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College Code : 35

B.TECH – ELECTRICAL AND ELECTRONICS ENGINEERING		
COURSE OUT COMES FOR FIRST YEAR FIRST SEMESTER (R 23)		
COURSE TITLE	CO's	STATEMENT
COMMUNICATIVE ENGLISH R201101	CO-1	To understand social or transnational dialogues spoken by native speakers of English And identify the context ,topic, and pieces of specific information
	CO-2	To ask and answer general questions on familiar topics and introduce oneself/others
	CO-3	To employ suitable strategies for skimming and scanning to get the general idea of a Text and locate specific information
	CO-4	To recognize paragraph structure and be able to match beginnings/endings/headings with paragraphs
	CO-5	To form sentences using proper grammatical structures and correct word forms
MATHEMATICS-I R201102	CO-1	To utilize mean value theorems to real life pr
	CO-2	To solve the differential equations related to various engineering fields
	CO-3	To familiarize with functions of several variables which is useful in optimization
	CO-4	To apply double integration techniques in evaluating areas bounded by region
	CO-5	To important tools of calculus in higher dimensions. Students will become familiar with 2-dimensional and 3-dimensional coordinate systems
MATHEMATICS-II (Linear Algebra and Numerical Methods) R201103	CO-1	To develop the use of matrix algebra techniques that is needed by engineers for Practical applications
	CO-2	To solve system of linear algebraic equations using Gauss elimination, Gauss Jordan, Gauss Seidel
	CO-3	To evaluate the approximate roots of polynomial and transcendental equations by different algorithms
	CO-4	To apply Newton's forward & back ward interpolation and Lagrange's formulae for Equal and unequal intervals
	CO-5	To apply numerical integral techniques to different Engineering problems
PROGRAMMING FOR PROBLEM SOLVING USING C R201104	CO-1	To write algorithms and to draw flowcharts for solving problems
	CO-2	To convert flowcharts/algorithms to C Programs, compile and debug programs
	CO-3	To use different operators, data types and write programs that use two-way/ multi-way selection
	CO-4	To design and implement programs to analyze the different pointer applications
	CO-5	To decompose a problem into functions and to develop module are usable code
ENGINEERING DRAWING & DESIGN R201105	CO-1	The student will learn how to visualize 2D objects
	CO-2	The student will learn how to visualize 3D objects
	CO-3	To constructing the various types of polygons, curves and scales
	CO-4	To draw the projections of the plane inclined to both the planes

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	CO-5	To be able to represent and convert the isometric view to orthographic view and vice Versa.
ENGLISH COMMUNICATION SKILLS LABORATORY R201106	CO-1	To identify the Common Errors in Pronunciation
	CO-2	To determine Word stress-DI-syllabic words, poly-syllabic words, weak and strong forms, contrastive stress
	CO-3	To find Stress in compound words,rhythm, intonation,accent neutralization
	CO-4	To Listening to short audio texts and identifying the context and specific pieces of information to answer a series of questions in speaking
	CO-5	To practice Newspapers reading; Understanding and identifying key terms and Structures useful for writing reports
ELECTRICAL ENGINEERING WORKSHOP R201107	CO-1	To Explain the limitations, tolerances, safety aspects of electrical systems and wiring
	CO-2	To Select wires/cables and other accessories used in different types of wiring.
	CO-3	To Make simple lighting and power circuits
	CO-4	To Measure current, voltage and power in a circuit
	CO-5	To handle various electric tools
PROGRAMMING FOR PROBLEM SOLVING USING C LAB (ES1202)	CO-1	To Gains Knowledge on various concepts of a C language.
	CO-2	To Draw flowcharts and write algorithms..
	CO-3	To Design and development of C problem solving skills.
	CO-4	To Design and develop modular programming skills.
	CO-5	To Trace and debug a program
COURSE OUT COMES FOR FIRST YEAR SECOND SEMESTER (23)		
COURSE TITLE	CO's	STATEMENT
MATHEMATICS-III (Vector Calculus, Transforms and PDE) R2012011	CO-1	To interpret the physical meaning of different operators such as gradient, curl and divergence
	CO-2	To estimate the work done against a field, circulation and flux using vector calculus
	CO-3	To apply the Laplace transform for solving differential equations
	CO-4	To find or compute the Fourier series of periodic signals
	CO-5	To know and be able to apply integral expressions for the forwards and inverse Fourier transform to a range of non-periodic waveforms
APPLIED PHYSICS R2012012	CO-1	To Explain the need of coherent sources and the conditions for sustained interference
	CO-2	To Understand the basic concepts of LASER light Sources
	CO-3	To Explain the importance of K-P model
	CO-4	To Explain the applications of dielectric and magnetic materials
	CO-5	To Identify applications of semiconductors in electronic devices
DATA STRUCTURES THROUGH C R2012013	CO-1	To data structures concepts with arrays, stacks, queues.
	CO-2	To linked lists for stacks, queues and for other applications
	CO-3	To traversal methods in the Trees.

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	CO-4	To various algorithms available for the graphs
	CO-5	To sorting and searching in the data retrieval applications.
ELECTRICAL CIRCUIT ANALYSIS-I R2012014	CO-1	To find Various electrical networks in presence of active and passive elements.
	CO-2	To analyze Electrical net works with net work topology concepts.
	CO-3	To determine Any magnetic circuit with various dot conventions.
	CO-4	To find Any R, L, C net work with sinusoidal excitation.
	CO-5	To determine Any R, L, net work with variation of any one of the parameters i.e., R, L, C and f.
BASIC CIVIL AND MECHANICAL ENGINEERING R2012015	CO-1	To Apply Shear force diagram & Bending moment diagram principles for Cantilever and Simply Supported beams.
	CO-2	To Apply concepts of Rosette analysis for strain measurements.
	CO-3	To Analyze the characteristics of common building materials.
	CO-4	To Compare the working characteristics of Internal Combustion engines.
	CO-5	To Compare the differences between boiler mountings and accessories.
APPLIED PHYSICS LAB R2012016	CO-1	To Determine the thickness of thin object by wedge method
	CO-2	To determine the energy gap of a semiconductor using p-n junction diode.
	CO-3	To Determine the wavelength of Laser light using diffraction grating.
	CO-4	To Determine the numerical aperture and acceptance angle of an optical fiber.
	CO-5	To Measurement of the resistance of a semiconductor with varying temperature.
BASIC CIVIL AND MECHANICAL ENGINEERING LAB R2012017	CO-1	To Solve to arrive at finding constant speed and variable speed on IC engines and interpret their Performance.
	CO-2	To Estimate energy distribution by conducting heat balance test on IC engines
	CO-3	To Explain procedure for standardization of experiments
	CO-4	To Determine flow discharge measuring device used in pipes channel sand tanks.
	CO-5	To Determine fluid and flow properties
DATA STRUCTURES THROUGH C LAB R2012018	CO-1	To Be able to design and analyze the time and space efficiency of the data structure.
	CO-2	To Be capable to identify the appropriate data structure for given problem.
	CO-3	To Have practical knowledge on the applications of data structures.
	CO-4	To Implement basic operations on Circular Queue.
	CO-5	To Implement of Breadth First Search Techniques.
CONSTITUTION OF INDIA R2012019	CO-1	To Understand historical background of the constitution making and its importance for building a Democratic India.
	CO-2	To Understand the functioning of three wings of the government I.e., executive, Legislative and judiciary.
	CO-3	To Understand the value of the fundamental rights and duties for becoming good Citizen of India.

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	CO-4	To Analyze the decentralization of power between central, state and local self-government.
	CO-5	To Apply the knowledge in strengthening of the constitutional institutions like CAG, Election Commission and UPSC for sustaining democracy
COURSE OUT COMES FOR SECOND YEAR FIRST SEMESTER (23)		
COURSE TITLE	CO's	STATEMENT
MATHEMATICS-IVR2021021	CO-1	To interpret the physical meaning of different operators such as gradient, curl and divergence
	CO-2	To estimate the work done against a field, circulation and flux using vector calculus
	CO-3	To apply the Laplace transform for solving differential equations
	CO-4	To find or compute the Fourier series of periodic signals
	CO-5	To know and be able to apply integral expressions for the forward and inverse Fourier Transform to a range of non-periodic waveforms
ELECTRONIC DEVICES AND CIRCUITS R2021022	CO-1	To Understand the basic concepts of semiconductor physics.
	CO-2	To Understand the formation of p-n junction and how it can be used as a p-n junction As diode in different modes of operation.
	CO-3	To Know the construction, working principle of rectifiers with and without filters with Relevant expressions and necessary comparisons
	CO-4	To Understand the construction, principle of operation of transistors, BJT and FET With their V-I characteristics in different configurations.
	CO-5	To Perform the analysis of small signal low frequency transistor amplifier circuits Using BJT and FET in different configurations
ELECTRICAL CIRCUIT ANALYSIS-II R2021023	CO-1	To Understand the concepts of balanced and unbalanced three-phase circuits.
	CO-2	To Know the transient behavior of electrical networks with DC excitation.
	CO-3	To Learn the transient behavior of electrical networks with AC excitation.
	CO-4	To Estimate various parameters of a two port network.
	CO-5	To Understand the significance of filters in electrical networks.
DC MACHINES AND TRANSFORMERS R2021024	CO-1	To Assimilate the concepts of electromechanical energy conversion.
	CO-2	To Mitigate the ill-effects of armature reaction and improve commutation in dc Machines.
	CO-3	To Understand the torque production mechanism and control the speed of dc motors..
	CO-4	To Analyze the performance of single phase transformers.
	CO-5	To Parallel transformers, control voltages with tap changing methods and achieve three-Phase to two-phase transformation.
ELECTROMAGNETIC FIELD THEORY R2021025	CO-1	To Compute electric fields and potentials using Gauss law or solve Laplace's or Poisson's equations For various electric charge distributions
	CO-2	To Calculate the capacitance and energy stored in dielectrics.

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	CO-3	To Calculate the magnetic field intensity due to current carrying conductor and Understand the application of Ampere's law, Maxwell's second and third law.
	CO-4	To Estimate self and mutual inductance and the energy stored in the magnetic field.
	CO-5	To Understand the concepts of displacement current and Pointing theorem and Pointing vector
ELECTRICAL CIRCUITS LAB R2021026	CO-1	To Apply various theorems
	CO-2	To Determination of self and mutual inductance
	CO-3	To Two port parameters of a given electric circuits
	CO-4	To Draw locus diagrams
	CO-5	To Draw Wave forms and phase diagrams for lagging and leading networks
DC MACHINES AND TRANSFORMERS LAB R2021027	CO-1	To Determine and predetermine the performance of DC machines and Transformers.
	CO-2	To Control the speed of DC motor
	CO-3	To Obtain three phase to two phase transformation
	CO-4	To find Parallel operation of two Single phase Transformers under no-load and load conditions
	CO-5	To Predetermination of efficiency of two DC shunt machines by conducting Hopkinson's test
ELECTRONIC DEVICES AND CIRCUITS LAB R2021028	CO-1	To Analyze the characteristics of diodes, transistors and other devices
	CO-2	To Design and implement the rectifier circuits, SCR and UJT in the hardware circuits.
	CO-3	To Design the biasing and amplifiers of BJT and FET amplifiers
	CO-4	To Measure electrical quantities using CRO in the experimentation
	CO-5	To find rating Ammeters (Analog or Digital)
SKILL ORIENTED COURSE DESIGN OF ELECTRICAL CIRCUITS USING ENGINEERING SOFTWARE TOOLS R2021029	CO-1	To write the MATLAB programs to simulate the electrical circuit problems
	CO-2	To simulate various circuits for electrical parameters
	CO-3	To simulate various wave form for determination of wave form parameters
	CO-4	To simulate RLC series and parallel resonance circuits for resonant parameters
	CO-5	To simulate magnetic circuits for determination of self and mutual inductance
PROFESSIONAL ETHICS & HUMAN VALUES SOFTWARE TOOLS R2021020	CO-1	To Identify and analyze an ethical issue in the subject matter under investigation or in a relevant field
	CO-2	To Identify the multiple ethical interest at stake in a real-world situation or practice
	CO-1	To Identify ethical concerns in research and intellectual contexts, including academic
	CO-3	integrity, use and citation of sources, the objective presentation of data, and the treatment of human subjects
	CO-4	To Demonstrate knowledge of ethical values in non-class room activities ,such as service learning ,internships ,and fieldwork

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	CO-5	To Integrate, synthesize, and apply knowledge of ethical dilemma and resolutions in Academic settings, including focused and inter disciplinary research.
COURSE OUT COMES FOR SECOND YEAR SECOND SEMESTER (23)		
COURSE TITLE	CO's	STATEMENT
PYTHON PROGRAMMING R2022001	CO-1	To Develop essential programming skills in computer programming concepts like data Types ,containers
	CO-2	To Apply the basics of programming in the Python language Solve coding tasks related
	CO-3	To conditional execution ,loops
	CO-4	To Solve coding tasks related to the fundamental notions and techniques used in object-Oriented programming
	CO-5	To Python ,Program Development Cycle ,Input ,Processing
DIGITAL ELECTRONICS R2022002	CO-1	To Classify different number systems and apply to generate various codes
	CO-2	To Use the concept of Boolean algebra in minimization of switching functions
	CO-3	To Design different types of combination al logic circuits. •
	CO-4	To Apply knowledge of flip-flops in designing of Registers and counters
	CO-5	To The operation and design methodology for synchronous sequential circuits and Algorithmic state machines.
POWER SYSTEMS - I R2022003	CO-1	To CI Identify the different components of thermal power plants.
	CO-2	To Identify the different components of nuclear Power plants
	CO-3	To Identify the different components of air and gas insulated substations.
	CO-4	To Identify single core and three core cables with different insulating materials
	CO-5	To Analyze the different economic factors of power generation and tariffs.
INDUCTION AND SYNCHRONOUS MACHINES R2022004	CO-1	To Explain the operation and performance of three phase induction motor.
	CO-2	To Analyze the torque-speed relation, performance of induction motor and induction generator.
	CO-3	To Implement the starting of single phase induction motors
	CO-4	To Develop winding design and predetermine the regulation of synchronous generators.
	CO-5	To Explain hunting phenomenon, implement methods of starting and correction of power factor with synchronous motor.
MANAGERIAL ECONOMICS & FINANCIAL ANALYSIS R2022005	CO-1	To The Learner is equipped with the knowledge of estimating the Demand and demand Elasticity's for a product.
	CO-2	To The knowledge of understanding of the Input-Output-Cost relationships and Estimation of the least cost combination of inputs.

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	CO-3	ToThepupilisalsoreadytounderstandthenatureofdifferentmarketsandPriceOutput determination under various market conditions and also to have the knowledge of different Business Units.
	CO-4	ToTheLearnerisabletoprepareFinancialStatementsandtheusageofvariousAccounting tools for Analysis
	CO-5	ToTheLearnerisabletoevaluatevariousinvestmentprojectproposalswiththehelpof capital budgeting techniques for decision making
PYTHONPROGRAMMING LAB R2022006	CO-1	To Write, Test and Debug Python Programs
	CO-2	To Use Conditionals and Loops for Python Programs
	CO-3	To Use functions and represent Compound data using Lists ,Tuples and
	CO-4	To Dictionaries Use various applications using python
	CO-5	To Write a program that asks the user for an integer and creates a list that consists of the factors of that integer.
INDUCTION AND SYNCHRONOUS MACHINES LAB R2022007	CO-1	To Assess the performance of single phase and three phase induction motors.
	CO-2	To Control the speed of three phase induction motor
	CO-3	ToPredeterminetheregulationofthree-phasealternatorbyvariousmethods.
	CO-4	ToFindtheXd/Xqratioofalternatorandassessetheperformanceofthree-phase Synchronous motor.
	CO-5	To Determine the performance of single phase AC series motor
DIGITALELECTRONICS LAB R2022008	CO-1	To Learn the basics of gates ,flip –flops and counters.
	CO-2	To Construct basic combinational circuits and verify their functionalities
	CO-3	To Apply the design procedures to design basic sequential circuits
	CO-4	To understand the basic digital circuits and to verify their operation
	CO-5	To Apply Boolean laws to simplify the digital circuits
SKILL ORIENTED COURSE IOT APPLICATION SOFTWARE ELECTRICAL ENGINEERING R2022009	CO-1	To apply various technologies of Internet of Things to real time applications.
	CO-2	To apply various communication technologies used in the Internet of Things.
	CO-3	To connect the devices using web and internet in the IoT environment.
	CO-4	To implement IoT to study Smart Home ,Smart city, etc.
	CO-5	To Write a program on Arduino /Rasp berry Pi to up load and retrieve temperature and Humidity data to thing speak cloud.
COURSE OUTCOMES FOR THIRD YEAR FIRST SEMESTER (R 20)		
COURSE TITLE	CO's	STATEMENT
POWER SYSTEMS – II R2031021	CO-1	ToCalculateparametersoftransmissionlinesfordifferentcircuitconfigurations.
	CO-2	To Determine the performance of short, medium and long transmission lines.
	CO-3	To Analyze the effect of travelling waves on transmission lines.
	CO-4	To Analyze the various voltage control methods and effect of corona.
	CO-5	ToCalculatesag/tensionoftransmissionlinesandperformanceoflineinsulators.

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POWER ELECTRONICS R2031022	CO-1	To Illustrate the static and dynamic characteristics of SCR, Power-MOSFET and Power-IGBT.
	CO-2	To Analyze the operation of phase-controlled rectifiers.
	CO-3	To Analyze the operation of three-phase full-wave converters, AC Voltage Controllers and Cycle converters.
	CO-4	To Examine the operation and design of different types of DC-DC converters.
	CO-5	To Analyze the operation of PWM inverters of or voltage control and harmonic mitigation.
CONTROL SYSTEMS R2031023	CO-1	To Derive the transfer function of physical systems and determination of overall transfer function using block diagram algebra and signal flow graphs.
	CO-2	To Determine time response specifications of second order systems and absolute and relative stability of LTI systems using Routh's stability criterion and root locus method.
	CO-3	To Analyze the stability of LTI systems using frequency response methods.
	CO-4	To Design Lag, Lead, Lag-Lead compensation to improve system performance using Bode diagrams..
	CO-5	To Represent physical systems as state models and determine the response. Understand The concept of controllability and observability.
UTILIZATION OF ELECTRICAL ENERGY R2031024	CO-1	To Identify various illumination methods produced by different illuminating sources.
	CO-2	To Identify as suitable motor for electric drives and industrial applications
	CO-3	To Identify most appropriate heating and welding techniques for suitable applications
	CO-4	To Distinguish various traction system and determine the attractive effort and specific energy consumption.
	CO-5	To Validate the necessity and usage of different energy storage schemes for different Applications and comparisons.
OBJECT ORIENTED PROGRAMMING THROUGH JAVA R2031025	CO-1	To Discuss and understand java programming constructs, Control structures
	CO-2	To Illustrate and experiment Object Oriented Concepts like classes, objects
	CO-3	To Apply Object Oriented Constructs such as Inheritance, interfaces, and exception handling
	CO-4	To Construct applications using multi threading and I/O
	CO-5	To Develop Dynamic User Interfaces using applets and Event Handling in java
CONTROL SYSTEMS LABORATORY R2031026	CO-1	To Analyze the performance and working Magnetic amplifier, D.C and A.C. servo Motors and synchros.
	CO-2	To Design P, PI, PD and PID controllers.
	CO-3	To Design lag, lead and lag-lead compensators.
	CO-4	To Evaluate temperature control of an oven using PID controller
	CO-5	To Judge the stability in time and frequency domain.

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POWERELECTRONICS LABORATORY R2031027	CO-1	To Analyze characteristics of various power electronic devices and design firing circuits for SCR.
	CO-2	To Analyze the performance of single-phase dual, three-phase full-wave bridge
	CO-3	To Examine the operation of Single-phase AC voltage regulator and Cyclo converter With resistive and inductive loads.
	CO-4	To Differentiate the working and control of Buck converter and Boost converter.
	CO-5	To Differentiate the working & control of Square wave inverter and PWM inverter.
SOFT SKILL COURSE R2031028	CO-1	To Follow strategies in minimizing time consumption in problem solving Apply shortcut methods to solve problems
	CO-2	To Confidently solve any mathematical problems and utilize these mathematical Skills both in their professional as well as personal life.
	CO-3	To Analyze, summarize and present information in quantitative forms including table, Graphs and formulas
	CO-4	To Understand the core competencies to succeeding professional and personal life.
	CO-5	To earn and demonstrate a set of practical skills such as time management, self-management, handling conflicts, team leadership, etc.
ENVIRONMENTAL SCIENCE R2031029	CO-1	To Overall understanding of the natural resources.
	CO-2	To study Basic understanding of the ecosystem and its diversity.
	CO-3	To Acquaintance on various environmental challenges induced due to unplanned Anthropogenic activities.
	CO-4	To understanding of the environmental impact of developmental activities.
	CO-5	To have Awareness on the social issues, environmental legislation and global treaties.
COURSE OUT COMES FOR THIRD YEAR SECOND SEMESTER (R 20)		
COURSE TITLE	CO's	STATEMENT
MICROPROCESSOR AND MICROCONTROLLERS R2032001	CO-1	To Know the concepts of the Microprocessor capability in general and explore the Evaluation of microprocessors.
	CO-3	To Analyze the Micro controller and interfacing capability
	CO-4	To Describe the architecture and interfacing of 8051 controller
	CO-5	To Know the concepts of PIC micro controller and its programming
ELECTRICAL MEASUREMENTS AND INSTRUMENTATION R2032002	CO-1	To Know the construction and working of various types of analog instruments.
	CO-2	To Describe the construction and working of wattmeter and power factor meters
	CO-3	To Know the construction and working various bridges for the measurement resistance - inductance and capacitance
	CO-4	To Know the operational concepts of various transducers.
	CO-5	To Know the construction and operation of digital meters.
POWER SYSTEM ANALYSIS	CO-1	To Draw impedance diagram for a power system net work and calculate per unit quantities.

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R2032003	CO-2	To Apply the load flow solution to a power system using different methods.
	CO-3	To Form Z-bus for a power system networks and analyze the effect of symmetrical faults.
	CO-4	To Find the sequence components for power system Components and analyze its Effects of unsymmetrical faults.
	CO-5	To Analyze the stability concepts of a power system.
BIG DATAANALYTICS R2032004	CO-1	To Understand how to leverage the insights from big data analytics.
	CO-2	To Analyze data by utilizing various statistical and data mining approaches.
	CO-3	To Perform an analytic on real-time streaming data.
	CO-4	To Understand the various No Sql alternative data base models.
	CO-5	To Understand Concepts, Stream Data Model and Architecture
BATTERY MANAGEMENT SYSTEMS ANDCHARGINGSTATIONS R2032005	CO-1	To Describe the construction and operation of different batteries for EVapplications.
	CO-2	To Describe charging algorithms of different batteries and balancing methods of Battery packs.
	CO-3	To Describe the different kinds of infrastructure needed in the charging stations.
	CO-4	To Describe the requirements of battery management and their maintenance.
	CO-5	To Obtain the modeling of batteries and develop their simulation models.
ELECTRICALMEASUREMENTSANDINSRUMENTATION LABORATORY R2032006	CO-1	To Know about the phantom loading.
	CO-2	To Measure the electrical parameters voltage-current-power-energy and electrical Characteristics of resistance-inductance and capacitance.
	CO-3	To Gain the skill knowledge of various brides and their applications.
	CO-4	To Know the characteristics of transducers.
	CO-5	To Measure the strains-frequency and phase difference.
MICROPROCESSORS AND MICROCONTROLLERS LAB R2032007	CO-1	To Write assembly language program using8086 microprocessor based on arithmetic -Logical -number systems and shift operations.
	CO-2	To Write assembly language programs for numeric operations and array handling Problems.
	CO-3	To Write a assembly program on string operations.
	CO-4	To Interface 8086with I/O and other devices.
	CO-5	To Doparallelandserialcommunicationusing8051 &PIC18micro controllers.
POWERSYSTEMSAND SIMULATION LAB R2032008	CO-1	To Estimathesequenceimpedancesof3-phaseTransformerandAlternators
	CO-2	To Evaluate the performance of transmission lines.
	CO-3	To Analyze and simulate power flow methods in power systems.
	CO-4	To Analyze and simulate the performance of PI controller for load frequency control.
	CO-5	To Analyze and simulate stability studies of power systems.
SKILLADVANCED	CO-1	To Illustrate and comprehend the basics of Machine Learning with Python.

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COURSE (machine learning with python) R2032009	CO-2	To Demonstrate the algorithms of Supervised Learning and be able to differentiate Linear and logistic regressions.
	CO-3	To Demonstrate the algorithms of Unsupervised Learning and be able to understand the clustering algorithms.
	CO-4	To Evaluate the concepts of binning, pipeline Interfaces with examples.
	CO-5	To Apply the sentiment analysis for various case studies.
COURSE OUT COMES FOR FOURTH YEAR FIRST SEMESTER (R 20)		
COURSE TITLE	CO's	STATEMENT
DIGITAL SIGNAL PROCESSING R2041001	CO-1	To Know the concepts of Digital signal processing-frequency domain representation & z-transform.
	CO-2	To Compute discrete Fourier transform and fast Fourier transforms for different sequences.
	CO-3	To Analyze the Microcontroller and interfacing capability Design IIR filters through Analog filter approximation and basic structure of IIR filters.
	CO-4	To Design FIR filters with window techniques and basic structure of FIR filters.
	CO-5	To Learn the concepts of Multi-rate Signal Processing.
HYBRID ELECTRIC VEHICLES R2041002	CO-1	To Know the concept of electric vehicles and hybrid electric vehicles.
	CO-2	To Familiar with different configuration of hybrid electric vehicles.
	CO-3	To Choose an effective motor for EV and HEV application.
	CO-4	To Understand the power converters used in hybrid electric vehicles.
	CO-5	To Know different batteries and other energy storage systems.
POWER SYSTEM OPERATION AND CONTROL R2041003	CO-1	To Compute optimal load scheduling of Generators.
	CO-2	To Formulate hydro thermal scheduling and unit commitment problem.
	CO-3	To Analyze effect of Load Frequency Control for single area systems.
	CO-4	To Analyze effect of Load Frequency Control for two area systems.
	CO-5	To Describe the effect of reactive power control for transmission lines.
CONCEPTS OF MICROPROCESSOR AND MICROCONTROLLERS R2041004	CO-1	To Know the concepts of the Microprocessor capability in general and explore the Evaluation of microprocessors.
	CO-2	To Analyze the instruction sets –addressing modes –minimum and maximum modes Operations of 8086 Microprocessors.
	CO-3	To Analyze the Microcontroller and interfacing capability.
	CO-4	To Describe the architecture and interfacing of 8051 controller
	CO-5	To Know the concepts of PIC micro controller and its programming.
CONCEPTS OF POWER SYSTEM ENGINEERING R2041005	CO-1	To Know the concepts of power generation by various types of power plants.
	CO-2	To Learn about transmission line concepts and distribution systems schemes.
	CO-3	To Learn about protection equipment's and grounding methods of power system.
	CO-4	To Know the economic aspects of electrical energy and the importance.

Dr. Samuel George Institute of Engineering & Technology

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	CO-5	To Know the importance of power factor improvement and voltage control in power systems.
SKILL ADVANCED COURSE MACHINELEARNING WITH PYTHON LAB R2041006	CO-1	To Implement procedures for the machine learning algorithms.
	CO-2	To Design and Develop Python programs for various Learning algorithms.
	CO-3	To Apply appropriate data sets to the Machine Learning algorithms.
	CO-4	To Develop Machine Learning algorithms to solve real world problems.
	CO-5	To Implement Support Vector Machines and Principle Component Analysis.