PARVATHAREDDY BABUL REDDY
VISVODAYA INSTITUTE OF TECHNOLOGY & SCIENCE
(Affiliated to J.N.T.U.A, Approved by AICTE and Accredited by NAAC)
KAVALI – 524201, S.P.S.R Nellore Dist., A.P. India. Ph: 08626-243930
DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

Regulation: R20		
COURSE CODE	**NAME OF THE COURSE**	**K-LEVEL**
I B.TECH I-SEM		
(20A54101)Linear Algebra and Calculus		
C111.1	Develop the use of matrix algebra techniques that is needed by engineers for practical applications	K3
C111.2	Utilize mean value theorems to real life problems	K3
C111.3	Familiarize with functions of several variables which is useful in optimization	K3
C111.4	Students will also learn important tools of calculus in higher dimensions. Students will become familiar with 2-dimensional coordinate systems	K4
C111.5	Students will become familiar with 3- dimensional coordinate systems and also learn the utilization of special functions	K3
(20A56201T)APPLIED PHYSICS		
C112.1	Study the different realms of physics and their applications in both scientific and technological systems through physical optics.	K3
C112.2	Identify the wave properties of light and the interaction of energy with the matter	K3
C112.3	Asses the electromagnetic wave propagation and its power in different media	K4
C112.4	Understands the response of dielectric and magnetic materials to the applied electric and magnetic fields	K4
C112.5	Study the quantum mechanical picture of subatomic world along with the discrepancies between the classical estimates and laboratory observations of electron transportation phenomena by free electron theory and band theory.	K3
(20A52101T)COMMUNICATIVE ENGLISH		
C113.1	Retrieve the knowledge of basic grammatical concepts	K4
C113.2	Understand the context, topic, and pieces of specific information from social or transactional dialogues spoken by native speakers of English	K3
C113.3	Apply grammatical structures to formulate sentences and correct word forms	K3
C113.4	Analyze discourse markers to speak clearly on a specific topic in informal discussions	K4
C113.5	Evaluate reading/listening texts and to write summaries based on global comprehension of these texts.	K3
(20A02102T)FUNDAMENTALS OF ELECTRICAL CIRCUITS		
C114.1	Apply Network Reduction Techniques and Find the Equivalent impedence for the given network	K4
C114.2	Develop the Cut set and Tie-Set Matrices for a given Circuit	K4
C114.3	Design RLC series , Parallel circuit for specified frequency response	K3
C114.4	Apply the network theorms and solve the given networks	K4
C114.5	Determine the real power , reactive power and power factor for the given circuit	K3
(20A03101TB)ENGINEERING DRAWING		
C115.1	Discuss the geometrical constructions and classify the engineering /mathematical curves used in engineering applications	K3
C115.2	Construction of projections of points, Lines and planes applied in engineering	K3
C115.3	Analyze the Construction of projections of solids	K3
C115.4	Analyze the Construction of sections of solids	K4
C115.5	Analyze the Development of surface of solids	K4
(20A03101P)ENGINEERING GRAPHICS LAB		
C116.1	Know the basic commands and various tools used in AUTOCAD software	K3
C116.2	Analyze the visualization of geometrical solids in three dimensional through exercise in orthagraphic projections	K3
C116.3	Analyze the detailed views of the isometric and orthagraphic views of different objects	K3

(20A56201P)APPLIED PHYSICS LAB		
C117.1	Study the different realms of physics and their applications in both scientific and technological systems through physical optics.	K3
C117.2	Identify the wave properties of light and the interaction of energy with the matter	K3
C117.3	Asses the electromagnetic wave propagation and its power in different media	K3
C117.4	Understands the response of dielectric and magnetic materials to the applied electric and magnetic fields	K3
C117.5	Study the quantum mechanical picture of subatomic world along with the discrepancies between the classical estimates and laboratory observations of electron transportation phenomena by free electron theory and band theory.	K3
(20A52101P)COMMUNICATIVE ENGLISH LAB		
C118.1	Listening and repeating the sounds of English Language	K3
C118.2	Understand the different aspects of the English language	K3
C118.3	Proficiency with emphasis on LSRW skills	K3
C118.4	Apply communication skills through various language learning activities	K3
C118.5	Analyze the English speech sounds, stress, rhythm, intonation and syllable	K3
(20A02102P)FUNDAMENTALS OF ELECTRICAL CIRCUITS LAB		
C119.1	Apply Network Reduction Techniques and Find the Equivalent impedence for the given network	K4
C119.2	Apply various theorms and verify practically	K3
C119.3	Analyze three phase balanced and unbalanced circuits	K4
C119.4	Determine of self mutual inductance and coeffient of coupling	K4
I B.TECH II-SEM		
(20A54201)DIFFERENTIAL EQUATIONS & VECTOR CALCULAS		
C121.1	Solve the differential equations related to various engineering tools	**K3**
C121.2	Apply the linear DE in mechanical and electrical oscillatory circuits	**K3**
C121.3	Identify solutions methods for partial differential equations that model physical processes	**K3**
C121.4	Interpret the physical meaning of different operator such as gradient curl and divergence	**K4**
C121.5	Estimate the work done against a field, circulation and flux using vector calculas	**K4**
(20A51101T)CHEMISTRY		
C122.1	Compare the materials of construction for battery and electrochemical sensors	K3
C122.2	Explain the preparation, properties, and applications of thermoplastics &thermosetting, elastomers& conducting polymers.	K3
C122.3	Explain the principles of spectrometry, slc in separation of solid and liquid mixtures	K3
C122.4	Apply the principle of Band diagrams in application of conductors and semiconductors	K4
C122.5	Analyze the knowledge of different analytical techniques used in engineering and also development of new techniques	K4
(20A05201T)C PROGRAMMING & DATA STRUCTURES		
C123.1	Develop the representation of Tress.	K3
C123.2	Identify the various Binary tree traversals	K3
C123.3	Illustrate different Graph traversals like BFS and DFS	K4
C123.4	Design the different sorting techniques	K3
C123.5	Apply programming to solve searching and sorting problems	K4
(20A04101T)ELECTRONIC DEVICES & CIRCUIT		
C124.1	Understand the basic concepts of semiconductors and analysis of simple diode circuits	K2
C124.2	Analyze various applications of diode circuits and special purpose diodes	K4
C124.3	Understand the principle of operation and V-I characteristics in various BJT & MOSFET Configurations	K2
C124.4	Design amplifier circuits using BJT and MOSFET	K3
C124.5	Describe on biasing circuits and small signal equivalent model of BJT and MOSFET	K2

(20A03202)ENGINEERING WORKSHOP		
C125.1	Apply wood working skills in real world applications.	K4
C125.2	Build different objects with metal sheets in real world applications.	K3
C125.3	Apply fitting operations in various applications.	K4
C125.4	Apply different types of basic electric circuit connections.	K4
C125.5	Use soldering and brazing techniques.	K4
(20A05202)ITWORKSHOP LAB		
C126.1	Disassemble and Assemble a Personal Computer and prepare the computer ready to use	K3
C126.2	Prepare the Documents using Word processors and Prepare spread sheets for calculations	K3
C126.3	Prepare Slide presentations using the presentation tool	K3
C126.4	Interconnect two or more computers for information sharing	K4
C126.5	Access the Internet and Browse it to obtain the required information	K3
(20A05201P)C PROGRAMMING & DATA STRUCTURES LAB		
C127.1	Develop C programs using functions, arrays, structures and pointers.	K3
C127.2	Illustrate the concepts Stacks and Queues.	K4
C127.3	Design operations on Linked lists.	K4
C127.4	Apply various Binary tree traversal techniques.	K4
C127.5	Develop searching and sorting method	K4
CHEMISTRY LAB (20A51101P)		
C128.1	Determine the cell constant and conductance of solutions	K3
C128.2	Prepare advanced polymer Bakelite materials	K3
C128.3	Measure the strength of an acid present in secondary batteries	K3
C128.4	Analysethe IR of some organic compounds	K3
(20A04101P)ELECTRONIC DEVICES & CIRCUIT LAB		
C129.1	Compute the parameters of diodes and Transistors from the characteristics	K3
C129.2	Demonstrate the rectifier and voltage regulators circuits using diode	K3
C129.3	Analyze the characteristics of UJT and SCR	K3
C129.4	Design biasing circuit of BJT and FET	K3
C129.5	Analyze the effect of temperature on viscosity by using Redwood viscometer	K3
(20A99201)ENVIRNOMENTAL SCIENCE		
C1210.1	Comprehend the concepts of environment and its importance in our daily life and develop and apply various water conservation methods and conservation of other natural resources also.	K3
C1210.2	Categorize an ability to reflect on their personal impacts on biodiversity in global perspective.	K4
C1210.3	Develop new innovative methods for controlling of environmental pollution which may affecte the human health.	K4
C1210.4	Analyze environmental issues related to society and find solutions for environmental problems.	K3
C1210.5	Determine the effects of increasing human population as well as health associated problems and develop measures to be taken to protect human health.	K3
II B.TECH I-SEM		
(20A54302) Complex Variables & Transforms		
C211.1	Understand the analyticity of complex functions and conformal mappings.	**K2**
C211.2	Apply cauchy's integral formula and cauchy's integral theorem to evaluate improper integrals along contours.	**K3**
C211.3	Understand the usage of laplace transforms, fourier transforms and z transforms.	**K3**
C211.4	Evaluate the fourier series expansion of periodic functions.	**K4**
C211.5	Understand the use of fourier transforms and apply z transforms to solve difference equations.	**K3**
(20A02301T) Electrical Circuit Analysis		
C212.1	Understand the analysis of three phase balanced and unbalanced circuits	**K2**
C212.2	Measure active and reactive powers in three phase circuits.	**K3**
C212.3	knowledge about how to determine the transient response of R-L, R-C, R-L-C series circuits for D.C and A.C excitations.	**K2**
C212.4	Applications of Fourier transforms to electrical circuits excited by non-sinusoidal sources are known.	**K3**
C212.5	Design filters and equalizers.	**K4**

(20A02302T) DC Machines & Transformers		
C213.1	Understand the concepts of magnetic circuits, principle and operations of DC machines, starters and single and three phase transformers	**K3**
C213.2	Analyze armature reaction, parallel operation, speed control and characteristics of DC machines. Alsoanalyze the performance characteristics with the help of OC and SC tests of transformer	**K4**
C213.3	Evaluate generated emf, back emf, speed, efficiency and regulations of DC machines and efficiency and regulation of transformer also load sharing of parallel connected transformers	**K4**
C213.4	Design winding diagrams of DC machines and equivalent circuit of transformer.	**K4**
C213.5	Analyze three phase transformer operation and characteristics	**K4**
(20A04303T) Digital Logic Design		
C214.1	Understand the properties of Boolean algebra, other logic operations, and minimization of Boolean functions using Karnaugh map.	**K3**
C214.2	Make use of the concepts to solve the problems related to the logic circuits.	**K3**
C214.3	Analyze the combinational and sequential logic circuits.	**K4**
C214.4	Develop digital circuits using HDL, and Compare various Programmable logic devices	**K4**
C214.5	Design various logic circuits using Boolean algebra, combinational and sequential logic circuits.	**K4**
(20A52301) Managerial Economics & Financial Analysis		
C215.1	Define the concepts related to Managerial Economics, financial accounting and management.	**K3**
C215.2	Understand the fundamentals of Economics viz., Demand, Production, cost, revenue and markets	**K2**
C215.3	Apply the Concept of Production cost and revenues for effective Business decision	**K3**
C215.4	Analyze how to invest their capital and maximize returns	**K4**
C215.5	Evaluate the capital budgeting techniques	**K4**
(20A02301P) Electrical Circuit Analysis Lab		
C216.1	Understand and experimentally verify various resonance phenomenon.	**K3**
C216.2	Understand and analyze various current locus diagrams.	**K3**
C216.3	Understand the AC transient circuits	**K3**
C216.4	Understand the DC transient circuits	**K3**
C216.5	Apply and experimentally analyze two port network parameters	**K4**
(20A02302P) DC Machines & Transformers Lab		
C217.1	conduct and analyze load test on DC shunt generator	**K4**
C217.2	understand and analyze magnetization characteristics of DC shunt generator	**K4**
C217.3	understand and analyze speed control techniques and efficiency of DC machines	**K4**
C217.4	understand to predetermine efficiency and regulation of single-phase Transformers	**K3**
(20A04303P) Digital Logic Design Lab		
C218.1	Understand the pin configuration of various digital ICs used in the lab	**K3**
C218.2	Conduct the experiment and verify the properties of various logic circuits.	**K4**
C218.3	Analyze the sequential and combinational circuits.	**K4**
C218.4	Design of any sequential/combinational circuit using Hardware/ HDL.	**K4**
(20A05305) Application development with Python		
C219.1	Identify the issues in software requirements specification and enable to write SRS documents for software development problems	**K3**
C219.2	Explore the use of Object oriented concepts to solve Real-life problems	**K4**
C219.3	Design database for any real-world problem	**K4**
C219.4	Solve mathematical problems using Python programming language	**K4**
(20A52201) Universal Human Values		
C2110.1	Students are expected to become more aware of themselves, and their surroundings (family, society, nature)	**K3**
C2110.2	They would become more responsible in life, and in handling problems with sustainable solutions, while keeping human relationships and human nature in mind.	**K3**
C2110.3	They would have better critical ability.	**K3**
C2110.4	They would also become sensitive to their commitment towards what they have understood (human values, human relationship and human society).	**K3**
C2110.5	Apply what they have learnt to their own self in different day-to-day settings in real life, at least a beginning would be made in this direction.	**K3**

II B.TECH II-SEM		
(20A54402) Numerical Methods & Probability Theory		
C221.1	Apply numerical methods to solve algebraic and transcendental equations	**K4**
C221.2	Derive interpolating polynomials using interpolation formulae	**K4**
C221.3	Solve differential and integral equations numerically	**K3**
C221.4	Apply Probability theory to find the chances of happening of events.	**K3**
C221.5	Understand various probability distributions and calculate their statistical constants.	**K2**
(20A04404T) Analog Electronic Circuits		
C222.1	List various types of feedback amplifiers, oscillators and large signal amplifiers	**K2**
C222.2	Explain the operation of various electronic circuits and linear ICs	**K2**
C222.3	Apply various types of electronic circuits to solve engineering problems	**K3**
C222.4	Analyze various electronic circuits and regulated power supplies for proper understanding	**K4**
C222.5	Justify choice of transistor configuration in a cascade amplifier	**K3**
(20A02401T) Power Electronics		
C223.1	Understand the operation, characteristics and usage of basic Power Semiconductor Devices.	**K3**
C223.2	Understand different types of Rectifier circuits with different operating conditions.	**K3**
C223.3	Understand DC-DC converters operation and analysis of their characteristics.	**K3**
C223.4	Understand the construction and operation of voltage source inverters, Voltage Controllers & cyclo converters	**K3**
C223.5	Apply all the above concepts to solve various numerical problem solving	**K4**
(20A02402T) AC Machines		
C224.1	Understand the basics of ac machine windings, construction, principle of working, equivalent circuit of induction and synchronous machines.	**K3**
C224.2	Analyze the phasor diagrams of induction and synchronous machine, parallel operation of alternators, synchronization and load division of synchronous generators.	**K4**
C224.3	Analyze the various methods of starting in single phase induction machines	**K4**
C224.4	Apply the concepts to determine V and inverted V curves and power circles of synchronous motor	**K3**
C224.5	Analyze the various methods of starting in both induction and synchronous machines.	**K4**
(20A02403T) Electromagnetic Field Theory		
C225.1	Understand the concept of electrostatics	**K3**
C225.2	Understand the concepts of Conductors and Dielectrics	**K3**
C225.3	Understand the fundamental laws related to Magneto Statics	**K3**
C225.4	Understand the concepts of Magnetic Potential and Time varying Fields	**K4**
C225.5	Understand the concepts of Time varying Fields	**K3**
(20A04404P) Analog Electronic Circuits Lab		
C226.1	Analyze various amplifier circuits.	**K4**
C226.2	Design multistage amplifiers.	**K4**
C226.3	Design OPAMP based analog circuits.	**K4**
C226.4	Understand working of logic gates.	**K2**
C226.5	Design and implement Combinational and Sequential logic circuits.	**K4**
(20A02401P) Power Electronics Lab		
C227.1	Understand and analyze various characteristics of power electronic devices with gate firing circuits and forced commutation techniques.	**K3**
C227.2	Analyze the operation of 1-phase half &fully-controlled converters and inverters with different types of loads.	**K4**
C227.3	Analyze the operation of DC-DC converters, single-phase AC Voltage controllers, cyclo converters with different loads.	**K4**
C227.4	analyze various power electronic converters using PSPICE software.	**K4**
C227.5	Analyze the three phase voltage source inverter using PSPICE software.	**K4**
(20A02402P) AC Machines Lab		
C228.1	Analyze and apply load test, no-load and blocked-rotor tests for construction of circle diagram and equivalent circuit determination in a single phase induction motor.	**K4**
C228.2	Predetermine regulation of a three-phase alternator by synchronous impedance &m.m.f methods	**K4**
C228.3	Predetermine the regulation of Alternator by Zero Power Factor method Xd and Xq	**K4**
C228.4	Evaluate and analyze V and inverted V curves of 3 phase synchronous motor	**K4**

(20A02404) Circuits Simulation & Analysis using PSPICE		
C229.1	Simulation of various circuits using PSPICE software.	**K4**
C229.2	Simulation of single-phase half & fully-controlled converters, and inverters	**K4**
C229.3	Simulation of single-phase AC Voltage controllers with different loads.	**K4**
C229.4	Simulation of single -phase Cyclo converter with R load.	**K4**
(20A99401) Design Thinking for Innovation		
C2210.1	Define the concepts related to design thinking.	**K2**
C2210.2	Explain the fundamentals of Design Thinking and innovation	**K3**
C2210.3	Apply the design thinking techniques for solving problems in various sectors.	**K3**
C2210.4	Analyse to work in a multidisciplinary environment	**K4**
C2210.5	Evaluate the value of creativity	**K4**
III B.TECH I-SEM		
(20A02501) Power System Architecture		
C311.1	Remember and understand the concepts of conventional and nonconventional power generating systems.	**K2**
C311.2	Apply the economic aspects to the power generating systems.	**K3**
C311.3	Analyse the transmission lines and obtain the transmission line parameters and constants.	**K4**
C311.4	Design and develop the schemes to improve the generation and capability of transmission line to meet the day-to-day power requirements.	**K4**
C311.5	Describe the design features of electrical distribution systems.	**K4**
(20A02502T) Control Systems		
C312.1	Understand the concepts of control systems classification, feedback effect, mathematical modelling, signal flow graph.	K2
C312.2	Analyze the concepts of time response analysis,error constants and controllers.	K2
C312.3	Apply the concepts time responses from Root locus for stability calculations.	K3
C312.4	Apply the concepts frequency responses from Bode, Nyquist, Polar plots for stability calculations	K3
C312.5	Understand the concept of state space analysis and understand the controllability and Observabilities.	K2
(20A02503T) Measurements & Sensors		
C313.1	Understand the working of various instruments and equipments used for the measurement of various electrical engineering parameters like voltage, current, power, phase etc in industry as well as in power generation, transmission and distribution sectors	K3
C313.2	Analyze and solve the varieties of problems and issues coming up in the vast field of electrical measurements.	K4
C313.3	Analyse the different operation of extension range ammeters and voltmeters, DC and AC bridge for measurement of parameters	K4
C313.4	Analyse the different characteristics of periodic and aperiodic signals using CRO.	K4
C313.5	Design and development of various voltage and current measuring meters and the varieties of issues coming up in the field of electrical measurements.	K4
(20A02504b) Power Electronics Drives		
C314.1	Understand the various drive mechanisms and methods for energy conservation.	**K3**
C314.2	Apply power electronic converters to control the speed of DC motors and induction motors.	**K3**
C314.3	Evaluate the motor and power converter for a specific application.	**K4**
C314.4	Develop closed loop control strategies of drives	**K3**
C314.5	Apply power electronic converters to control the speed of DC motors and synchronous motors.	**K4**
(20A04506) Principles of Communication Systems		
C315.1	Understand the concept of various modulation schemes and multiplexing	**K2**
C315.2	Understand the concept of various angle modulation schemes and multiplexing	**K2**
C315.3	Apply the concept of various modulation schemes to solve engineering problems	**K3**
C315.4	Analyse various modulation schemes, and evaluate various modulation scheme in real time applications	**K4**
C315.5	Analyze the various communication systems	**K4**

(20A02502P) Control Systems Lab		
C316.1	Get the knowledge of feedback control and transfer function of DC servo motor.	**K3**
C316.2	Model the systems and able to design the controllers and compensators.	**K4**
C316.3	Get the knowledge about the effect of poles and zeros location on transient and steady state behavior of second order systems and can implement them to practical systems and MATLAB	**K4**
C316.4	Determine the performance and time domain specifications of first and second order systems.	**K4**
(20A02503P) MEASUREMENTS AND SENSORS LAB		
C317.1	Calibrate various electrical measuring instruments	**K3**
C317.2	Accurately determine the values of inductance and capacitance using AC bridges	**K4**
C317.3	Compute the coefficient of coupling between two coupled coils	**K4**
C317.4	Accurately determine the values of very low resistances	**K3**
(20A52401) Soft Skills		
C318.1	Memorize various elements of effective communicative skills	**K3**
C318.2	Interpret people at the emotional level through emotional intelligence	**K3**
C318.3	apply critical thinking skills in problem solving	**K3**
C318.4	analyse the needs of an organization for team building	**K4**
C318.5	Judge the situation and take necessary decisions as a leader	**K4**
(20A02505) Evaluation of Community Service Project		
C319.1	Develops an increased sense of social responsibility – a global view of society and a heart for "giving back" and helping others.	**K3**
C319.2	Provides an opportunity to apply academic learning to real-life events.	**K3**
C319.3	Builds relationships and 'social connectedness and exposes students to diversity and multiculturalism.	**K4**
C319.4	Improves lifelong communication, interpersonal, and critical thinking skills.	**K3**
C319.5	Helps students find their passions and interests.	**K4**
III B.TECH II-SEM		
(20A02601T) Power System Analysis		
C321.1	Remember and understand the concepts of per unit values, Y Bus and Z bus formation, load flow studies, symmetrical and unsymmetrical fault calculations.	**K3**
C321.2	Apply the concepts of good algorithm for the given power system network and obtain the converged load flow solution and experiment some of these methods using modern tools and examine the results.	**K3**
C321.3	Analyse the symmetrical faults and unsymmetrical faults and done the fault calculations, analyse the stability of the system and improve the stability. Demonstrate the use of these techniques through good communication skills.	**K4**
C321.4	Develop accurate algorithms for different networks and determine load flow studies and zero, positive and negative sequence impedances to find fault calculations.	**K4**
C321.5	Design and select efficient Circuit Breakers to improve system stability. Implement them in resolving various day-to-day issues in a Power System.	**K4**
(20A02602T) DIGITAL COMPUTING PLATFORMS		
322.1	Understand the basic architecture & pin diagram of 8086 microprocessor, 8051 Microcontroller, DSP Processor and FPGA Processors	**K3**
322.1	Apply the concepts to design Assembly language programming to perform a given task, Interrupt service routines for all interrupt types	**K3**
322.1	Design Real time applications by writing Assembly Language Programs for the Digital Signal Processors, Xilinx programming for Spartan FPGA boards and use Interrupts for real-time control applications	**K4**
322.1	Analyze various real time systems by using various controllers	**K4**
322.1	Write Xilinx programming and understanding of Spartan FPGA board	**K4**

(20A04502T) DIGITAL SIGNAL PROCESSING		
C323.1	Formulate difference equations for the given discrete time systems	**K3**
C323.2	Apply FFT algorithms for determining the DFT of a given signal	**K3**
C323.3	Compare FIR and IIR filter structures	**K4**
C323.4	Design digital filter (FIR & IIR) from the given specifications	**K4**
C323.5	Outline the concept of multirate DSP and applications of DSP.	**K4**
(20A02604c) DESIGN OF PHOTOVOLTAIC SYSTEMS		
C324.1	Understand the basic concepts of PV Cells	**K3**
C324.2	Understand the concepts of Energy estimation and Sizing	**K3**
C324.3	Design MPPT	**K4**
C324.4	Analyze PV system along with its interfacing	**K4**
C324.5	Design PV panel for suitable loads.	**K4**
(20A03605c) INTRODCUTION TO ROBOTICS		
C325.1	Explain fundamentals of Robots	**K2**
C325.2	Apply kinematics and differential motions and velocities	**K3**
C325.3	Demonstrate control of manipulators	**K4**
C325.4	Understand robot vision	**K3**
C325.5	Develop robot cell design and programming	**K4**
(20A02601P) POWER SYSTEMS ANALYSIS LAB		
C326.1	Get the practical knowledge on calculation of sequence impedance, fault currents, voltages and sub transient reactance's.	**K3**
C326.2	Get the practical knowledge on how to draw the equivalent circuit of three winding transformer.	**K4**
C326.3	Get the knowledge on development of MATLAB program for formation of Y and Z buses.	**K4**
C326.4	Get the knowledge on development of MATLAB programs for Gauss-Seidel & Fast Decouple Load Flow studies.	**K4**
C326.5	Get the knowledge on development of SIMULINK model for single area load frequency	**K4**
(20A02602T) DIGITAL COMPUTING PLATFORMS LAB		
C327.1	Understand the basic concepts to write assembly language programming on 8086 Microprocessors.	**K3**
C327.2	Design various device configurations and Interfacing of various devices with 8086.	**K4**
C327.3	Understand the basic concepts to write programming on 8051 Microcontroller.	**K4**
C327.4	Design various Interfacing circuitry with 8051 Microcontroller with its peripheral devices	**K4**
(20A04502P) DIGITAL SIGNAL PROCESSING LAB		
C328.1	Implement various DSP Algorithms using software packages.	**K3**
C328.2	Implement DSP algorithms with Digital Signal Processor.	**K3**
C328.3	Analyze and observe magnitude and phase characteristics (Frequency response Characteristics) of digital IIR-Butterworth, Chebyshev filters.	**K4**
C328.4	Analyze and observe magnitude and phase characteristics (Frequency response Characteristics) of digital FIR filters using window techniques.	**K4**
C328.5	Analyze digital filters using Software Tools.	**K4**
(20A02606) APPLICATIONS OF SOFT COMPUTING TOOLS IN ELECTRICAL ENGINEERING		
C329.1	Understand the basic concepts of Electrical Engineering.	**K3**
C329.2	Apply the concepts to design MATLAB models.	**K3**
C329.3	Analyse various Electrical engineering applications through MATLAB.	**K4**
C329.4	Develop real time models using MATLAB.	**K4**
(20A99601) INTELLECTUAL PROPERTY RIGHTS AND PATENTS		
C3210.1	Understand IPR law	**K3**
C3210.2	Understand Cyber law	**K3**
C3210.3	Discuss registration process, maintenance and litigations associated with trademarks	**K4**
C3210.4	Illustrate the copy right law	**K4**
C3210.5	Enumerate the trade secret law.	**K4**

IV B.TECH I-SEM		
(20A02701a) POWER SYSTEM OPERATION AND CONTROL		
C411.1	Understand to deal with problems in Power System as Power System Engineer	**K4**
C411.2	Understand to deal with AGC problems in Power System	**K3**
C411.3	Analyze the problems in hydro electric and hydro thermal problems	**K4**
C411.4	Evaluate the complexity of reactive power control problems and to deal with them	**K4**
C411.5	Understand the necessity of deregulation aspects and demand side management problems in the modern power system era.	**K3**
(20A02702a) ELECTRICAL DISTRIBUTION SYSTEM & AUTOMATION		
C412.1	Understand basics of distribution systems and substations, modelling of various loads	**K2**
C412.2	Evaluation of load flow solutions in distribution system	**K4**
C412.3	Evaluation of power loss and feeder cost	**K3**
C412.4	Analyze the concepts of Automation distribution system and management	**K4**
C412.5	Analyze the concepts of SCADA.	**K4**
(20A02703c) ELECTRIC VEHICLE TECHNOLOGIES		
C413.1	Understand the concepts of electric vehicles, hybrid electric vehicles	**K3**
C413.2	Understand the impact of electric vehicles, hybrid electric vehicles on environment	**K3**
C413.3	Analyze the drive-train topologies and advanced propulsion techniques	**K4**
C413.4	Analyze hybrid energy storage methodologies	**K4**
C413.5	Design suitable power converter topologies for motor control and hybrid energy storage	**K4**
(20A52701b) MANAGEMENT SCIENCE		
C414.1	Understand the concepts & principles of management and designs of organization in a practical world	**K3**
C414.2	Apply the knowledge of Work-study principles & Quality Control techniques in industry	**K3**
C414.3	Analyze the concepts of HRM in Recruitment, Selection and Training & Development.	**K4**
C414.4	Evaluate PERT/CPM Techniques for projects of an enterprise and estimate time & cost of project & to analyze the business through SWOT.	**K4**
C414.5	Create Modern technology in management science.	**K4**
(20A04704) ELECTRONIC SENSORS		
C415.1	Learn about sensor Principle, Classification and Characterization.	**K2**
C415.2	Explore the working of Electromechanical, Thermal, Magnetic and radiation sensors	**K3**
C415.3	Explore the working of Electro analytic sensors	**K4**
C415.4	Understand the basic concepts of Smart Sensors	**K3**
C415.5	Design a system with sensors	**K4**
(20A05705c) INDUSTRIAL IOT		
C416.1	Understand the characteristics of Internet of Things and its industry strategies	**K3**
C416.2	Apply various Internet of Things models to appropriate problems.	**K3**
C416.3	Identify and integrate more than one technology to enhance the performance.	**K3**
C416.4	Understand the sensors and data transmission used in Internet of Things.	**K2**
C416.5	Analyse the co-occurrence of data to find interesting frequent patterns.	**K4**
(20A02706) ENERGY CONSERVATION AND AUDIT		
C417.1	Understand energy conservation policies in India.	**K3**
C417.2	Design energy conservation techniques in electrical machines.	**K4**
C417.3	Apply energy conservation techniques in electrical installations, Co-generation and relevant tariff for reducing losses in facilities.	**K3**
C417.4	Design and analyze energy audit for electrical system.	**K4**
C417.5	Provide energy efficiency in industrial, commercial and domestic sector.	**K4**

(20A02707) Evaluation of Industry Internship		
C418.1	Improve their knowledge and skills relevant to their areas of specialization.	**K3**
C418.2	Relate, apply and adapt relevant knowledge, concepts and theories within an industrial organization, practice and ethics.	**K4**
C418.3	Acquire knowledge and skills to compete in the job market with this experience and exposure.	**K3**
C418.4	Enhance the employability skills of the students.	**K4**
C418.5	Provide opportunities for students to be offered jobs in the organizations in which they undergo their Industrial Training.	**K4**
IV B.TECH II-SEM		
(20A02801) Full Internship & Project work		
C421.1	Demonstrate a sound technical knowledge of their selected project topic	**K4**
C421.2	Identification of problem, formulation and solution	**K3**
C421.3	Assess the engineering project	**K4**
C421.4	Design engineering solutions to the complex problems utilising a systems approach	**K4**
C421.5	Demonstrate the knowledge, skills and attitudes of a professional engineer.	**K3**

Head of the Department