



LORDS INSTITUTE OF ENGINEERING & TECHNOLOGY

(Autonomous Institution)

Approved by AICTE | Affiliated to Osmania University | Accredited 'A' grade by NAAC |

NBA Accredited UG Programmes: ME, ECE, CSE

ELECTRICAL AND ELECTRONICS ENGINEERING

AY:2022-23

COURSE OUTCOMES

Semester: III Semester

Course Outcomes:C211 Engineering Mechanics

Student will able to

CO. No.	Description
C211.1	Determine the equilibrium of a particle in space using principle of laws of mechanics.
C211.2	Analyze the trusses and frames and compute the friction.
C211.3	Compute the equilibrium of rigid bodies in two dimensions and in three dimensions.
C211.4	Find the centroid and moment of inertia of simple and composite areas
C211.5	Solve the problems of simple system with sliding friction and calculate linear and angular acceleration of moving body in general plane motion.
C211.6	Understand the concept of work energy & impulse momentum

Course Outcomes:C212 Analog Electronics

Student will able to

CO. No.	Description
C212.1	Interpret the characteristics and apply diode models to analyse various applications of diodes.
C212.2	Discriminate the BJT configurations to recognize appropriate transistor configuration for any given application and design the biasing circuits with good stability.
C212.3	Analyze and compare feedback amplifiers
C212.4	Distinguish various classes of Power Amplifiers.
C212.5	Analyze the operation of OPAMP and its applications.

Course Outcomes:C213 Electrical Machines-I

Student will able to

CO. No.	Description
C213.1	Understand the flow of energy from electrical to mechanical and mechanical to electrical system through the magnetic field
C213.2	Identify different parts of a DC Machine & understand its operation & Analyze different types of DC generators
C213.3	Understand the working of the DC Machine as a motor and Derive the equation for Torque and Perform Testing on DC Machines
C213.4	Understand the construction, working and perform different tests on transformers
C213.5	Understand the construction & working of Auto Transformers and Three phase transformers.

Course Outcomes:C214 Electromagnetic Fields**Student will able to**

CO. No.	Description
C214.1	Understand the vector calculus for electromagnetism.
C214.2	Obtain the electric fields for simple configurations under static conditions.
C214.3	Analyse and apply the static magnetic fields.
C214.4	Understand Maxwell's equation in different forms and different media.
C214.5	Understand the propagation of EM waves

Course Outcomes:C215 Electrical Circuit Analysis**Student will able to**

CO. No.	Description
C215.1	Obtain steady-state response of electrical circuits.
C215.2	Apply network theorems for the analysis of electrical circuits
C215.3	Analyse solutions of first and second-order RL, RC and RLC networks.
C215.4	Analyse electrical circuits using Laplace transforms
C215.5	Evaluate the parameters of different two-port networks.

Course Outcomes: C216 Analog Electronics Lab**Student will able to**

CO. No.	Description
C216.1	Calculate ripple factor, efficiency and % regulation of rectifier circuits
C216.2	Analyze feedback amplifiers and op-amp oscillator circuits
C216.3	Design single and multi-stage amplifier, wave shaping and controller circuits
C216.4	Understand the characteristics of electronic devices.
C216.5	Demonstrate power amplifier and Op-Amp. Circuits

Course Outcomes:C217 Electrical Circuit Analysis Lab**Student will able to**

CO. No.	Description
C217.1	Validate the network theorems
C217.2	Evaluate the time and frequency response of RLC Series and Parallel Circuits
C217.3	Find various parameters of a two-port networks
C217.4	Simulate and analyse electrical circuits using MATLAB
C217.5	Analyze complex DC and AC linear Circuits

Course Outcomes:C218 Electrical Machines-I Lab**Student will able to**

CO. No.	Description
C218.1	Estimate the efficiency and voltage regulation of DC machines by conducting various experiments and tests practically.
C218.2	Acquire the knowledge of efficiency and speed regulation DC motors under various loading conditions
C218.3	Understand the speed control of DC motor by conducting different experiments.
C218.4	Identify different conditions required to be satisfied for self-excitation of DC Generators
C218.5	Separate iron losses of DC machines into different components

Course Outcomes:C219 Programming Language -I**Student will able to**

CO. No.	Description
C219.1	Write, test, and debug simple Python programs.
C219.2	Implement Python programs with conditionals and loops.
C219.3	Develop Python programs step-wise by defining functions and calling them.
C219.4	Use Python lists, tuples, dictionaries for representing compound data.
C219.5	Read and write data from/to files in Python.

Semester: V Semester(OU)

Course Outcomes: C311 Linear Control Systems

Student will able to

CO. No.	Description
C311.1	Understand the concept of the terms control systems, feedback, Mathematical modeling of Electrical and Mechanical systems.
C311.2	Explain the time domain and frequency response analysis of control systems.
C311.3	Acquire the knowledge of various analytical techniques used to determine the stability of control systems.
C311.4	Understand the importance of design of compensators.
C311.5	Demonstrate controllability and observability of modern control system

Course Outcomes: C312 Electrical Measurements and Instrumentation

Student will able to

CO. No.	Description
C312.1	Choose the suitable instrument like Ammeter, Voltmeter for AC/DC applications
C312.2	Understand the concepts of energy meter ,frequency meter
C312.3	Select suitable Bridge for measurement of electrical parameters and quantities.
C312.4	Use the operation and applications of Ballistic Galvanometer, Flux meter and DC/AC Potentiometer.
C312.5	Use the application of CRO for measurement of Amplitude, Phase and frequency of sinusoidal signals.

Course Outcomes: C313 Signals and Systems

Student will able to

CO. No.	Description
C313.1	Classify and analyze the continuous time signals and discrete time signals and systems
C313.2	Generate discrete time signals through sampling process and reconstruct them
C313.3	Determine the responses of continuous and discrete-time systems which are represented by differential equations and difference equations.
C313.4	Analyze continuous time systems with the help of Laplace transform and discrete time system with Z-transform.
C313.5	Analyze the continuous and discrete-time systems in frequency domain with the help of Fourier series and Fourier Transform

Course Outcomes: C314 Power Systems - II

Student will able to

CO. No.	Description
C314.1	Acquire modeling of different short, medium and long transmission lines.
C314.2	Understand the impact of different types of faults on overhead transmission lines.
C314.3	Explain the reasons for voltage variation, importance of maintaining constant voltage in power system and different voltage control methods.
C314.4	Acquire the knowledge of natural impedance of transmission line and significance in the operation of power system network
C314.5	Calculation of fault currents and their significance.

C314.6	Power system and different voltage control methods
---------------	----------------------------------------------------

Course Outcomes: C315 Linear Integrated Circuits

Student will able to

CO. No.	Description
C315.1	To familiarize and able to understand Op-amps.
C315.2	To understand the different linear and non-linear applications of op-amp
C315.3	To understand the voltage regulators and active filters by using op-amps.
C315.4	Design and use op-amps for various linear and non-linear applications.
C315.5	Ability to design and use voltage regulators and active filters

Course Outcomes: C316 Renewable Energy Sources

Student will able to

CO. No.	Description
C316.1	Create awareness among students about Non-Conventional sources of Energy Technologies.
C316.2	Enable students to understand various Renewable Technologies and systems.
C316.3	Import the knowledge of Storage Techniques form the autonomous Renewable energy sources
C316.4	Equip the students with knowledge and understanding of various possible mechanisms about Renewable energy projects
C316.5	Understand the working Criteria of various direct energy conversion systems and study it's applications.
C316.6	Knowledge of working principle of various energy systems

Course Outcomes: C317 Electrical Machines Lab - II

Student will able to

CO. No.	Description
C317.1	Understand Performance characteristics of single-phase induction motor
C317.2	Understand the importance of Voltage regulation of an alternator.
C317.3	Explain different methods used to measure the voltage regulation of an alternator
C317.4	Determination of V curves and inverted V curves of synchronous motor.
C317.5	Assess the performance of different machines using different testing methods

Course Outcomes: C318 Electrical Measurements and Instrumentation Lab

Student will able to

CO. No.	Description
C318.1	Calibrate and test single phase energy meter, calibrate PMMC voltmeter and calibrate LPF wattmeter
C318.2	Measure Unknown Resistance, Inductance and Capacitance using AC Bridges
C318.3	Ccalibrate Ammeter, Voltmeter and Wattmeters using DC Potentiometers.
C318.4	Measure the iron loss in a bar specimen using CRO and wattmeter.
C318.5	Calibrate Dynamometer type power factor meter.
C318.6	Measure the Phase, Amplitude and Frequency using CRO

Course Outcomes: C319 Control Systems Lab**Student will able to**

CO. No.	Description
C319.1	Develop transfer function of various control system plants practically by conducting the experiments.
C319.2	Understand Performance of P, PI and PID Controllers.
C319.3	Able to develop PLC programs for certain applications.
C319.4	Acquire the knowledge of Data acquisition system and Industrial process control.
C319.5	Programming and control system concepts using MATLAB.

COURSE OUTCOMES

Semester: VII Semester(OU)

Course Outcomes: C411 Control of Electric Drives

Student will able to

Course.No	Outcomes
C411.1	Develop the control circuits for remote control and interlocking of electric drives
C411.2	Develop the control circuits for starting and braking of DC machines and Induction machines
C411.3	Trouble shoot the control circuits
C411.4	Develop the driver circuits for step motor
C411.5	Analyze the use of batteries and its usage and maintenance.

Course Outcomes: C412 Switchgear and Protection

Student will able to

Course.No	Outcomes
C412.1	Understand the types of Circuit breakers and choice of Relays for appropriate protection of power system equipment.
C412.2	Understand various types of Protective devices in Electrical Power Systems.
C412.3	Elucidate various protection schemes of various power system components like alternators, transformers and bus-bars.
C412.4	Interpret the existing transmission voltage levels and various means to protect the system against over voltages
C412.5	Understand the importance of Gas Insulated substations, Effects of Ungrounded Neutral grounding on system performance, Methods and Practices.

Course Outcomes: C413 Power Electronic Applications to Power Systems

Student will able to

Course.No	Outcomes
C413.1	Know the application of FACTS devices in power Transmission system
C413.2	Understand the device the control of static VAR compensators
C413.3	Understand the uninterruptible power supplies
C413.4	Study and apply the power transmission schemes - HVDC Transmission
C413.5	Implement the control circuit based on the controlling parameters of HVDC system

Course Outcomes: C414 Special Electric Machines

Student will able to

Course.No	Outcomes
C414.1	Explain theory of operation and control of switched reluctance motor
C414.2	Explain the performance and control of stepper motors, and their applications
C414.3	Describe the operation and characteristics of permanent magnet dc motor
C414.4	Distinguish between brush dc motor and brush less dc motor
C414.5	Explain the theory of travelling magnetic field and applications of linear motors

Course Outcomes: C415 High Voltage Engineering

Student will able to

Course.No	Outcomes
C415.1	Analyze steady-state response of electrical Understand the basic physics related to various breakdown processes in solid, liquid and gaseous insulating materials.
C415.2	Knowledge of generation and measurement of D. C., A.C., & Impulse voltages
C415.3	Knowledge of how over-voltages arise in a power system protection against these over voltages. circuits
C415.4	Knowledge of how over-voltages arise in a power system protection against these over voltages. circuits
C415.5	Knowledge of tests on H. V. equipment and on insulating materials, as per the standard
C415.6	Understand the Application of various insulating materials

Course Outcomes: C416 Power Quality Engineering

Student will able to

Course.No	Outcomes
C416.1	Describe the different PQ disturbances and state remedies to improve PQ
C416.2	To determine voltage sag for diofferent network configurations
C416.3	Demonstrate the effect of ASD systems on powerquality and the effect of voltage Sags on operation of various electrical machines
C416.4	Evaluate harmonic levels for distribution system
C416.5	Describe powerquality monitoring and measuring techniques
C416.6	Understand the importance of power quality, different powerquality issues and their effects in power system network

Course Outcomes: C417 Power Systems Lab

Student will able to

Course.No	Outcomes
C417.1	Determine ABCD constants of transmission lines and evaluate regulation, efficiency.
C417.2	Acquire knowledge in relay setting for safe operating of power system.
C417.3	Determine sequence parameters of transformer and alternator and draw its importance.
C417.4	Determine the time constant of an alternator.
C417.5	Determine the dielectric strength of oil and calculate the efficiency of string insulators.

Course Outcomes: C418 Electrical Simulation Lab

Student will able to

Course.No	Outcomes
C418.1	Simulate the concepts of Electrical Circuits, Control Systems and Power Systems and interpret data.
C418.2	Demonstrate the knowledge of programming environment, compiling, debugging, linking and executing variety of programs in MATLAB.
C418.3	Demonstrate ability to develop Simulink models for various electrical systems.
C418.4	Validate simulated results from programs/Simulink models with theoretical calculations.

Course Outcomes: C419 Project Work Phase - I**Student will able to**

Course.No	Outcomes
C419.1	Familiarize tools and techniques of systematic literature survey and documentation
C419.2	Demonstrate the ability to synthesize and apply the knowledge and skills acquired in the academic program to the real-world problems.
C419.3	Evaluate different solutions based on economic and technical feasibility
C419.4	Effectively plan a project and confidently perform all aspects of project management
C419.5	Demonstrate effective written and oral communication skills

Course Outcomes: C419 Summer Internship**Student will able to**

Course.No	Outcomes
C419.1	Design/develop a small and simple product in hardware or software
C419.2	Complete the task or realize a pre-specified target, with limited scope, rather than taking up a complex task and leave it.
C419.3	Learn to find alternate viable solutions for a given problem and evaluate these alternatives with reference to pre-specified criteria.
C419.4	Implement the selected solution and document the same.
C419.5	Able to write a technical report and present it to appropriate audience.