Galgotias College of Engineering and Technology

Department of Electrical Engineering

Course Outcomes

1. Course Name: Electronics Engineering (KOE038), Year of study: 2019-20

Course Outcome	On completion of this course, the student will be able to -
KOE038.1	Understand the concept of PN junction and special purpose diodes.
KOE038.2	Study the application of conventional diode and semiconductor diode
KOE038.3	Analyse the I-V characteristics of BJT and FET.
KOE038.4	Analyze the of Op-Amp, amplifiers, integrator, and differentiator
KOE038.5	Understand the concept of digital storage oscilloscope and compare of DSO with analog oscilloscope

2. Course Name: Universal Human Values (KVE301) Year of study: 2019-20

Course outcome	On completion of this course, the student will be able to -
KVE301.1	Understand the need, concept and content of value-education in individual's life and modifies their aspirations for happiness & prosperity.
KVE301.2	Comprehend the term self-exploration and its application for self-evaluation and development.
KVE301.3	Reconstruct the concepts about different values & discriminate between them.
KVE301.4	Analyze the concept of co-existence & evaluate the program to ensure self-regulation.
KVE301.5	Identify the holistic perception of harmony at level of self, family, society, nature and explain it by various examples.
KVE301.6	Apply professional ethics in their future profession & contribute for making a value based society.

3. Course Name: Electromagnetic Field Theory (KEE301), Year of study: 2019-20

Course outcomes	On completion of this course, the student will be able to
KEE301.1	Understand the different coordinate systems and their applications in different EM Fields
KEE301.2	Explain the concept of static electric field and different boundary conditions.
KEE301.3	Describe the concept of static magnetic field.
KEE301.4	Discuss the forces due to magnetic field and magnetic boundary conditions.
KEE301.5	Application of Maxwell's equation, wave propagation and Transmission line.

4. **Course Name: Electrical Measurements & Instrumentation (KEE302), Year of study: 2019-20**

Course outcome	On completion of this course, the student will be able to -
KEE302.1	Measure various electrical parameters with accuracy, precision and able to get relative error if any.
KEE302.2	Design AC and DC bridges for relevant parameter measurement
KEE302.3	Study Instrument transformers with their design considerations and testing
KEE302.4	Design Signal Generator, frequency counter, CRO and digital IC counter for appropriate measurement.
KEE302.5	Application of appropriate passive or active transducers and data acquisition systems for measurement of physical phenomenon

5. **Course Name: Basic Signals & Systems (KEE303), Year of study: 2019-20**

Course Outcome	On completion of this course, the student will be able to -
KEE303.1	Represent the various types of signals & systems and perform mathematical operations on them.
KEE303.2	Analyze the response of LTI system using Fourier Series and Fourier transform.
KEE303.3	Analyze the properties of continuous time signals and system using Laplace transform
KEE303.4	Apply the concepts of state- space models to SISO & MIMO systems.
KEE303.5	Implement the concepts of Z transform to solve complex engineering problems using difference equations.

6. **Course Name: Analog Electronics Lab (KEE351), Year of study: 2019-20**

Course outcome	On completion of this course, the student will be able to -
KEE351.1	Familiarize with the analogue electronic components.
KEE351.2	Understand the difference between voltage and current controlled devices.
KEE351.3	Understand the importance of the characteristics of triggering.

7. **Course Name: Electrical Measurements Lab (KEE352), Year of study: 2019-20**

Course outcomes	On completion of this course, the student will be able to
KEE352.1	Study the importance of calibration of measuring instruments.
KEE352.2	Describe the construction and working of different measuring instruments.
KEE352.3	Compute the various physical parameters using different sensors.

8. **Course Name: Electrical Workshop (KEE353), Year of study: 2019-20**

Course outcome	On completion of this course, the student will be able to -
KEE353.1	Understand various types of wiring systems, wiring tools, lighting & wiring accessories, wiring estimation & costing, etc.

KEE353.2	Understand the fundamental concepts of Electrical and electronics Engineering.

9. Course Name: Mini Project or Internship Assessment (KEE354), Year of study: 2019-20

Course Outcome	On completion of this course, the student will be able to -
KEE354.1	
KEE354.2	
KEE354.3	

10. Course Name: Maths IV (KAS402) Year of study: 2019-20

Course outcome	On completion of this course, the student will be able to -
KAS402.1	Remember the concept of partial differential equation and to solve partial differential equations.
KAS402.2	Analyze the concept of partial differential equations to evaluate the problems concerned with partial differential equations.
KAS402.3	Understand the concept of correlation, moments, skewness and kurtosis and curve fitting.
KAS402.4	Remember the concept of probability to evaluate probability Distributions.
KAS402.5	Apply the concept of hypothesis testing and statistical quality control to create control charts.

11. Course Name: Technical Communication (KAS401), Year of study: 2019-20

Course outcomes	On completion of this course, the student will be able to
KAS401.1	understand the nature and objective of Technical Communication relevant for the work place as Engineers.
KAS401.2	utilize the technical writing for the purposes of Technical Communication and its exposure in various dimensions.
KAS401.3	imbibe inputs by presentation skills to enhance confidence in face of diverse audience.
KAS401.4	create a vast know-how of the application of the learning to promote their technical competence.
KAS401.5	evaluate their efficacy as fluent & efficient communicators by learning the voice-dynamics

12. Course Name: Digital Electronics (KEE401), Year of study: 2019-20

Course outcome	On completion of this course, the student will be able to -
KEE401.1	Apply concepts of Digital Binary System and implementation of Gates.
KEE401.2	Analyze and design of Combinational logic circuits.
KEE401.3	Analyze and design of Sequential logic circuits with their applications.
KEE401.4	Implement the Design procedure of Synchronous & Asynchronous Sequential

	Circuits.
KEE401.5	Apply the concept of Digital Logic Families with circuit implementation.

13. Course Name: Electrical Machines-I (KEE402), Year of study: 2019-20

Course Outcome	On completion of this course, the student will be able to -
KEE402.1	Understand the energy conversion principles and the concept of magnetic system.
KEE402.2	Explain the constructional details, characteristics and application of various types of DC generators.
KEE402.3	Interpret the performance characteristics of DC motors and their testing.
KEE402.4	Explain the working, performance characteristics and testing of 1-phase transformer operating individually or in parallel.
KEE402.5	Demonstrate various winding connections of 3-phase transformer and their conversion to multiphase system.

14. Course Name: Networks Analysis & Synthesis (KEE403) Year of study: 2019-20

Course outcome	On completion of this course, the student will be able to -
KEE403.1	Understand the Importance of Graph Theory in Network Analysis
KEE403.2	Analyze AC electrical networks using various network theorems.
KEE403.3	Analyze transient and steady state response of first and second order circuit for arbitrary inputs.
KEE403.4	Determine the network functions and different parameters pertaining to one port and two port networks.
KEE403.5	Design an electrical network using driving point function and describe filters and attenuators.

15. Course Name: Circuit Simulation Lab (KEE451), Year of study: 2019-20

Course outcomes	On completion of this course, the student will be able to
KEE451.1	Analyse of AC and DC circuit using simulation technique.
KEE451.2	Analyse of transient response of AC circuit.
KEE451.3	Determine the network functions and different parameters of one port and two port networks and analyse of filter.

16. Course Name: Electrical Machines-I Lab (KEE452), Year of study: 2019-20

Course outcome	On completion of this course, the student will be able to -
KEE452.1	Analyse and evaluate performance characteristics of DC machine.
KEE452.2	Analyse and evaluate performance of transformer.

17. Course Name: Digital Electronics Lab (KEE453), Year of study: 2019-20

Course Outcome	On completion of this course, the student will be able to -
KEE453.1	Understand the digital binary system and implementation of gates to design data selector circuits
KEE453.2	Design of combinational circuits using gates.
KEE453.3	Design the sequential circuits with the help of combinational circuits and feedback element.

18. Course Name: Managerial Economics (RAS501), Year of study: 2019-20

Course outcome	On completion of this course, the student will be able to -
RAS501.1	Understand the basic concepts of Engineering Economics & theory of demand.
RAS501.2	Understand concept of supply and make use of various methods of demand forecasting for estimating demand of any product.
RAS501.3	Explain basic concepts related to production and cost.
RSA501.4	Outline of various market structures.
RAS501.5	Understand nature and structure of Indian economy and basic concepts related to NI, Inflation and business cycle.

19. Course Name: Sociology (RAS502), Year of study: 2019-20

Course outcomes	On completion of this course, the student will be able to
RAS502.1	Comprehend social relations in industry/organization and correlate the dynamics of diverse context of Indian society.
RAS502.2	Understand the global rise and development of industry and empower themselves to analyze and evaluate different aspects of industrialization.
RAS502.3	Demonstrate the implications of policies and its consequences in the context of industrialization and its growth in India.
RAS502.4	Evaluate the social consequences of modernization, automation and industrial activities on the ecosystem thereby, sensitizing the engineers on public health and safety issues which shall serve as cornerstone for cultural, societal and environmental considerations.
RAS502.5	Envisage prospective models of industrialization across the globe to understand the consumer society and the sociological concerns of industrial development in the present world.
RAS502.5	Gain and recognize the need for bridging the implications of sociological theories with engineering sciences and encourage themselves for lifelong learning.

20. Course Name: Electrical Machine-II (REE501), Year of study: 2019-20

Course outcome	On completion of this course, the student will be able to -
REE501.1	Understand the basic concept of synchronous generator
REE501.2	Analyse the basic principle and working of synchronous motor
REE501.3	Evaluate the basic concept of three phase induction motor
REE501.4	Study the working of high torque three phase induction motor
REE501.5	Explain the basic concept of single phase induction motor

21. Course Name: Power Transmission And Distribution (REE502), Year of study: 2019-20

Course Outcome	On completion of this course, the student will be able to -
REE502.1	Understand the model and representation of power system components
REE502.2	Analyze various types of transmission and distribution systems.
REE502.3	Understand the various transmission concepts
REE502.4	Evaluate voltage regulation and efficiency of transmission system
REE502.5	Calculate the voltage drop of distribution systems.
REE502.6	Explain several conflicting factors of different nature in power system design.

22. Course Name: CONTROL SYSTEM (REE503), Year of study: 2019-20

Course outcome	On completion of this course, the student will be able to -
REE503.1	Mathematical modelling of physical system to find transfer function
REE503.2	Analysis of control system using standard test signal
REE503.3	Design of controller & compensators
REE503.4	Study of different component of control system
REE503.5	Analysis of stability of control system in time & frequency domain

23. Course Name: Internet of Things (REE054), Year of study: 2019-20

Course outcomes	On completion of this course, the student will be able to
REE054.1	Understand the Vision of IoT from a global contex
REE054.2	Application of IoT in Industrial and Commercial Building Automation and Real World Design Constraints.
REE054.3	Determine the Security perspective of IoT.
REE054.4	Understand the building state of the art architecture in IoT.
REE054.5	Understand the Identity Management Models in IoT

24. Course Name: Electrical Machine-II Lab (REE551), Year of study: 2019-20

Course outcome	On completion of this course, the student will be able to -
REE551.1	Conduct various tests on alternators and obtain their performance indices using standard analytical , graphical and software methods.
REE551.2	Analyse the performance of induction machines using standard analytical ,graphical and software methods.

25. Course Name: Control System Lab (REE553), Year of study: 2019-20

Course Outcome	On completion of this course, the student will be able to -
REE553.1	Analyze stability of various control system using time domain stability analysis methods
REE553.2	Design and simulate various control systems in time /frequency domain using MATLAB

26. Course Name: Software Based Power System Lab (REE554), Year of study: 2019-20

Course outcome	On completion of this course, the student will be able to -
REE554.1	Analyze the performance of transmission lines using MATLAB.
REE554.2	Understand the concept of corona loss, Ferranti effect and skin effect in transmission lines using MATLAB.
REE554.3	Calculate the various mechanical parameters of transmission line using MATLAB.

27. Course Name: Seminar-I (REE555), Year of study: 2019-20

Course outcomes	On completion of this course, the student will be able to
REE555.1	Practical implementation of the identified software/hardware module.
REE555.2	Analyze presentation and writing skills
REE555.3	Subject knowledge and understanding of the theme.

28. Course Name: Industrial Management (RAS601), Year of study: 2019-20

Course outcome	On completion of this course, the student will be able to -
RAS601.1	Understand the concept of industrial management.
RAS601.2	Understand the functions & principles of management and basic concept of HRM.
RAS601.3	understand the process of work study and inventory control techniques
RAS601.4	Apply various quality control techniques for process control & product control.
RAS601.5	Understand basic concepts related to project management and control techniques.

29. Course Name: Cyber Security (RUC601), Year of study: 2019-20

Course Outcome	On completion of this course, the student will be able to -
RUC601.1	Explain the core of Information System (IS), principles and its security
RUC601.2	Analyze system and applications for Cyber Security threats, vulnerabilities and also different classes of attack and their counter measures.
RUC601.3	Identify the key components of Physical Security and Network Architecture for Secure Information System.
RUC601.4	Understand the development of Policies, Procedures, and Guidelines for implementing Security.
RUC601.5	Illustrate Current Trends in information Security in areas of Cloud Computing, Supply Chain Management and Outsourcing
RUC601.6	Learn about Cyber Security Policies, Information Security Standards -ISO, IT Act, Copy rights, Cyber Laws to make our system secure.

30. Course Name: Power Electronics (REE601) Year of study: 2019-20

Course outcome	On completion of this course, the student will be able to -
REE601.1	Understand the goal of power electronics and basic application of power electronics devices.
REE601.2	Analyse the need of parameters to design the power electronics converter (chopper) circuits
REE601.3	Understand the how to control the output of AC to DC converter for three phase and single

	system
REE601.4	Study how to control the frequency of input and output.
REE601.5	Analyse an inverter for single and three phase system.

31. Course Name: Microprocessor (REE602), Year of study: 2019-20

Course outcomes	On completion of this course, the student will be able to
REE602.1	To study the fundamentals of Microprocessor systems and interfacing
REE602.2	To learn the fundamentals of 8-bit Microprocessor 8085, instruction set of 8-bit Microprocessor 8085 and assembly language programming for solving problems
REE602.3	Develop assembly language program using different types of interrupts, subroutines and basic commands of 8-bit Microprocessor 8085.
REE602.4	To understand the fundamentals and instruction set of 16-bit Microprocessor 8086 and assembly language programming for solving problems in 16-bit Microprocessor 8086
REE602.5	Develop assembly language program using different types of interrupts, subroutines and basic commands of 16-bit Microprocessor 8086.

32. Course Name: Power System Analysis (REE603), Year of study: 2019-20

Course outcome	On completion of this course, the student will be able to -
REE603.1	Interpret power system single line diagrams based on their symbolic representation and the concepts of per unit system
REE603.2	Analyze Power system parameters arising due to occurances of symmetrical and unsymmetrical faults
REE603.3	Solve the power flow problems by using Gauss Siedel Method, Newton Raphson's Method, Decoupled and Fast Decoupled Load flow methods
REE603.4	Analyze the power system stability conditions using equal area criteria and swing equation for transient stability and the criteria for steady state stability
REE603.5	understand the characteristics of voltage and current as travelling waves under differnt line terminations

33. Course Name: Special Electrical Machines (REE064), Year of study: 2019-20

Course Outcome	On completion of this course, the student will be able to -
REE064.1	To undesrtand deeper the characteristcs and application of Deep bar and double cage type induction motor. it will also enhance students knowledge about the various power recovery schemes
REE064.2	To understand the SEIG & DFIG types of induction generator and their characteristics and application
REE064.3	To understand about working principle, construction, characteristics & application of stepper motor
REE064.4	To understand about various single phase and Permanent Magnet Motors
REE064.5	To know about repulsion motor, universal motor and linear type induction motor

34. Course Name: Power Electronics Lab (REE661) Year of study: 2019-20

Course outcome	On completion of this course, the student will be able to -

REE661.1	Understand various Power Electronics devices & its characteristics SCR,TRIAC, DIAC, IGBT, GTO etc.
REE661.2	Understand application of Power Electronics devices in Choppers, Inverters and Converters etc. for different load
REE661.3	Design and simulate 1-3 phase half and full wave rectifers, chopper inverter etc, using various power electronics devices MATLAB.

35. Course Name: Microprocessor Lab (REE662), Year of study: 2019-20

Course outcomes	On completion of this course, the student will be able to
REE662.1	To understand and perform assembly language programming on arithmetic and logical operations using 8-bit Microprocessor 8085 experimental Kit
REE662.2	To understand and perform assembly language programming for solving problems using 16-bit Microprocessor 8086 experimental Kit
REE662.3	To understand and perform assembly language programming for interfacing the devices with microprocessors.

36. Course Name: Electrical Design & Fabrication Lab (REE664), Year of study: 2019-20

Course outcome	On completion of this course, the student will be able to -
EEE664.1	Design and fabrication of Transformer, Filter, Controller, Inductor.
EEE664.2	design and fabrication of High Power factor controlled rectifier. Microcontroller based digital energy meters / sensors, Power amplifier, AC phase converter, IGBT based single phase inverter, chopper.
EEE664.3	Measurement of electrical parameters of AC & DC machine.

37. Course Name: Seminar – II (REE665), Year of study: 2019-20

Course Outcome	On completion of this course, the student will be able to -
REE665.1	Practical implementation of the identified software/hardware module.
REE665.2	Analyze presentation and writing skills
REE665.3	Subject knowledge and understanding of the theme.

38. Course Name: Understanding The Human Being Comprehensively – Human Aspirations And Its Fulfilment (ROE074), Year of study: 2019-20

Course outcome	On completion of this course, the student will be able to -
ROE074.1	Understand the need, concept and content of value-education in individual's life and modifies their aspirations for happiness & prosperity.
ROE074.2	Comprehend the term self-exploration and its application for self-evaluation and development.
ROE074.3	Reconstruct the concepts about different values & discriminate between them.
ROE074.4	Analyze the concept of co-existence & evaluate the program to ensure self regulation.
ROE074.5	Identify the holistic perception of harmony at level of self, family, society, nature and explain it by various examples.
ROE074.6	Apply professional ethics in their future profession & contribute for making a value based society.

39. Course Name: Utilization of Electrical Energy & Electric Traction (REE071), Year of study: 2019-20

Course outcomes	On completion of this course, the student will be able to
REE071.1	Understand the processes of electrical heating and their application
REE071.2	Explain the working of various Electric Welding and Electrolyte processes along with their applications
REE071.3	Understand the designing of indoor and outdoor lighting system along with the working of the refrigeration and air-conditioning systems
REE071.4	Describe the mechanics of train movement and the different types of electric traction
REE071.5	Comprehend the use of power electronics control in ac and dc traction drives.

40. Course Name: Energy Efficiency & Conservation (REE076), Year of study: 2019-20

Course outcome	On completion of this course, the student will be able to -
REE076.1	Understand the basic principle of energy conservation in small scale industries, Large scale industries and in power system.
REE076.2	Understand the energy audit in different field such as Electrical Systems, HVAC, Buildings etc.
REE076.3	Explain the concept and implementation of demand side management
REE076.4	Understand the importance of reactive power support in distribution systems
REE076.5	Analyse the importance of efficiency in motor and lightening system

41. Course Name: Electrical Drives (REE-701), Year of study: 2019-20

Course Outcome	On completion of this course, the student will be able to -
REE-701.1	Understand Fundamentals of Electric Drives and its parts.
REE-701.2	Explain Dynamics of motor-load combination of Electric Drive .
REE-701.3	Understand Electric Braking of various machines.
REE-701.4	Apply Power Electronics for Control of DC Drives
REE-701.5	Apply Power Electronics for Control of AC Drives

42. Course Name: Power System Protection (REE702), Year of study: 2019-20

Course outcome	On completion of this course, the student will be able to -
REE702.1	Explain the purposes of protection, in relation to major types of relays and protection principles.
REE702.2	Classify among the different relay principles on the basis of their characteristics.
REE702.3	Identify the different protection schemes used for protection of transmission line.
REE702.4	Define the various phenomenon occurred during faults and test the different circuit breakers.
REE702.5	Describe the construction, working and capabilities of different type of circuit breaker for equipment and transmission line protection.

43. Course Name: INDUSTRIAL AUTOMATION & PLC LAB (REE751), Year of study: 2019-20

Course outcomes	On completion of this course, the student will be able to
REE751.1	Understand the automation of various plants.
REE751.2	Understand the use of ladder programming for programmable logic controller.

44. Course Name: Power System Lab (REE752), Year of study: 2019-20

Course outcome	On completion of this course, the student will be able to -
REE752.1	Study and analyze the transient and sub transient reactance of alternator
REE752.2	Analyze and calculate the different fault of power system
REE752.3	Study and understand the function of different types of relay of power system network

45. Course Name: Industrial Training (REN753), Year of study: 2019-20

Course outcome	On completion of this course, the student will be able to -
REN753.1	To expose students to the 'real' working environment and get acquainted with the organization structure, business operations and administrative functions.
REN753.2	To have hands-on experience in the students' related field so that they can relate and reinforce what has been taught at the university.
REN753.3	To promote cooperation and to develop synergetic collaboration between industry and the university in promoting a knowledgeable society.

46. Course Name: Project-1 (REE754), Year of study: 2019-20

Course outcome	On completion of this course, the student will be able to -
REE852.1	Identify the particular problem in the field and demonstrate independent learning.
REE852.2	Plan, design and analyze the particular problem as project.
REE852.3	Demonstrate the usefulness of project in society and understanding of professional ethics and participate in a class or project team.

47. Course Name: Values, Relation Ship & Ethical Human Conduct - For a Happy & Harmonious Society (ROE084), Year of study: 2019-20

Course outcome	On completion of this course, the student will be able to -
ROE084.1	The students learn about different type of relations with expression & human conduct to attain comprehensive human goals
ROE084.2	students understand about the conceptual frame work of undivided society as well as undivided human order.
ROE084.3	Student develop the exposure for transition from current state to the undivided society & universal human order.
ROE084.4	Students appreciate universal human order as continuity & expanse of order in living from family order to world family order.
ROE084.5	Students analyse current state & possibilities of participation in this direction to undivided society as well as universal human order.

48. Course Name: Introduction to Power Quality and FACTS (REE081), Year of study: 2019-20

Course outcome	On completion of this course, the student will be able to -
REE081.1	Understand the power quality issues in electrical distribution network
REE081.2	Evaluate the severity of voltage sag, voltage swell, harmonics, and transients in distribution networks.
REE081.3	To Study the interruptions types and its influence in various components.
REE081.4	To Study the Effects of harmonics on various equipment's
REE081.5	Understand power quality monitoring and classification techniques.

49. Course Name: Power Theft & Energy Management (REE086), Year of study: 2019-20

Course outcome	On completion of this course, the student will be able to -
REE086.1	Understand various energy resources, conservation methods, demand supply gap of energy in Indian and global scenario
REE086.2	Identify various techniques of power theft in electro-mechanical and electronic meters.
REE086.3	Understand the role and methodologies of energy management and energy Auditing.
REE086.5	Understand the concept of electrical load and lighting management and implement the applications of Demand side management.

50. Course Name: GD & Seminar (REE851), Year of study: 2019-20

Course outcome	On completion of this course, the student will be able to -
REE851.1	Identify the particular problem in the field and demonstrate independent learning.
REE851.2	Plan, design and analyze the particular problem as project
REE851.3	Demonstrate the usefulness of project in society and understanding of professional ethics and participate in a class or project team.

51. Course Name: Project-2 (REE852), Year of study: 2019-20

Course outcome	On completion of this course, the student will be able to -
REE852.1	Identify the particular problem in the field and demonstrate independent learning.
REE852.2	Plan, design and analyze the particular problem as project.
REE852.3	Demonstrate the usefulness of project in society and understanding of professional ethics and participate in a class or project team.