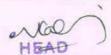**KLS Vishwanathrao Deshpande Institute of Technology**
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Udyog Vidya Nagar, Haliyal – 581329, Dist: Uttar Kannada (Karnataka)
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DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING
Co,s STATEMENTS FOR THE SCHEME 2018 (BATCH : 2018 - 2022)

Sl No	Subject Name	CO,s	CO Statement
			1st SEMESTER
1	Calculus and Linear Algebra	18MAT11.1	Apply the knowledge of calculus to solve problems related to polar curves and its applications in determining the bentness of a curve
		18MAT11.2	Learn the notion of partial differentiation to calculate rates of change of multivariate functions and solve problems related to composite functions and Jacobians
		18MAT11.3	Apply the concept of change of order of integration and variables to evaluate multiple integrals and their usage in computing the area and volumes
		18MAT11.4	Solve first order linear/non linear differential equations analytically using standard methods
		18MAT11.5	Make use of Matrix theory for solving system of linear equations and compute Eigenvalues & Eigenvectors required for matrix diagonalization process
2	Engineering Physics	18PHY12.1	Learn and understand various types of oscillations and their implications, Recognize the significance of shock waves and its applications in various fields
		18PHY12.2	To get acquainted with the elastic properties of materials by understanding the definitions of elasticity, stress, strain, modulus of rigidity, Young's modulus, bulk modulus and elastic limit.
		18PHY12.3	To realize the interrelation between time varying electric field and magnetic field, properties of electromagnetic (EM) waves, Maxwell's equations and their role in optical fiber communication.
		18PHY12.4	Gain knowledge of the intricacies of matter and energy, which is essential to explore the role of subatomic particles in understanding properties of matter at macro, micro and nano level using the principles of quantum mechanics and to understand the physics of lasers, various types of lasers and to appreciate their role in modern technology.
		18PHY12.5	Learn the niceties of technologically important material such as conductor, semiconductor and dielectrics, their potential properties in understanding there use in engineering applications.
3	Basic Electrical Engineering	18ELE13.1	Students will be able to comprehend the basic concept of AC and DC circuit
		18ELE13.2	Explain the working principle and construction of AC and DC machines
		18ELE13.3	Explain the working principle and construction of transformer
		18ELE13.4	Understand the electrical wiring concepts, earthing, domestic protection devices and electric shock
4	Elements of Civil Engineering & Mechanics	18CIV14.1	Mention the applications of various fields of Civil Engineering
		18CIV14.2	Compute the resultant of given force system subjected to various loads
		18CIV14.3	Comprehend the action of Forces, Moments and other loads on systems of rigid bodies and compute the reactive forces that develop as a result of the external loads.
		18CIV14.4	Locate the Centroid and compute the Moment of Inertia of regular and built-up sections
		18CIV14.5	Express the relationship between the motion of bodies and analyze the bodies in motion.
5	Engineering Graphics	18EGDL15.1	Prepare engineering drawings as per BIS conventions mentioned in the relevant codes
		18EGDL15.2	Produce computer generated drawings using CAD software.
		18EGDL15.3	Use the knowledge of orthographic projections to represent engineering information / concepts and present the same in the form of drawings
		18EGDL15.4	Develop isometric drawings of simple objects reading the orthographic projections of those objects.
		18EGDL15.5	Convert pictorial and isometric views of simple objects to orthographic views.
6	Engineering Physics Laboratory	18PHYL16.1	To recognize the importance of light by exploring its interaction with matter and in realizing its characteristic properties
		18PHYL16.2	Understanding of mechanical properties of the material by the application of stress.
		18PHYL16.3	Appreciating the significance of elementary electric circuits in the functioning of various electric /electronic devices and gaining understanding of physics of the materials.
		18PHYL16.4	Design and implementation of electronic circuits to gain better understanding of physics of semiconductor devices.
		18PHYL16.5	Appreciating the role of Quantum mechanics in exploring the electrical properties of the materials.
7	Basic Electrical Engineering Laboratory	18ELEL17.1	Determine the current, power drawn and comparing power factor of the different lamps
		18ELEL17.2	Determine impedance of an electrical circuit and power consumed in a 3 phase load.
		18ELEL17.3	Determine the earth resistance and understand the operation of two way and three way control of lamp.
		18ELEL17.4	Understand the basic functioning of domestic appliances like fuse, MCB,UPS

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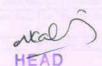KLS's V. D. Institute of Technology
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Sl No	Subject Name	CO,s	CO Statement
			2nd SEMESTER
8	Advanced Calculus and Numerical Methods	18MAT21.1	To solve first order linear/nonlinear differential equations analytically using standard methods
		18MAT21.2	Explain various physical models through higher order differential equations and solve such linear ordinary differential equations
		18MAT21.3	Understand a variety of partial differential equations and solution by exact methods/method of separation of variables
		18MAT21.4	Describe the applications of infinite series and obtain series solution of ordinary differential equations
		18MAT21.5	Apply the knowledge of numerical methods in the models of various physical and engineering phenomena
9	Engineering Chemistry	18CHE22.1	Knowledge on the use of free energy in equilibria, rationalize bulk properties and processes using thermodynamic considerations, electrochemical energy systems.
		18CHE22.2	Knowledge on the causes and effects of corrosion of metals and control of corrosion. Modification of the surface properties of metals to develop resistance to corrosion, wear, tear, impact, etc. by electroplating and electroless plating.
		18CHE22.3	Knowledge on the importance of energy conservation in the context of energy crisis, fuel properties and importance of solar energy as sustainable source and PV cells for solar energy conversion.
		18CHE22.4	Knowledge on the environmental pollution, waste management and water chemistry.
		18CHE22.5	Knowledge on the different techniques of instrumental methods of analysis. Fundamental properties of nanomaterials.
10	C Programming for Problem Solving	18CPS23.1	Illustrate simple algorithms from the different domains such as mathematics, physics, etc.
		18CPS23.2	Construct a programming solution to the given problem using C.
		18CPS23.3	Identify and correct the syntax and logical errors in C programs.
		18CPS23.4	Modularize the given problem using functions and structures.
11	Basic Electronics	18ELN24.1	Outline the operation of semiconductor diodes, and its applications like rectifiers, photocouplers, and fixed voltage ic regulator and apply the concepts to solve the numerical of rectifiers
		18ELN24.2	Describe the general operating principles of jfets, mosfets, scr, by applying their concepts to various applications.
		18ELN24.3	List the characteristics of the opamp and describe the operations of simple opamp circuits and apply the same concepts to solve the numerical
		18ELN24.4	By outlining the characteristics of feedback amplifiers explain different types of feedback along with the working of bjt amplifers, and apply the concept of barkhaunsen's criteria to obtain the oscillations.
		18ELN24.5	Explain the different number system and their conversions and construct simple combinational and sequential logic circuits using flip flops.
		18ELN24.6	Describe the basic principle of operation of communication system and mobile phones.
12	Elements of Mechanical Engineering	18ME25.1	learn the fundamental concepts of energy, it's sources and conversion
		18ME25.2	comprehend the basic concepts of thermodynamics
		18ME25.3	understand the concepts of boilers, turbines, pumps, internal combustion engine and refrigeration
		18ME25.4	distinguish different metal joining techniques and power transmission
		18ME25.5	enumerate the knowledge of working with conventional machine tools, their specifications and advanced manufacturing processes.
13	Engineering Chemistry Laboratory	18CHEL26.1	Students will have the knowledge in handling different types of instruments for analysis of materials using small quantities of materials involved for quick and accurate results
		18CHEL26.2	Students will have the knowledge in carrying out different types of titrations for estimation of concerned in materials using comparatively more quantities of materials involved for good results
14	C Programming Laboratory	18CPL27.1	Write algorithms, flowcharts and program for simple programs.
		18CPL27.2	Correct syntax and logical errors to execute a program.
		18CPL27.3	Write iterative and wherever possible recursive programs.
		18CPL27.4	Demonstrate use of functions, arrays, strings, structures and pointers in problem solving.

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Sl No	Subject Name	CO,s	CO Statement
			3rd SEMESTER
15	TRAN CALCU FOUR SERIES &NUM	18EE31.1	To understand the concept of Laplace transform and inverse Laplace transform and its properties
		18EE31.2	To understand the behaviour of periodic functions using Fourier series
		18EE31.3	To illustrate discrete/continuous functions using Fourier transform and Z-transform
		18EE31.4	To determine the solution of ODE by using Numerical techniques
		18EE31.5	To determine the extremals of functionals using calculus of variations
16	Electric Circuit Analysis	18EE32.1	Able to analyze DC and AC circuits using various techniques.
		18EE32.2	Able to state and apply appropriate theorem for solving circuits.
		18EE32.3	Able to perform resonant and transient analysis of simple circuits.
		18EE32.4	Able to analyze 3-phase circuits and determine parameters of two port networks.
17	TRANSFORMERS AND GENERATORS	18EE33.1	To ,GainThe Knowledge About Construction And Principle Of Operation Of Transformer,Dc Machine And Ac Generator
		18EE33.2	To, Gain The Knowledge About Equivalent Circuit Types And Operation Of Transformer,Dc Machine And Ac Generator
		18EE33.3	To,Gain The Knowledge About Types Of Tests Carried On Transformer,Dc Machine And Ac Generator
18	ANALOG ELECTRONIC CIRCUITS	18EE34.1	Students will be able to Analyze the diode equivalent circuits and its application in rectifier circuits, clipping and clamping circuits
		18EE34.2	Analyze operating points and design for different biasing circuits with BJT and methods of bias stabilization
		18EE34.3	Modeling of BJT and FET using hybrid equivalent parameters and Re model for low frequencies.
		18EE34.4	Analyze, design and solve problems on BJT Amplifiers and Oscillators
19	Digital System Design	18EE35.1	Students will be able to Apply the knowledge of number system codes and Boolean algebra for the analysis and design of digital logic circuit. Apply the knowledge of the various design method to solve the problem of control circuit of a given input and output
		18EE35.2	Design and analyze various logic circuits like decoder, encoder, comparator, multiplexer, de-multiplexers etc.
		18EE35.3	Design and analyze various logic circuit such as Flip-Flop, shift registers and mod counters.
		18EE35.4	Apply the knowledge of design methods to solve problems on sequential circuit of multiple input/output and draw the state machine and analyze them, memory storage devices like Programmable ROM, EPROM, Flash memory
20	ELECT AND ELECTR MEASUREMENTS	18EE36.1	Students will be capable of understanding the methods to find R, L and C by using different bridges.
		18EE36.2	Students will be capable of understanding the different construction and operating principle of equipments used for measuring electrical quantities.
		18EE36.3	Students will be capable of understanding the different principle of recorders and different displays used in the instrumentation system.
21	ELECT MACHINES LABORATORY-I	18EEL37.1	Conducting different test on transformers and synchronous machines and evaluation of their performance.
		18EEL37.2	Verify the parallel operation of two single phase transformers.
		18EEL37.3	Study the connection of single phase transformers for three phase operation and phase conversion
		18EEL37.4	Study of synchronous generator connected to infinite bus.
22	ELECTRONICS LABORATORY	18EEL38.1	Understand the design and experimental analysis of analog circuits and verifying operational results with help of
		18EEL38.2	Understand the Digital circuits design concepts and verifying truth tables with hardware kit
		18EEL38.3	Understand the simulation of analog and digital circuits with free softwares and verifying truth tables
23	ADALITA KANNADA	18KKA39.1	ಕನ್ನಡ ಭಾಷೆ, ಸಾಹಿತ್ಯ ಮತ್ತು ಕನ್ನಡದ ಸಂಸ್ಕೃತಿಯ ಪರಿಚಯವಾಗುತ್ತದೆ.
		18KKA39.2	ಕನ್ನಡ ಸಾಹಿತ್ಯದ ಆಧುನಿಕ ಪೂರ್ವ ಮತ್ತು ಆಧುನಿಕ ಕಾವ್ಯಗಳು ಮತ್ತು ಸಂಸ್ಕೃತಿಯ ಬಗ್ಗೆ ಆಸಕ್ತಿ ಮೂಡುತ್ತದೆ.
		18KKA39.3	ತಾಂತ್ರಿಕ ವ್ಯಕ್ತಿಗಳ ಪರಿಚಯವಾಗುತ್ತದೆ.
		18KKA39.4	ಕನ್ನಡ ಭಾಷಾಭ್ಯಾಸ, ಸಾಮಾನ್ಯ ಕನ್ನಡ ಹಾಗೂ ಆಡಳಿತ ಕನ್ನಡದ ಪದಗಳ ಪರಿಚಯವಾಗುತ್ತದೆ.

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			4th SEMESTER
24	COMPLEX ANAL, PROB & STATISTICA	18MAT41.1	To understand the concept of complex functions
		18MAT41.2	To understand the concept of complex integration
		18MAT41.3	To apply discrete and continuous probability distributions in analyzing the probability models
		18MAT41.4	To make use of the correlation and regression concept to fit a suitable mathematical model for the statistical data
		18MAT41.5	To construct the joint probability distributions and analyze samples by using various sampling techniques
25	POWER GENE AND ECONOMICS	18EE42.1	Working of principle of hydro, nuclear, steam and other related equipments of power generation.
		18EE42.2	Distinguish substations and operation of substation equipments.
		18EE42.3	Importance of grounding and grounding methods used in practice.
		18EE42.4	Importance of power factor and economic aspects considered during generation .
26	TRANSMISSION AND DISTRIBUTION	18EE43.1	Derive expression for sag and tension at all levels with the effect of wind and ice.
		18EE43.2	Understand concept of corona and derive expressions for methods of string efficiency for insulator.
		18EE43.3	Analyze different types of HV cables and derive expression for insulation resistance of cable.
		18EE43.4	Derive expressions for capacitance and inductance of 3 phase lines with equilateral and unsymmetrical spacing.
		18EE43.5	Derive expression for performance of all the transmission lines and classification of distribution system.
27	ELECTRIC MOTORS	18EE44.1	Students will be able to Explain the constructional features and working of different electric motors and select a suitable drive for specific application
		18EE44.2	Students will be able to Explain the different methods to start and to control the speed of electric motors.
		18EE44.3	Students will be able to Analyse and assess the performance characteristics of different electric motors by conducting suitable tests.
28	Electromagnetic Field Theory	18EE45.1	Student will be able to: Scalars and Vectors, Vector algebra, Cartesian co-ordinate system, Vector components and unit vectors Understand calculation of electric field and electric potential, capacitance for different charge geometries and able to solve problem based on that.
		18EE45.2	Learn and Calculate magnetic field magnetic vector potential, magnetic boundary condition, force calculation between current carrying wires.
		18EE45.3	Understand the concept of Faradays law, displacement current, thereby deriving the Maxwell's equations
		18EE45.4	Understand wave equations and its solution in free space, dielectric, conductor & poynting therom.
29	OPERATIONAL AMPL AND LINEAR ICS	18EE46.1	Understand the basics of Op amp and its characteristics and also the various Applications of Op amp. Able to distinguish between different types of Op amp
		18EE46.2	Understand the operation, design of first and second order high pass and low pass filters, band pass filters, band stop filters. And also analyze the various types of DC voltage regulators.
		18EE46.3	Understand and design of different signal waveform generator and also about different comparators and converters.
		18EE46.4	Understand the different signal processing circuits and also analyze and apply the A/D and D/A converters.
		18EE46.5	Understand the structure of 555 Timer and analyze the Operation of Phase Locked Loop and its applications
30	ELECTRICAL MACHI LABORATORY -2	18EEL47.1	Performance evaluation / Parameters of a DC Shunt Motor and Series Motor by different methods
		18EEL47.2	Speed control of DC Shunt Motor
		18EEL47.3	Performance evaluation / Parameters of a 1-φ and 3-φ Induction Motor by direct and indirect methods.
		18EEL47.4	The V and inverted V curves of an a Synchronous Motor
31	OP- AMP AND LINEAR ICS LABORATORY	18EEL48.1	Design & verify the operation of Op-amp
		18EEL48.2	Design & realize the frequency response of Op-amp.
		18EEL48.3	Design & realize the different converters, comparators, timers etc.,
32	CON. OF INDIA, PROF. ETH & CYR	18CPC49.1	Have constitutional knowledge and legal literacy
		18CPC49.2	Understand engineering and professional ethics and responsibilities of engineers.
		18CPC49.3	Understand the cybercrimes and cyber laws for cyber safety neasures

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Sl No	Subject Name	CO,s	CO Statement
			5th SEMESTER
33	MANG. AND ENTR.SHIP	18EE51.1	To understand the concept of management, organizing, staffing
		18EE51.2	To explain the business responsibilities, concept of enterepreneurship, role & importance of entrepreneur in economical development
		18EE51.3	To discuss the importance of small-scale industries & related problems involved & different institutions supporting business enterprises
		18EE51.4	To explain the project feasibility study, project apprasal & project financing
34	Microcontroller	18EE52.1	Students will be able to understand the general aspects related to microcontroller, types, applications of 8051 etc. Architecture, Pin Diagram & Block Diagram of 8051 Microcontroller.
		18EE52.2	Addressing Modes, Instruction Set of 8051 microcontroller & able to write Assembly Program. Also Assembly & C program for interfacing 8051 with ADC, DAC, Stepper motor etc using 8255 also.
		18EE52.3	Timers, Interrupts & Serial Communication of 8051 & able to write Assembly & C programs.
35	Power Electronics	18EE53.1	Students will be able to identify different types of power electronic switches and are able to understand diode characteristics, its types and single phase full wave diode rectifier with different types of loads.
		18EE53.2	Students will be able to explain power transistors such as BJTs, MOSFETs and IGBTs; their characteristics and gate drives (or base drives).
		18EE53.3	Students will be able to Understand types of thyristors, their operation, gate characteristics and gate control requirements.
		18EE53.4	Students will be able to Explain the design and characteristics of thyristor controlled rectifiers. Also able to discuss principle of operation of basic types of DC-DC and DC-AC converters.
36	Signals And Systems	18EE54.1	Explain the various types of signals, behaviour of system and the basic operations that can be performed on signals and properties of systems.
		18EE54.2	Apply convolution in both continuous and discrete domain for the analysis of systems given impulse response of a system. Solve the continuous time and discrete time systems by various methods and their representation by block diagram.
		18EE54.3	Perform Fourier analysis for continuous and discrete time, linear time invariant systems.
		18EE54.4	Apply Z-transform and properties of Z transform for the analysis of discrete time systems
37	Electrical Machine Design	18EE55.1	Understand the different electrical and magnetic materials & their properties used in electrical machines
		18EE55.2	Understand the of Design of DC Machines based on given specifications
		18EE55.3	Understand the Design of Transformers, Induction Motors, (1Φ,3Φ) , Synchronous Machine based on given based on given specifications
38	HIGH VOLTAGE ENGINEERING	18EE56.1	Conduction and breakdown mechanisms in solids, liquid and gaseous forms of insulating materials
		18EE56.2	Different ways of different methods of generating high voltages and currents (AC, DC and Impulse)
		18EE56.3	Occurrence of over voltages and insulation coordination in the power system
		18EE56.4	Different methods of measuring the high voltages and currents and the testing of electrical equipments
39	MICROCONTR OLLER LAB	18EEL57.1	Write assembly language programs for data transfer, arithmetic, Boolean and logical instructions.
		18EEL57.2	Write ALP for code conversions.
		18EEL57.3	Write ALP using subroutines for generation of delays, counters, configuration of SFRs for serial communication and timers.
		18EEL57.4	Perform interfacing of stepper motor and dc motor for controlling the speed.
		18EEL57.5	Generate different waveforms using DAC interface.
40	Power Electronics Lab	18EEL58.1	Students will be able to verify the static characteristics of semiconductor devices such as MOSFET, IGBT, SCR & TRIAC and discuss their performance.
		18EEL58.2	Students will be able to demonstrate the triggering of SCR and commutation of SCR by different methods.
		18EEL58.3	Students will be able to verify the performance of single phase full wave controlled rectifier (with R and RL loads), AC voltage controller (with R and RL loads) and single phase full bridge inverter (with R load).
		18EEL58.4	Students will be able to demonstrate the speed control of a dc motor, universal motor and stepper motors.
41	ENVIRONMEN TAL STUDIES	18CIV59.1	Understand the principles of ecology and environmental issues that apply to air, land, and water issues on a global scale,
		18CIV59.2	Develop critical thinking and/or observation skills, and apply them to the analysis of a problem or question related to the environment.
		18CIV59.3	Demonstrate ecology knowledge of a complex relationship between biotic and a biotic components.
		18CIV59.4	Apply their ecological knowledge to illustrate and graph a problem and describe the realities that managers face when dealing with complex issues.

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			6th SEMESTER
42	Control Systems	18EE61.1	Students will be able to define, classify control systems and form mathematical model of physical systems.
		18EE61.2	Students will be able to apply block diagram manipulation and signal flow graph method to obtain transfer function of system.
		18EE61.3	Students will be able determine transient and steady state time response of a simple control system.
		18EE61.4	Students will be able to discuss stability analysis using RH criterion, Root locus, Bode plots and Nyquist plots.
		18EE61.5	Students will be able to design controller or compensator for given control system.
43	POWER SYSTEM ANALYSIS - I	18EE62.1	Model the power system components & construct per unit impedance diagram of power system.
		18EE62.2	Analyze three phase symmetrical faults on power system. Compute unbalanced phasors in terms of sequence components and vice versa, also develop sequence networks
		18EE62.3	Analyze various unsymmetrical faults on power system.
		18EE62.4	Examine dynamics of synchronous machine and determine the power system stability.
44	Digital Signal Processing	18EE63.1	To understand the basics related to DSP and student should be able to compute and evaluate the DFT and IDFT of given DTS.
		18EE63.2	Student should be able to compute and evaluate the DFT and IDFT of given DTS by DIT and DIF-FFT algorithms.
		18EE63.3	To understand the basic related to analog filters and their design. Further students should able to design digital IIR and FIR filters and develop the computation structures of them.
45	COMPUTER AIDED ELECTRICAL DRAWING	18EE643.1	To develop and draw DC and AC machine winding diagram.
		18EE643.2	To draw the single line diagram of substation.
		18EE643.3	To analyze and draw the sectional views of Transformers.
		18EE643.4	CO4: To analyze and draw the sectional views of DC machine and Alternator.
46	INTRODUCTION TO DATA STRUCTURES	18CS652.1	Identify different data structures in C programming language
		18CS652.2	Appraise the use of data structures in problem solving
		18CS652.3	Implement data structures using C programming language.
47	INTRODUCTION TO OPERATING SYSTEM	18CS654.1	Introduce concepts and terminology used in OS
		18CS654.2	Explain threading and multithreaded systems
		18CS654.3	Illustrate process synchronization and concept of Deadlock
		18CS654.4	Introduce Memory and Virtual memory management, File system and storage techniques.
48	NON-CONVENTIONAL ENERGY SOURCES	18ME651.1	The student will be able to provide detailed information of the present energy scenario and available NCES
		18ME651.2	The student will be able to provide insight knowledge in basics of solar radiation geometry and various measurement techniques available.
		18ME651.3	The student will be to explain solar thermal devices, PV conversion and their performance analysis and wind energy
		18ME651.4	The sudent will be able explainthe conceptual knowledge about the various energy cinversion methods such as wind, Tidal, OTEC, Geothermal, Biomass nad Hydrogen energy and their imapct on environment and sustanability
49	REMOTE SENSING & GIS	18CV651.1	Collect data and delineate various elements from the satellite imagery using their spectral signature.
		18CV651.2	Analyze different features of ground information to create raster or vector data.
		18CV651.3	Perform digital classification and create different thematic maps for solving specific problems
		18CV651.4	Make decision based on the gis analysis on thematic maps
50	CONTROL SYSTEM LABORATORY	18EEL66.1	Students will be able to execute time response analysis of a second order control system using MATLAB
		18EEL66.2	Students will be able to analyze and interpret stability of the system through Root Locus and Bode plot
		18EEL66.3	Students will be able to design Lag, Lead, Lag-Lead compensators and verify experimental results using MATLAB
		18EEL66.4	Students will be able to analyze toque- speed characteristics of DC and AC servomotors
		18EEL66.5	Students will be able to analyze the effect of P, PI, PD and PID controllers on a control system
51	DIGITAL SIGNAL PROCESSING LABORATORY	18EEL67.1	To Understand how to compute Impulse response, Linear convolution and solution of Difference equation and verify in MATLAB.
		18EEL67.2	To Understand how to compute DFT, circulation convolution, and verify in MATLAB
		18EEL67.3	To Understand how to design IIR and FIR filter and verify in MATLAB
52	MINI-PROJECT	18EEMP68.1	Students are going to enhance their knowledge in research & developmental activities.
		18EEMP68.2	Students will improve their Communication (Oral & Written) skills & Presentation skills.
		18EEMP68.3	Students will learn to work in team.

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DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING
Co,s STATEMENTS FOR THE SCHEME 2018 (BATCH : 2018 – 2022)

Sl No	Subject Name	CO,s	CO Statement
			7th SEMESTER
53	Power System Analysis – 2	18EE71.1	To formulate network matrices.
		18EE71.2	To perform steady state power flow analysis of power systems using numerical iterative techniques.
		18EE71.3	To show knowledge of optimal operation of generators on a bus bar.
		18EE71.4	To perform numerical solution of swing equation for multi-machine stability
54	Power System Protection	18EE72.1	To explain construction and operating principles & performance of different protective relays.
		18EE72.2	To discuss protection of generators, motors, Transformer and Bus Zone Protection
		18EE72.3	To explain the construction, operating principle of different types of circuit breakers & fuses.
		18EE72.4	To discuss protection against over voltages and Gas Insulated Substation (GIS).
55	Advanced Control Systems	18EE734.1	Students will be able to obtain a state model for given system.
		18EE734.2	Students will be able to obtain state transition matrix for a given system.
		18EE734.3	Students will be able to perform test on a system to check if system is controllable and observable and able to design state observer.
		18EE734.4	Students will be able asses the stability of nonlinear system with the help of phase plane method.
56	Utilization of Electrical Power	18EE742.1	Students will be able to Distinguish between different types of heating and welding application
		18EE742.2	Learn application of electro chemical science to metallurgy
		18EE742.3	The working of electric lamps and design the illumination system for different applications
		18EE742.4	Explain the electric traction system by considering the various parameters, classification of traction, traction motor selection, controlling of traction motor and hybrid electrical vehicles
57	ENVIRONMENTAL PROTECTION AND MANAGEMENT	18CV753.1	Appreciate the elements of Corporate Environmental Management systems complying to international environmental management system standards.
		18CV753.2	Lead pollution prevention assessment team and implement waste minimization options.
		18CV753.3	Develop, Implement, maintain and Audit Environmental Management systems for Organizations.
58	INTRODUCTION TO BIG DATA ANALYTICS	18CS751.1	Explain the importance of data and data analysis
		18CS751.2	Interpret the probabilistic models for data
		18CS751.3	Define hypothesis, uncertainty principle
		18CS751.4	Evaluate regression analysis
59	ENERGY AND ENVIRONMENT	18ME751.1	Student will Understand energy scenario, energy sources and their utilization
		18ME751.2	Students will learn about methods of energy storage, energy management and economic analysis
		18ME751.3	Students will have proper awareness about environment and eco system
		18ME751.4	Student will Understand the environment pollution along with social issues and acts.
60	PSS laboratory	18EEL76.1	Students will be able to create a MATLAB code to solve problems on transmission line performance, performance of synchronous generator and network matrices.
		18EEL76.2	Students will be able to use MiPower Software package to perform Load flow studies and Economical dispatch problem
		18EEL76.3	Students will be able to use Simulink to perform power system stability studies.
61	Relay & HV lab	18EEL77.1	Flashover characteristics or air medium subjected to AC / Dc with different electrode set up.
		18EEL77.2	Breakdown of oil and its properties and breakdown down theories.
		18EEL77.3	Abnormal conditions an IM and generator and its protection .
		18EEL77.4	Inverse and definite characteristics of both electromechanical and static relay (OC / OV / UV)
62	Project Work Phase - 1	18EEP78.1	Students are going to enhance their knowledge in research & developmental activities.
		18EEP78.2	Students will improve their Communication (Oral & Written) skills & Presentation skills.
		18EEP78.3	Students will learn to work in team.

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Sl No	Subject Name	CO,s	CO Statement
			8th SEMESTER
63	Power System Operation and Control	18EE81.1	To understand and explain the basics of power system operation, Architecture & configuration of SCADA
		18EE81.2	To develop & analyze mathematical models of Automatic Load Frequency Control & Automatic Generation Control in Interconnected Power System
		18EE81.3	To discuss Control of Voltage, Reactive Power & Voltage Collapse.
		18EE81.4	To explain security, contingency analysis, state estimation of power system.
64	Electrical Estimation and Costing	18EE822.1	Explain general principles of estimation and major applicable I.E. rules.
		18EE822.2	Discuss wiring methods, cables used, design of lighting points and sub-circuits, internal wiring, accessories and fittings, fuses, and types.
		18EE822.3	Discuss estimation of service mains and power circuits.
		18EE822.4	Discuss estimation of overhead transmission and distribution system components.
		18EE822.5	Discuss types of the substation, main components and estimation of substation
65	Technical Seminar	18EES84.1	Prepare comprehensive report based on literature survey related to recent engineering development
		18EES84.2	Comprehend the engineering activities with effective presentation
		18EES84.3	Able to summarize, technical societal information through various resources
		18EES84.4	Justify the presentation content individually to a group
66	Project Work Phase - 2	18EEP83.1	Students are going to enhance their knowledge in research & developmental activities.
		18EEP83.2	Students will improve their Communication (Oral & Written) skills & Presentation skills.
		18EEP83.3	Students will learn to work in team.

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