
C111.2	3	3	3	3	-	-	-	-	3	-	-	3	3	-	3
C111.3	3	2	3	2	-	-	-	-	3	-	-	3	3	-	3
C111.4	3	3	2	2	-	-	-	-	3	-	-	3	3	-	3
C111.5	3	3	3	3	-	-	-	-	3	-	-	3	3	-	3
C111	**3**	**2.8**	**2.8**	**2.6**	**-**	**-**	**-**	**-**	**3**	**-**	**-**	**3**	**3**	**-**	**3**
C112	**Applied Chemistry**														
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C112.1	3	-	3	2	--	3	3	-	-	-	-	3	-	2	-
C112.2	3	3	3	-	2	2	2	-	-	-	2	-	-	2	-
C112.3	3	3	3	3	-	2	3	-	-	-	3	2	-	3	2
C112.4	3	2	-	-	-	2	--	-	-	-	-	2	-	2	2
C112.5	3	3	3	3	3	-	2	-	3	-	2	3	-	2	2
C112	**3**	**-**	**3**	**2**	**-**	**3**	**3**	**-**	**-**	**-**	**-** **-**	**3**	**-**	**2.2**	**2**

C113	Communicative English														
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C113.1	-	-	-	-	-	-	-	3	3	3	-	3	-	3	-
C113.2	-	-	-	-	-	-	-	3	3	3	-	3	-	3	-
C113.3	-	-	-	-	-	-	-	3	3	3	-	3	-	3	-
C113.4	-	-	-	-	-	-	-	3	3	3	-	3	-	3	-
C113.5	-	-	-	-	-	-	-	3	3	3	-	3	-	3	-
C113	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**3**	**3**	**3**	**-**	**3**	**-**	**3**	**3**
C114	**Engineering Graphics & Design**														
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C114.1	3	-	2	-	2	-	-	-	-	2	-	1	2	-	
C114.2	3	3	3	-	2	-	-	-	-	3	-	2	3	-	2
C114.3	3	3	3	-	2	-	-	-	-	3	-	2	3	-	2
C114.4	3	3	3	-	2	-	-	-	-	3	-	2	3	-	2
C114.5	3	3	3	-	2	-	-	-	-	3	-	2	3	-	2
C114	**3**	**3**	**2.8**	**-**	**2**	**-**	**-**	**-**	**-**	**2.8**	**-**	**3**	**2.8**	**-**	**2**
C115	**Computational Thinking and Programming**														
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C115.1	3	3	3	3	2	-	-	-	-	-	2	3	3	2	2
C115.2	3	3	3	3	3	-	-	-	-	-	2	3	3	3	3
C115.3	3	3	3	3	3	-	-	-	-	-	2	3	3	3	3
C115.4	3	3	3	3	3	-	-	-	-	-	2	3	3	3	3
C115.5	3	3	3	3	3	-	-	-	-	-	2	3	3	3	3
C115	**3**	**3**	**3**	**3**	**2.80**	**-**	**-**	**-**	**-**	**-**	**2**	**3**	**3**	**2.8**	**2.8**

C116	English Communication Skills Lab														
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C116.1	-	-	-	-	-	-	-	3	3	3	-	3	-	3	-
C116.2	-	-	-	-	-	-	-	3	3	3	-	3	-	3	-
C116.3	-	-	-	-	-	-	-	3	3	3	-	3	-	3	-
C116.4	-	-	-	-	-	-	-	3	3	3	-	3	-	3	-
C116.5	-	-	-	-	-	-	-	3	3	3	-	3	-	3	-
C116	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**3**	**3**	**3**	**-**	**-**	**-**	**3**	**-**
C117	**Applied Chemistry Lab**														
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C117.1	3	2	2	3	-	3	2	3	3	-	3	3	-	-	-
C117.2	2	2	-	-	-	-	-	2	-	-	-	-	2	-	-
C117.3	3	3	3	3	-	3	3	3	3	-	3	3	2	-	-
C117.4	3	3	-	3	3	-	2	-	3	-	-	-	3	-	-
C117.5	2	2	-	-	-	-	-	-	-	-	-	3	2	-	-
C117.6	2	2	-	-	3	2	3	3	3	-	3	-	3	-	-
C117	**2.5**	**2.33**	**2.5**	**3**	**3**	**2.66**	**2.5**	**2.75**	**3**	**-**	**3**	**3**	**2.4**	**-**	**-**
C118	**Computational Thinking & Programming Lab**														
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C118.1	3	3	2	3	3	-	-	-	2	-	-	3	3	2	3
C118.2	3	3	3	3	3	-	-	-	2	-	-	3	3	3	3
C118.3	3	3	3	3	3	-	-	-	2	-	-	3	3	3	3
C118.4	3	3	3	3	3	-	-	-	2	-	-	3	3	3	3
C118	**3**	**3**	**2.75**	**3**	**3**	**-**	**-**	**-**	**2**	**-**	**-**	**3**	**3**	**2.75**	**3**

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C121	Mathematics – II														
COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
C121.1	3	3	3	3	-	-	-	-	3	-	-	3	3	-	3
C121.2	3	3	3	3	-	-	-	-	3	-	-	3	3	-	3
C121.3	3	2	3	3	-	-	-	-	3	-	-	3	3	-	3
C121.4	3	3	2	3	-	-	-	-	3	-	-	3	3	-	3
C121.5	3	3	3	3	-	-	-	-	3	-	-	3	3	-	3
C121	**3**	**2.8**	**2.8**	**3**	**-**	**-**	**-**	**-**	**3**	**-**	**-**	**3**	**3**	**-**	**3**
C122	**Applied Physics**														
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C122.1	3	3	3	3	-	3	-	-	3	-	-	3	-	-	3
C122.2	3	3	3	3	3	3	3	-	3	-	-	3	3	3	3
C122.3	3	2	3	-	2	3	-	-	3	-	-	3	3	3	3
C122.4	3	3	-	-	3	-	-	-	3	-	-	3	-	-	-
C122.5	3	3	3	3	3	3	3	-	3	-	-	3	3	3	3
C122	**3**	**2.8**	**3**	**3**	**2.75**	**3**	**3**	**-**	**3**	**-**	**-**	**3**	**3**	**3**	**3**
C123	**Programming for Problem Solving**														
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C123.1	3	2	2	-	-	-	-	-	-	2	-	2	2	2	-
C123.2	3	3	3	-	2	-	-	-	2	2	-	2	3	3	2
C123.3	3	3	3	2	3	-	-	-	2	3	2	3	3	3	3
C123.4	3	3	3	2	3	-	-	-	3	3	3	3	3	3	3
C123.5	3	3	3	3	3	-	2	-	3	3	3	3	3	3	-
C123	**3**	**2.8**	**2.8**	**2.33**	**2.75**	**-**	**2**	**-**	**2.5**	**2.6**	**2.67**	**2.6**	**2.8**	**2.8**	**2.67**

C124	Electrical Circuit Analysis - I														
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C124.1	3	2	1	2	2	1	1	-	-	1	-	2	3	1	2
C124.2	3	2	2	2	2	1	1	-	-	1	-	2	3	1	2
C124.3	3	2	2	2	3	1	2	-	-	1	-	2	3	2	3
C124.4	3	2	3	3	3	1	2	-	-	1	-	2	3	2	3
C124.5	3	3	3	3	3	1	2	-	-	2	-	2	3	2	3
C124	**3**	**2.2**	**2.2**	**2.4**	**2.6**	**1**	**1.6**	**-**	**-**	**1.2**	**-**	**3**	**3**	**1.6**	**2.6**
C125	**Elements of Civil and Mechanical Engineering**														
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C125.1	3	3	2	-	3	-	-	-	-	-	-	-	3	2	-
C125.2	3	2	3	-	2	-	-	-	-	-	-	-	3	3	-
C125.3	3	3	3	3	3	-	-	-	-	2	-	3	3	3	3
C125.4	3	3	3	2	3	-	-	-	-	2	2	2	3	3	2
C125.5	3	2	2	3	3	3	3	-	-	2	-	3	3	3	3
C125	**3.0**	**2.6**	**2.6**	**2.7**	**2.8**	**3.0**	**3.0**	**-**	**-**	**2.0**	**2.0**	**2.7**	**3**	**2.8**	**2.7**
C126	**Programming for Problem Solving Lab**														
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C126.1	3	2	-	-	2	-	-	-	-	-	-	2	3	2	-
C126.2	3	3	2	2	2	-	-	-	-	-	-	3	3	3	2
C126.3	3	3	3	3	3	-	-	-	-	-	-	3	3	3	3
C126.4	3	3	3	3	3	-	-	-	2	3	2	3	3	3	3
C126	**3**	**2.75**	**2.67**	**2.67**	**2.5**	**-**	**-**	**-**	**2**	**3**	**2**	**2.75**	**3**	**2.75**	**2.67**

C127	Applied Physics Lab														
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C127.1	3	3	2	3	3	3	-	-	-	-	-	-	3	-	-
C127.2	3	3	3	-	3	3	-	-	-	-	-	-	3	-	-
C127.3	3	3	3	-	3	3	-	3	-	3	3	3	3	-	-
C127.4	3	-	3	-	3	3	-	-	-	-	-	-	3	-	-
C127.5	3	3	3	-	3	3	-	3	-	3	3	3	3	-	-
C127	**3**	**3**	**2.8**	**3**	**3**	**3**	**-**	**3**	**-**	**3**	**3**	**3**	**3**	**-**	**-**
C128	**Workshop (Electrical & IT)**														
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C128.1	3	2	3-	2	3	3	-	-	2	2	2	3	3	2	2
C128.2	3	3	3	2	3	3	-	-	2	2	2	3	3	3	3
C128.3	2	2	3-	2	3	3	-	-	2	3	2	3	3	3	3
C128.4	2	2	3	2	3	3	-	-	2	3	2	3	3	3	3
C128.5	3	3	2	2	3	3	-	-	2	2	2	3	3	3	3
C128	**2.6**	**2.4**	**1.6**	**2**	**3**	**3**	**-**	**-**	**2**	**2**	**2**	**3**	**3.00**	**2.80**	**2.80**
C129	**Constitution of India**														
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C129.1	3	2	2	-	-	3	-	3	-	2	2	2	-	3	-
C129.2	3	2	2	-	-	3	-	3	-	3	3	2	-	3	-
C129.3	3	3	3	-	-	3	-	2	-	2	2	3	-	3	-
C129.4	3	2	2	-	-	3	-	2	-	2	3	2	-	3	-
C129.5	3	2	2	-	-	3	-	2	-	2	3	2	-	3	-
C129	**3**	**2.2**	**2.2**	**-**	**-**	**3**	**-**	**-**	**-**	**-**	**2.6**	**2.2**	**-**	**3**	**-**

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C211	Mathematics – III														
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C211.1	2	2	-	-	2	-	-	-	-	-	-	-	3	-	3
C211.2	2	2	-	-	2	-	-	-	-	-	-	-	3	-	3
C211.3	2	2	-	-	2	-	-	-	-	-	-	-	3	-	3
C211.4	3	3	2	-	3	-	-	-	-	-	-	-	3	-	3
C211.5	3	3	2	-	3	-	-	-	-	-	-	-	3	-	3
C211	2.4	2.4	2	-	2.4	-	-	-	-	-	-	-	3	-	3
C212	**Electrical Circuit Analysis - II**														
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C212.1	3	3	3	3	3	-	-	-	-	-	-	3	3	3	3
C212.2	3	3	3	3	3	-	-	-	-	-	-	3	3	3	3
C212.3	3	3	3	3	3	-	-	-	-	-	-	3	3	3	3
C212.4	3	2	2	2	2	-	-	-	-	-	-	2	3	2	2
C212.5	3	3	3	3	3	-	-	-	-	-	-	3	3	3	3
C212	**3**	**2.8**	**2.8**	**2.8**	**2.8**	**0**	**0**	**0**	**0**	**0**	**0**	**2.8**	**3**	**2.80**	**2.80**
C213	**Electromagnetic Fields**														
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C213.1	3	2	2	3	2	-	-	-	-	-	-	2	3	1	3
C213.2	3	3	2	2	2	-	-	-	-	-	-	2	3	2	3
C213.3	3	3	2	3	2	-	-	-	-	-	-	2	3	2	3
C213.4	3	2	2	3	2	-	-	-	-	-	-	2	3	1	3
C213.5	3	2	2	3	2	-	-	-	-	-	-	2	3	2	3
C213.6	3	3	2	3	2	-	-	-	-	-	-	2	3	1	3
C213	**3**	**2.5**	**2**	**2.8**	**2**	**-**	**-**	**-**	**-**	**-**	**-**	**2**	**3.00**	**1.60**	**3.00**

C214	Electronics Devices & Circuits														
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C214.1	3	3	1	1	3	-	-	-	-	1	-	3	3	1	2
C214.2	3	3	2	2	3	-	-	-	-	1	-	3	3	1	3
C214.3	3	3	2	2	3	-	-	-	-	1	-	3	3	2	3
C214.4	3	3	2	2	3	-	-	-	-	1	-	3	3	2	3
C214.5	3	3	3	3	3	-	-	-	-	2	-	3	3	2	3
C214	**3**	**3**	**2**	**2**	**3**	**-**	**-**	**-**	**-**	**1**	**-**	**3**	**3**	**1.6**	**2.8**
C215	**Electrical Machines -I**														
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C215.1	3	2	2	2	2	-	2	-	-	2	-	2	3	2	3
C215.2	3	3	3	3	3	-	2	-	-	2	-	2	3	2	3
C215.3	3	3	3	3	3	-	2	-	-	2	-	3	3	3	3
C215.4	3	3	3	3	3	-	2	-	-	2	-	3	3	3	3
C215.5	3	3	3	3	3	-	2	-	-	2	-	3	3	3	3
C215	**3**	**2.8**	**2.8**	**2.8**	**2.6**	**-**	**2**	**-**	**-**	**2**	**-**	**2.6**	**3**	**2.6**	**3**
C216	**Environmental Science**														
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C216.1	3	-	2	-	-	3	3	3	-	-	-	2	-	2	-
C216.2	3	-	-	-	-	3	3	3	-	-	-	2	-	2	-
C216.3	-	-	-	-	-	3	3	3	-	-	-	-	-	2	-
C216.4	3	3	3	3	2	2	3	3	2	-	2	2	-	2	-
C216.5	2	2	2	2	-	-	3	3	-	-	2	-	-	2	-
C216	**2.75**	**2.5**	**2.33**	**2.5**	**2.0**	**2.75**	**3.0**	**3.0**	**2.0**	**-**	**2.0**	**2.0**	**-**	**2**	**-**
C217	**Electrical Machines –I Lab**														
COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
C217.1	3	3	2	2	3	-	-	-	2	-	-	3	3	2	3
C217.2	3	3	3	3	3	-	-	-	3	-	-	3	3	3	3

C217.3	3	2	3	3	3	-	-	-	3	-	-	3	3	3	3
C217.4	3	3	3	3	3	-	-	-	3	-	-	3	3	3	3
C217.5	3	3	3	3	3	-	-	-	3	-	-	3	3	3	3
C217.6	3	3	2	2	3	-	-	-	2	-	-	3	3	2	3
C217	**3**	**2.83**	**2.67**	**2.67**	**3**	**-**	**-**	**-**	**2.67**	**-**	**-**	**3**	**3**	**2.67**	**3**
C218	**Electronics Devices & Circuits Lab**														
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C218.1	3	2	2	2	3	-	-	-	3	-	-	2	3	3	3
C218.2	3	3	3	3	3	-	-	-	3	-	-	3	3	3	3
C218.3	3	3	3	3	3	-	-	-	3	-	-	2	3	3	3
C218.4	3	3	3	3	3	-	-	-	3	-	-	3	3	3	3
C218	**3**	**2.75**	**2.75**	**2.75**	**3**	**-**	**-**	**-**	**3**	**-**	**-**	**2.5**	**3**	**3**	**3**
C219	**Electrical Circuit Analysis Lab**														
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C219.1	3	2	2	2	2	-	-	-	-	-	-	2	3	2	2
C219.2	3	3	3	3	3	-	-	-	-	-	-	3	3	3	3
C219.3	3	3	3	3	3	-	-	-	-	-	-	3	3	3	3
C219.4	3	3	3	3	3	-	-	-	-	-	-	3	3	3	3
C219	**3**	**2.75**	**2.75**	**2.75**	**2.75**	**-**	**-**	**-**	**-**	**-**	**-**	**2.75**	**3**	**2.75**	**2.75**
C2110	**Skill oriented course Design of Electrical Circuits using Engineering Software Tools**														
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C2110.1	3	3	3	3	3	-	-	-	3	-	-	2	3	3	3
C2110.2	3	3	3	3	3	-	-	-	3	-	-	3	3	3	2
C2110.3	3	3	3	2	3	-	-	-	3	-	-	2	3	3	2
C2110.4	3	2	2	3	3	-	-	-	3	-	-	3	3	3	3
C2110.5	3	2	2	3	3	-	-	-	3	-	-	3	3	3	3
C2110	**3**	**2.6**	**2.6**	**2.8**	**3**	**-**	**-**	**-**	**3**	**-**	**-**	**2.6**	**3**	**3**	**2.6**

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C221	Digital Logic Design														
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C221.1	3	3	2	1	2	2	-	-	-	-	-	2	3	-	2
C221.2	3	3	2	2	3	3	-	-	-	-	-	3	3	-	3
C221.3	3	3	3	2	3	3	-	3	2	-	1	3	3	2	3
C221.4	3	3	3	3	3	3	-	3	3	-	2	3	3	2	3
C221.5	3	3	3	3	3	3	-	3	3	-	3	3	3	3	3
C221	**3**	**3**	**2.6**	**3**	**2.8**	**2.8**	**-**	**3**	**2.66**	**-**	**2**	**2.8**	**3.0**	**2.3**	**2.8**
C222	**Mathematics-IV**														
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C222.1	3	3	3	-	3	-	-	-	3	-	-	-	3	3	-
C222.2	3	3	2	-	2	-	-	-	2	-	-	-	3	3	-
C222.3	3	2	3	-	3	-	-	-	3	-	-	-	3	3	-
C222.4	3	3	3	-	3	-	-	-	3	-	-	-	3	3	-
C222.5	3	3	3	-	3	-	-	-	3	-	-	-	3	3	-
C222	**3**	**2.8**	**2.8**		**2.8**	**-**	**-**	**-**	**2.8**	**-**	**-**	**-**	**3**	**3**	**-**
C223	**Control Systems**														
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C223.1	3	3	2	3	-	-	-	-	-	-	-	-	3	-	-
C223.2	3	3	2	-	-	-	-	-	-	-	-	-	3	-	-
C223.3	3	3	2	3	-	-	-	-	-	-	-	-	3	-	3
C223.4	3	3	2	3	2	-	-	-	-	-	-	-	3	-	3
C223.5	3	3	3	3	3	-	-	-	-	-	-	-	2	3	3
C223.6	3	2	3	-	-	-	-	-	-	-	-	3	2	3	3
C223	**3**	**2.83**	**2.33**	**3**	**3**	**-**	**-**	**-**	**-**	**-**	**-**	**3**	**2.66**	**3**	**3**

C224	Electrical Machines - II														
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C224.1	3	3	3	3	3	2	2	-	2	2	2	3	3	2	3
C224.2	3	3	3	3	3	3	3	-	3	2	2	3	3	3	3
C224.3	3	3	2	3	3	2	2	-	-	-	-	2	3	3	2
C224.4	3	3	3	3	3	2	3	-	2	3	2	3	3	3	3
C224.5	3	3	3	3	2	3	2	-	2	2	3	2	3	2	3
C224	**3**	**3**	**2.8**	**3**	**2.8**	**2.4**	**2**	**-**	**2**	**2**	**2**	**2.6**	**3**	**2.6**	**2.8**
C225	**Universal Human Values 2: Understanding Harmony**														
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C225.1	-	-	-	-	-	3	3	3	3	3	-	3	-	3	-
C225.2	-	-	-	-	-	3	3	3	3	3	-	3	-	3	-
C225.3	-	-	-	-	-	3	3	3	3	3	-	3	-	3	-
C225.4	-	-	-	-	-	3	3	3	3	3	-	3	-	3	-
C225.5	-	-	-	-	-	3	3	3	3	3	-	3	-	3	-
C225	**-**	**-**	**-**	**-**	**-**	**3**	**3**	**3**	**3**	**3**	**-**	**3**	**-**	**3**	**-**
C226	**Data Structures Lab**														
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C226.1	3	3	3	3	3	-	-	-	-	-	-	3	2	2	3
C226.2	3	3	3	3	3	-	-	-	-	-	-	3	2	2	2
C226.3	3	3	3	3	3	-	-	-	-	-	-	3	2	2	3
C226	**3**	**3**	**3**	**3**	**3**	**-**	**-**	**-**	**-**	**-**	**-**	**3**	**2**	**2**	**2.67**
C227	**Control Systems Lab**														
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C227.1	3	3	3	3	3	-	-	-	-	-	-	2	3	3	3
C227.2	3	3	3	3	3	-	-	-	-	-	-	3	3	3	2

C227.3	3	3	3	2	3	-	-	-	-	-	-	2	3	3	2
C227.4	3	2	2	3	3	-	-	-	-	-	-	3	3	3	3
C227.5	3	2	2	3	3	-	-	-	-	-	-	3	3	3	3
C227	**3**	**2.6**	**2.6**	**2.8**	**3**	**-**	**-**	**-**	**-**	**-**	**-**	**2.6**	**3**	**3**	**2.6**
C228	**Electrical Machines – II Lab**														
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C228.1	3	3	3	3	3	-	-	-	3	-	-	2	3	3	3
C228.2	3	3	3	3	2	-		-	3	-	-	3	3	3	2
C228.3	2	3	3	2	3	-	-	-	3	-	-	2	3	3	2
C228.4	3	2	2	3	3	-	-	-	3	-	-	3	3	3	3
C228	**2.75**	**2.75**	**2.75**	**2.75**	**2.75**	**-**	**-**	**-**	**3**	**-**	**-**	**2.5**	**3**	**3**	**2.5**
C229	**IoT Applications of Electrical Engineering**														
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C229.1	3	2	2	3	3	-	-	-	-	-	-	3	3	3	3
C229.2	3	3	3	3	3	-	-	-	-	-	-	3	3	3	3
C229.3	3	3	3	3	3	-	-	-	-	-	-	3	3	3	3
C229.4	3	3	3	3	3	-	-	-	-	-	-	3	3	3	3
C229	**3**	**2.75**	**2.75**	**3**	**3**	**-**	**-**	**-**	**-**	**-**	**-**	**3**	**3**	**3**	**3**
C2210	**Critical Reading and Creative Thinking**														
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C2210.1	-	-	-	-	-	-	-	3	3	3	-	3	-	3	-
C2210.2	-	-	-	-	-	-	-	3	3	3	-	3	-	3	-
C2210.3	-	-	-	-	-	-	-	3	3	3	-	3	-	3	-
C2210.4	-	-	-	-	-	-	-	3	3	3	-	3	-	3	-
C2210.5	-	-	-	-	-	-	-	3	3	3	-	3	-	3	-
C2210	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**3**	**3**	**3**	**-**	**3**	**-**	**3**	**-**

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C311	Electrical Power Generation & Transmission														
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C311.1	3	3	3	3	3	3	-	-	-	-	-	3	3	3	3
C311.2	3	2	3	3	3	3	-	-	-	-	-	3	3	3	2
C311.3	3	3	3	3	3	3	-	-	-	-	-	3	3	2	3
C311.4	3	3	3	3	3	3	-	-	-	-	-	2	3	3	3
C311.5	3	3	2	2	2	2	-	-	-	-	-	3	3	3	3
C311	**3**	**2.8**	**2.8**	**2.8**	**2.8**	**2.8**	**-**	**-**	**-**	**-**	**-**	**2.8**	**3**	**2.80**	**2.80**
C312	**Electrical Measurements & Instrumentation**														
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C312.1	3	3	3	3	3	3	-	-	-	-	-	3	3	3	3
C312.2	3	2	3	3	3	3	-	-	-	-	-	3	3	3	3
C312.3	3	3	3	3	3	3	-	-	-	-	-	3	3	3	3
C312.4	3	3	3	3	3	3	-	-	-	-	-	2	3	3	3
C312.5	3	3	2	2	2	2	-	-	-	-	-	3	3	3	3
C312	**3**	**2.8**	**2.8**	**2.8**	**2.8**	**2.8**	**-**	**-**	**-**	**-**	**-**	**2.8**	**3**	**3**	**3**
C313	**Power Electronics**														
COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
C313.1	2	3	3	2	3	-	-	-	-	-	3	2	3	3	2
C313.2	3	2	3	3	3	-	-	-	-	-	3	3	3	3	2
C313.3	3	3	3	3	3	-	-	-	-	-	2	3	3	3	3
C313.4	3	2	3	3	3	-	-	-	-	-	2	3	3	3	3
C313.5	3	3	2	2	3	-	-	-	-	-	3	3	3	3	3
C313	**2.8**	**2.6**	**2.8**	**2.6**	**3**	**-**		**-**	**-**	**-**	**2.6**	**2.8**	**3**	**3**	**2.6**

C314	Object Oriented Programming through Java														
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C314.1	3	3	2	-	3	-	-	-	2	2	-	3	3	2	2
C314.2	3	3	2	-	3	-	-	-	2	2	-	3	3	2	2
C314.3	3	3	3	2	3	-	-	-	2	2	-	3	3	3	3
C314.4	3	3	3	3	3	-	-	-	2	2	-	3	3	3	3
C314.5	3	3	3	3	3	-	-	-	2	3	-	3	3	3	3
C314	**3**	**3**	**2.6**	**2**	**3.0**	**-**	**-**	**-**	**2**	**2.2**	**-**	**3**	**3**	**2.6**	**2.6**
C315	**Pulse and Digital Circuits**														
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C315.1	3	3	3	3	3	-	-	-	-	-	3	-	3	3	2
C315.2	3	3	3	3	3	-	-	-	-	-	3	-	3	3	2
C315.3	3	3	3	3	3	-	-	-	-	-	3	-	3	3	3
C315.4	3	3	3	3	3	-	-	-	-	-	3	-	3	3	3
C315.5	3	3	2	2	3	-	-	-	-	-	3	-	3	3	3
C315	**3**	**3**	**2.8**	**2.8**	**3**	**-**	**-**	**-**	**-**	**-**	**3**	**-**	**3**	**3**	**2.6**
C316	**Electrical Measurements Lab**														
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C316.1	3	3	2	3	3	-	-	-	3	-	-	2	3	2	3
C316.2	3	3	3	3	3	-	-	-	3	-	-	3	3	3	3
C316.3	3	3	3	3	3	-	-	-	3	-	-	3	3	3	3
C316.4	3	2	3	2	2	-	-	-	3	-	-	3	3	3	2
C316.5	3	3	2	3	3	-	-	-	2	-	-	3	3	3	3
C316	**3**	**2.8**	**2.6**	**2.8**	**2.8**	**-**	**-**	**-**	**2.8**	**-**	**-**	**2.8**	**3**	**2.8**	**2.8**
C317	**Power Electronics Lab**														
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C317.1	3	3	3	3	3	-	-	-	3	-	-	2	3	3	3

C317.2	3	3	3	3	2	-	-	-	3	-	-	3	3	3	2
C317.3	2	3	3	2	3	-	-	-	3	-	-	2	3	3	2
C317.4	3	2	2	3	3	-	-	-	3	-	-	3	3	3	3
C317	**2.75**	**2.75**	**2.75**	**2.75**	**2.75**	**-**	**-**	**-**	**3**	**-**	**-**	**2.5**	**3**	**3**	**2.5**
C318	**Advanced English Communication Skills Lab**														
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C318.1	-	-	-	-	-	-	-	3	3	3	-	3	-	3	-
C318.2	-	-	-	-	-	-	-	3	3	3	-	3	-	3	-
C318.3	-	-	-	-	-	-	-	2	3	3	-	2	-	3	-
C318.4	-	-	-	-	-	-	-	3	3	3	-	3	-	3	-
C318.5	-	-	-	-	-	-	-	3	3	3	-	3	-	3	-
C318.6	-	-	-	-	-	-	-	3	3	3	-	3	-	3	-
C318	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2.83**	**3.00**	**3.00**	**-**	**2.83**	**-**	**3**	**-**
C319	**Intellectual Property Rights and Patents**														
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C319.1	2	2	-	-	-	2	-	3	-	2	-	-	-	-	2
C319.2	2	2	-	-	-	2	-	3	-	2	-	-	-	-	2
C319.3	2	3	-	2	-	2	-	3	-	2	2	-	-	2	3
C319.4	2	2	-	-	-	3	-	3	-	2	2	-	-	2	3
C319.5	2	3	-	-	2	3	-	3	-	3	-	2	-	2	3
C319	**2**	**2.4**	**-**	**-**	**2**	**2.4**	**-**	**3**	**-**	**2.2**	**-**	**2**	**-**	**2**	**2.6**
C3110	**Summer Internship**														
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C3110.1	2	-	-	-	-	-	-	-	-	3	-	-	-	2	-
C3110.2	2	3	-	-	-	-	-	-	-	2	-	-	-	2	-
C3110.3	3	2	3	2	-	-	-	-	-	2	2	-	-	3	-

C3110.4	3	2	3	3	3	-	3	-	-	2	3	-	3	3	3
C3110.5	-	-	-	-	-	3	-	3	3	3	2	2	-	3	-
C3110.6	2	-	2	3	-	-	-	-	-	3	2	3	2	3	2
C3110	**2.40**	**2.33**	**2.67**	**2.67**	**3.00**	**3.00**	**3.00**	**3.00**	**3.00**	**2.50**	**2.25**	**2.50**	**2.50**	**2.67**	**2.50**

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C321	Electric Drives														
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C321.1	3	3	3	3	3	3	-	-	-	-	-	3	3	3	3
C321.2	3	2	3	3	3	3	-	-	-	-	-	3	3	3	3
C321.3	3	3	3	3	3	3	-	-	-	-	-	3	3	3	2
C321.4	3	3	2	3	3	3	-	-	-	-	-	3	3	2	3
C321.5	3	3	2	2	2	2	-	-	-	-	-	3	3	3	3
C321	**3**	**2.8**	**2.6**	**2.8**	**2.8**	**2.8**	**-**	**-**	**-**	**-**	**-**	**3**	**3**	**2.80**	**2.80**
C322	**Power Systems Analysis**														
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C322.1	3	3	2	2	2	2	-	-	-	-	-	2	3	3	2
C322.2	3	2	3	3	3	3	-	-	-	-	-	3	3	2	3
C322.3	3	3	3	3	3	3	-	-	-	-	-	3	3	3	3
C322.4	3	3	3	3	3	3	-	-	-	-	-	3	3	3	3
C322.5	3	3	3	3	3	3	-	-	-	-	-	3	3	3	3
C322	**3**	**2.8**	**2.8**	**2.8**	**2.8**	**2.8**	**-**	**-**	**-**	**-**	**-**	**2.8**	**3**	**2.8**	**2.8**
C323	**Microprocessors & Microcontrollers**														
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C323.1	3	3	3	3	3	-	-	-	-	-	3	-	3	3	2
C323.2	3	3	3	3	3	-	-	-	-	-	3	-	3	3	2
C323.3	3	3	3	3	3	-	-	-	-	-	3	-	3	3	3

C323.4	3	3	3	3	3	-	-	-	-	-	3	-	3	3	3
C323.5	3	3	2	2	3	-	-	-	-	-	3	-	3	3	3
C323	**3**	**3**	**2.8**	**2.8**	**3**	**-**	**-**	**-**	**-**	**-**	**3**	**-**	**3**	**3**	**2.6**
C324	**Renewable Energy Systems**														
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C324.1	3	3	3	3	3	3	3	-	-	-	3	3	3	3	3
C324.2	3	2	3	3	3	3	3	-	-	-	3	3	3	3	2
C324.3	3	3	3	3	3	3	3	-	-	-	3	3	3	2	3
C324.4	3	3	3	3	3	3	3	-	-	-	3	2	3	3	3
C324.5	3	3	2	2	2	2	3	-	-	-	3	3	3	3	3
C324	**3**	**2.8**	**2.8**	**2.8**	**2.8**	**2.8**	**3**	**-**	**-**	**-**	**3**	**2.8**	**3**	**2.80**	**2.80**
C325	**Data Base Management Systems**														
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C325.1	3	3	2	2	2	-	-	-	2	3	-	3	3	2	2
C325.2	3	3	3	2	3	-	-	-	3	3	-	3	3	3	3
C325.3	3	3	3	3	3	-	-	-	2	3	-	2	3	3	3
C325.4	3	3	3	3	2	-	-	-	3	3	-	3	2	3	3
C325.5	3	3	2	2	2	-	-	-	2	3	-	3	3	2	3
C325	**3**	**3**	**2.6**	**3**	**3**	**-**	**-**	**-**	**2.4**	**3**	**-**	**2.8**	**2.8**	**2.6**	**2.8**
C326	**Microprocessors & Microcontrollers Lab**														
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C326.1	3	3	2	2	2	-	-	-	-	-	-	2	3	2	3
C326.2	3	3	2	2	2	-	-	-	-	-	-	2	3	2	2

C326.3	3	2	3	3	3	-	-	-	2	3	2	3	3	3	3
C326.4	3	2	3	3	3	-	-	-	2	3	2	3	3	3	3
C326.5	3	2	3	3	3	2	3	-	3	3	3	3	3	3	3
C326	**3**	**2.4**	**2.6**	**2.6**	**2.6**	**2**	**3**	**-**	**2.3**	**3**	**2.3**	**2.6**	**3**	**2.6**	**2.8**
C327	**Power Systems Lab**														
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C327.1	3	2	2	3	2	-	2	1	1	2	2	2	3	2	3
C327.2	3	3	2	3	2	-	2	1	1	2	2	2	3	2	3
C327.3	3	3	3	3	3	-	2	1	1	2	3	2	3	3	3
C327.4	3	3	3	3	3	-	2	1	1	2	3	3	3	3	3
C327	**3**	**2.75**	**2.5**	**3**	**2.5**	**-**	**2**	**1**	**1**	**2**	**2.5**	**2.25**	**3**	**2.5**	**3**
C328	**Electrical Simulation Lab**														
COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
C328.1	3	3	3	3	3	-	-	-	3	-	-	2	3	3	3
C328.2	3	3	3	3	3	-	-	-	3	-	-	3	3	2	3
C328.3	3	3	3	2	3	-	-	-	3	-	-	2	3	2	3
C328.4	3	2	2	3	3	-	-	-	3	-	-	3	3	3	3
C328	**3**	**2.75**	**2.75**	**2.75**	**3**	**-**	**-**	**-**	**3**	**-**	**-**	**2.5**	**3**	**2.5**	**3**
C329	**Design of Photo Voltaic Solar Power System**														
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C329.1	3	3	3	2	3	2	2	-	2	2	2	3	3	3	3
C329.2	3	3	2	3	3	2	3	-	2	2	2	3	3	2	3

C329.3	3	3	3	2	3	2	3	-	2	2	2	3	3	3	3
C329.4	3	3	3	3	3	2	3	-	2	2	3	3	3	2	2
C329	**3**	**3**	**2.75**	**2.5**	**3**	**2**	**2.75**	**-**	**-**	**2.25**	**2.5**	**3**	**3**	**2.5**	**2.75**
C3210	**Research Methodology**														
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C3210.1	3	2	2	2	2	-	-	3	-	2	2	3	3	2	2
C3210.2	3	3	2	3	2	-	-	3	-	3	2	3	3	3	3
C3210.3	3	3	3	3	3	-	-	3	-	2	3	3	3	3	3
C3210.4	3	3	3	3	3	-	-	3	-	2	2	3	3	3	3
C3210.5	2	3	2	3	3	-	-	3	-	3	3	3	2	3	3
C3210	**2.8**	**2.8**	**2.4**	**2.8**	**2.6**	**-**	**-**	**3**	**-**	**2.4**	**2.4**	**3**	**2.8**	**2.8**	**2.8**
C3211	**Communitive Service Project**														
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C3211.1	2	3	-	3	2	-	-	-	-	-	-	3	3	2	-
C3211.2	3	2	3	3	2	-	-	-	-	-	2	3	2	3	3
C3211.3	-	-	2	-	-	3	-	2	3	3	2	-	-	3	2
C3211.4	-	-	-	-	-	3	2	3	3	2	-	-	-	2	3
C3211.5	-	-	-	-	-	-	-	3	2	3	3	2	-	3	3
C3211	**2.50**	**2.50**	**2.50**	**3.00**	**2.00**	**3.00**	**2.00**	**2.67**	**2.67**	**2.67**	**2.33**	**2.67**	**2.5**	**2.6**	**2.75**

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C411	High Voltage DC Transmission														
COs	**PO 1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO 8**	**PO 9**	**PO10**	**PO11**	**PO12**	**PSO-1**	**PSO-2**	**PSO3**
C411.1	3	2	1	2	2	-	1	-	-	1	-	3	3	1	2
C411.2	3	3	2	2	3	-	2	-	-	1	-	3	3	2	3
C411.3	3	3	3	2	3	-	2	-	-	1	-	3	3	2	3
C411.4	3	2	2	3	3	-	2	-	-	1	-	3	3	2	3
C411.5	3	2	2	3	3	-	2	-	-	2	-	3	3	2	3
C411	3	2.4	2	2.4	2.8	-	1.8	-	-	1.2	-	3	3	1.8	2.8
C412	**Utilization of Electrical Energy**														
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C412.1	3	2	2	3	2	2	2	-	-	-	-	3	3	2	2
C412.2	3	3	3	3	3	3	3	-	-	-	-	3	3	2	3
C412.3	3	3	3	2	3	3	3	-	-	-	-	3	3	3	3
C412.4	3	3	2	3	3	2	3	-	-	-	-	3	3	3	3
C412.5	3	3	3	3	3	3	3	-	-	-	-	2	3	3	3
C412	3	2.8	2.6	2.8	2.8	2.6	2.8	0	0	0	0	2.8	3.00	2.60	2.80
C413	**Special Electrical Machines**														
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C413.1	3	3	3	3	3	3	-	-	-	-	-	3	3	3	3
C413.2	3	2	3	3	3	3	-	-	-	-	-	3	3	3	3
C413.3	3	3	3	3	3	3	-	-	-	-	-	3	3	3	3
C413.4	3	3	3	3	3	3	-	-	-	-	-	2	3	3	3
C413.5	3	3	2	2	2	2	-	-	-	-	-	3	3	3	3
C413	3	2.8	2.8	2.8	2.8	2.8	-	-	-	-	-	2.8	3	3	3

C414	Operating Systems														
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C414.1	3	2	2	2	2	-	-	-	-	-	-	2	2	3	3
C414.2	3	3	3	2	3	-	-	-	-	-	-	2	3	2	3
C414.3	3	3	3	3	3	-	-	-	-	-	-	3	3	3	3
C414.4	3	3	3	3	2	-	-	-	-	-	-	2	2	3	3
C414.5	3	2	3	2	3	-	-	-	-	-	-	3	3	3	3
C414	3	2.8	2.8	2.4	2.6	-	-	-	-	-	-	2.4	2.6	2.8	3
C415	**VLSI System Design**														
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C415.1	3	3	3	3	3	-	-	-	-	-	3	-	3	3	3
C415.2	3	3	3	3	3	-	-	-	-	-	3	-	3	3	3
C415.3	3	3	3	3	3	-	-	-	-	-	3	-	3	3	3
C415.4	3	3	3	3	3	-	-	-	-	-	3	-	3	2	2
C415.5	3	3	2	2	3	-	-	-	-	-	3	-	3	2	2
C415	3	3	2.8	2.8	3	-		-	-	-	3	-	3	2.6	2.6
C416	**Fundamentals of Entrepreneurship**														
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C416.1	3	-	2	3	2	2	-	2	2	2	2	3	-	3	-
C416.2	3	-	2	3	2	2	-	2	2	2	3	3	-	3	-
C416.3	2	-	2	2	2	3	-	2	2	2	3	3	-	3	-
C416.4	3	-	3	3	3	2	-	2	2	3	3	3	-	3	-
C416.5	3	-	2	3	2	3	-	2	2	3	3	3	-	3	-
C416	2.8	-	2.2	2.8	2.2	2.4	-	2	2	2	3	3	-	3	-

C417	Machine Learning with Python for Electrical Engineers														
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C417.1	3	3	3	3	3	-	-	-	3	-	3	2	3	3	3
C417.2	3	3	3	3	3	-	-	-	3	-	3	3	3	3	3
C417.3	3	3	3	2	3	-	-	-	3	-	2	2	3	3	3
C417	**3**	**3**	**3**	**2.7**	**3**	**-**	**-**	**-**	**3**	**-**	**2.7**	**2.34**	**3**	**3**	**3**
418	**Industrial/Research Internship**														
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C418.1	2	-	-	-	-	-	-	-	-	3	-	-	-	2	-
C418.2	2	3	-	-	-	-	-	-	-	2	-	-	-	2	-
C418.3	3	2	3	2	-	-	-	-	-	2	2	-	-	3	-
C418.4	3	2	3	3	3	-	3	-	-	2	3	-	3	3	3
C418.5	-	-	-	-	-	3	-	3	3	3	2	2	-	3	-
C418.6	2	-	2	3	-	-	-	-	-	3	2	3	2	3	2
C418	**2.40**	**2.33**	**2.67**	**2.67**	**3.00**	**3.00**	**3.00**	**3.00**	**3.00**	**2.50**	**2.25**	**2.50**	**2.50**	**2.67**	**2.50**

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C421	**MAIN PROJECT**														
COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
C4201.1	3	2	1	2	-	-	-	-	-	-	-	3	3	-	2
C4201.2	2	3	2	3	-	-	-	-	-	-	-	3	2	-	2
C4201.3	2	2	3	2	3	-	-	-	-	-	2	3	3	-	3
C4201.4	2	2	3	3	3	2	2	2	-	-	2	3	2	-	3
C4201.5	-	-	-	-	-	-	-	-	3	-	3	3	-	3	-
C4201.6	-	-	-	-	-	-	-	-	2	3	2	3	-	2	-
C421	**2.25**	**2.25**	**2.25**	**2.5**	**3**	**2**	**2**	**2**	**2.5**	**3**	**2.25**	**3**	**2.5**	**2.5**	**2.5**