



Dr.K.V. SUBBA REDDY INSTITUTE OF TECHNOLOGY

Dupadu Village, NH-44, Lakshmipuram (Post), Kurnool, AP-518218.

(Approved by AICTE, New Delhi & Affiliated to JNTUA, Anantapuramu, ISO 9001:2008 Certified Institution)

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Department of Electrical Electronics & Engineering

Year & Sem: I-I

Regulation: R20

Course Name: LINEAR ALGEBRA & CALCULUS		Course Code: 20A54101
1	Develop the use of matrix algebra techniques that is needed by engineers for practical applications.	
2	Utilize mean value theorems to real life problems.	
3	Familiarize with functions of several variables which is useful in optimization.	
4	Students will also learn important tools of calculus in higher dimensions.	
5	Students will become familiar with 3- dimensional coordinate systems and also learn the utilization of special functions	

Course Name: APPLIED PHYSICS		Course Code: 20A56201T
1	Study the different realms of physics and their applications in both scientific and technological systems through physical optics.	
2	Identify the wave properties of light and the interaction of energy with the matter.	
3	Asses the electromagnetic wave propagation and its power in different media.	
4	Understands the response of dielectric and magnetic materials to the applied electric and magnetic fields.	
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.	

Course Name: COMMUNICATIVE ENGLISH	Course Code: 20A52101T
1	Retrieve the knowledge of basic grammatical concepts
2	Understand the context, topic, and pieces of specific information from social or transactional dialogues spoken by native speakers of English
3	Apply grammatical structures to formulate sentences and correct word forms
4	Analyze discourse markers to speak clearly on a specific topic in informal discussions
5	Evaluate reading/listening texts and to write summaries based on global comprehension of these texts
6	Create a coherent paragraph interpreting a figure/graph/chart/table

Course Name: FUNDAMENTALS OF ELECTRICAL CIRCUITS	Course Code: 20A02101T
1	Given a network, find the equivalent impedance by using network reduction techniques and determine the current through any element and voltage across and power through any element.
2	Given a circuit and the excitation, determine the real power, reactive power, power factor etc
3	Apply the network theorems suitably
4	Determine the Dual of the Network, develop the Cut Set and Tie-set Matrices for a given Circuit. Also understand various basic definitions and concepts

Course Name: ENGINEERING DRAWING	Course Code: 20A03101T
1	Draw various curves applied in engineering.
2	Show projections of solids and sections graphically.
3	Draw the development of surfaces of solids.
4	Use computers as a drafting tool.
5	Draw isometric drawings using CAD packages.
6	Draw orthographic drawings using CAD packages.

Course Name: ENGINEERING GRAPHICS LAB		Course Code: 20A03101P
1	Use computers as a drafting tool.	
2	Draw isometric drawings using CAD packages.	
3	Draw orthographic drawings using CAD packages.	

Course Name: APPLIED PHYSICS LAB		Course Code: 20A56201P
1	Operate optical instruments like microscope and spectrometer	
2	Determine thickness of a hair/paper with the concept of interference	
3	Estimate the wavelength of different colors using diffraction grating and resolving power	
4	Plot the intensity of the magnetic field of circular coil carrying current with distance	
5	Evaluate the acceptance angle of an optical fiber and numerical aperture	
6	Determine the resistivity of the given semiconductor using four probe method	

Course Name: COMMUNICATIVE ENGLISH LAB		Course Code: 20A52101P
1	Listening and repeating the sounds of English Language	
2	Understand the different aspects of the English language	
3	proficiency with emphasis on LSRW skills	
4	Apply communication skills through various language learning activities	
5	Analyse the English speech sounds, stress, rhythm, intonation and syllable	
6	Division for better listening and speaking comprehension	
7	Evaluate and exhibit acceptable etiquette essential in social and professional settings	

Course Name: FUNDAMENTALS OF ELECTRICAL CIRCUITS LAB		Course Code: 20A02101P
1	Remember, understand and apply various theorems and verify practically.	
2	Understand active, reactive power measurements in three phase balanced & unbalanced circuits.	
3	analyse active, reactive power measurements in three phase balanced & unbalanced circuits.	
4	Remember, understand and apply various theorems and verify practically.	

Year & Sem: II-I

Regulation: R19

Course Name: Complex Variables & Transforms		Course Code:19A54302
1	The student can identify the basic concepts of probability theory	
2	Apply the principles of linear regression to predict the outcomes and experimental parameters	
3	Compute and interpret hypothesis testing and construct confidence intervals for the population	
4	Compare the difference between large and small samples	
5	To discriminate the complex functions	

Course Name: Basic Electrical Circuits		Course Code:19A02301T
1	Understand knowledge of DC Circuit Analysis	
2	Understand knowledge of Single Phase Circuit Analysis	
3	apply single phase circuit concepts to obtain locus diagrams and resonance	
4	Understand magnetic circuits concepts	
5	Remembering Concepts of Graph Topology	
6	Apply DC and AC circuits concepts to find various performance parameters of network	

Course Name: Power System Architecture		Course Code:19A02302
1	Understand the concepts and phenomenon of different sources of Power Generation.	
2	Explain the fundamental concepts of electrical power distribution, both AC & DC.	
3	Understand different types of indoor, outdoor substations.	
4	Explain different types of power factor improving methods.	
5	Understand different types of voltage control methods.	
6	Summarize the Tariff methods for electrical energy consumption in the prospect of optimum utilization of electrical energy	

Course Name: DC Machines & Transformers		Course Code:19A02303T
1	Describe Constructional details and discuss principle of operation of DC Machines	
2	Distinguish the similarities and identify differences between the basic types and characteristics of DC motors and DC generators	
3	Review the characteristics and summarize the performance of DC machines	
4	Estimate voltage regulation, efficiency and discuss the Performance of a Single Phase transformer	
5	Classify the types of Three Phase Transformers and summarize their performance characteristics	

Course Name: Digital Electronics and Logic Design		Course Code:19A04304
1	Apply knowledge of number system & codes.	
2	Apply knowledge of Boolean algebra.	
3	Understand Minimization of switching functions in SOP & POS forms using k-maps.	
4	Explain the concepts of combinational logic circuits using logic gates.	
5	Analyze the concepts of synchronous sequential circuits.	

6	Analyze digital systems using ASM charts.
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Course Name: DC Machines & Transformers Lab		Course Code: 19A02303P
1	Identify the significance of nameplate data for an electrical machine	
2	Evaluate, from experimental data, the operating characteristics of DC Machines	
3	Differentiates characteristics among types of DC motors and generators	
4	Estimate the various Losses in DC Machines	
5	Conduct suitable test to determine the efficiency of DC Machines.	

Course Name: Semiconductor Devices and Circuits Lab		Course Code:19A04306P
1	Will understand the analysis of solid-state circuits utilizing equivalent circuits or models and applying the fundamental circuit theorems rather than memorizing equations	
2	Understand the concepts of feedback amplifiers and linear, nonlinear circuits	
3	Explain the functioning of multivibrators and oscillators	
4	Analyze frequency response of amplifiers	
5	Analyze switching characteristics of various devices	

Course Name: Basic Electrical Circuits Lab		Course Code:19A02301P
1	Recall the operation of passive components	
2	Perform experimental verification of Thevenin and Norton equivalent circuits and the principle of superposition	
3	Measure the sine wave parameters, such as peak value, rms value, frequency, period and phase angle and dc offset	
4	Calculate power factor, real power and reactive power for circuits driven with sinusoidal sources, and experimentally verify the results	
5	Develop the capability to analyze and design simple electrical circuits	

Course Name: Biology For Engineers		Course Code:19A99302
1	Explain about cells and their structure and function different type of cells and basics for c/f living proogram	
2	Expalin about biomolecules their structure and function and thir role in living organization	
3	Briefly about human physiology	
4	Explain about genetic material DNA, genes and rna	
5	Know the application of biologyprinciple of different technologies	

Year & Sem: III-I

Regulation: R15

Course Name: Electrical Measurements		Course Code:15A02501
1	Describe different terminology related to measurements	
2	Measure frequency, phase with Oscilloscope	
3	Evaluate unknown parameters by using bridges	
4	Develop an ability to use measuring instruments and AC and DC bridges for measurement	
5	Understand and analyse different type of interferences, its causes and methods for its reduction	

Course Name: Linear & Digital IC Application		Course Code:15A04509
1	Understand the significance of Op Amps and its applications	
2	Design combinational logic circuits using digital ICs	
3	Describe the difference between Linear and Digital Integrated IC's.	
4	Ability to use OP Amp as Summer, Subtractor, Multiplier and Divider	
5	Understand the basics of programmable logic devices and implement circuits on them	

Course Name: Electrical Power Transmission System		Course Code:15A02502
1	Emphasis on mechanical design of transmission lines	
2	Evaluate sag for different types of Transmission systems	
3	Understand the construction of Underground Cables	
4	analyze the string efficiency in different conditions	
5	To make students capable of analysis of mechanical and electrical design aspects of transmission system	

Course Name: Power Electronics		Course Code:15A02503
1	Understand the Characteristics of Different Power semiconductor switches used in power Electronic.	
2	Able to Apply the triggering and commutation techniques to the thyristors	
3	Analyze and design ac to dc controlled and uncontrolled converters and relate the	
4	Able to apply phase control methods for power control.	
5	Ability to apply different types of power electronic controlled Converters, chopper Circuits, Inverters for motor drive controls.	

Course Name: Electrical Machines -II		Course Code:15A02504
1	Develop their skills in designing and analyzing of single phase transformer	
2	Create exact and approximate equivalent circuits of a transformer and determine its efficiency and voltage regulation	
3	Develop their skills in analyzing the Three-phase cored transformers and Special transformer connections	

4	Understand and analyze the performance of three phase induction motor and its performance
5	Describe the operation of induction machines in different modes that allows them to be controlled and used in industrial applications

Course Name: Digital circuits and system		Course Code:15A04510
1	Design combinational and sequential digital circuits	
2	Understand how transistors can be used to realize digital logic circuits and understand basic characteristics of logic gates (such as power, noise margins, timing, tri-state circuitry, etc.).	
3	Understand number system representations in ASCII, sign magnitude, 2's complement	
4	Understand the importance of error correction and detection codes	
5	Able to analyze and troubleshoot digital circuits using appropriate techniques and test equipment	

Course Name: Electrical Machines-II lab		Course Code:15A02506
1	Evaluate, from experimental data, the operating characteristics of induction motors	
2	Estimate the various Losses in AC Machines	
3	Determine the voltage regulation of Synchronous machines by using appropriate methods	
4	Discuss horsepower, torque, speed, efficiency and power factor characteristics of three-phase Synchronous and Asynchronous machines	
5	Connect a variety of Three Phase AC machines for correct operation	

Course Name: Electrical Measurements lab		Course Code:15A02507
1	Estimate deviations in measurements due to the influence of the instrument on the measurement object and due to the accuracy of the instrument	
2	Calibrate, test and design the various electrical measuring instruments	
3	Determine the three phase power by different techniques	
4	Obtain unknown parameters (R, L, and C) from the known parameters by using	

	corresponding bridges
5	Explain the operation of energy meter

Year & Sem: IV-I

Regulation: R15

Course Name: Electrical Distribution Systems		Course Code:15A02701
1	Understand the distribution system planning and automation	
2	Explain the design considerations of sub transmission lines	
3	Explain the design considerations of primary and secondary systems	
4	Apply various protective devices and its coordination techniques to distribution system	
5	Evaluate voltage drop and line loss calculations and design the capacitors and voltage regulating equipment to improve the power factor and voltage profile	

Course Name: Digital Signal Processing		Course Code:15A04603
1	Describe and analyze discrete time signals in the time domain and frequency domain	
2	Apply Laplace and Z-transformations methods	
3	Understand the Decimation in time and frequency FFT algorithms for efficient computation of the DFT.	
4	Analyze and design IIR and FIR digital filters.	
5	Analyze signals using the discrete Fourier transform (DFT)	

Course Name: Power System Operation and Control		Course Code:15A02702
1	Estimate the economic operation of power systems meeting all the conditions	
2	Plan the optimum unit commitment for a power system	
3	Describe how to coordinate with Regional Load Dispatch Centers for achieving maximum economy and efficiency in the operation of Grid.	
4	Design an automatic generation control scheme for power system operation and analyze generation control on a power system using simulation tools	

5	Model LFC and AVR for single and two area power systems
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Course Name: Utilization of Electrical Energy		Course Code:15A02703
1	Able to identify a heating/ welding scheme for a given application	
2	design illumination scheme to obtain required lux level at given location	
3	analyze for electrical energy consumption in existing building and estimate for energy efficient design	
4	Able to design a suitable scheme of speed control for the traction systems	
5	Able to identify the job/higher education / research opportunities in Electric Utilization industry	

Course Name: Energy Auditing and Demand side Management		Course Code:15A02706
1	Understand the concept of energy audit, types, index and cost risk analysis with depreciation Techniques	
2	Describe the analysis of load management, conservation of energy, power factor Improvement methods, energy efficient motors	
3	Analyze energy saving studies on lighting system	
4	Articulate energy saving in heating systems, concept of co generation systems	

Course Name: Power Quality		Course Code:15A02709
1	Understand the Power quality issues and standards	
2	Categorize the sources of power quality disturbances and power transients that occur in power systems	
3	The sources of harmonics, harmonic indices, Devices for controlling harmonic Distortion	

4	Analyse the principle,operation of custom power devices like DVR, UPQC and by applying them enhance the Power Quality
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Course Name: Digital signal Processing Lab		Course Code:15A04608
1	Develop Boolean Expressions using Gates	
2	Design logic gates using universal gates, full adder and subtractor	
3	Design of convertors, registers using flipflops	
4	Design Asynchronous counters using flip-flops, Multiplexers and comparators	

Course Name: Power System and Simulation Lab		Course Code:15A02710
1	Analyze simulation results and effective documentation	
2	Exhibit professional behavior	
3	Acquire expertise in usage of modern tools.	

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