Galgotias College of Engineering and Technology, Greater Noida

Department of Electrical Engineering

CO Statements: ODD Semester 2021-22

COURSE NAME: UNIVERSAL HUMAN VALUES (KVE301)

Course Outcome	Statement (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.

COURSE NAME: ELECTRONICS ENGINEERING (KOE038)

Course Outcome	Statement (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

COURSE NAME: ELECTROMAGNETIC FIELD THEORY (KEE301)

Course Outcome	Statement (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.

COURSE NAME: Electrical Measurements & Instrumentation (KEE302)

Course Outcome	Statement (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

COURSE NAME: BASIC SIGNALS & SYSTEMS (KEE303)

Course Outcome	Statement (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.

COURSE NAME: ANALOG ELECTRONICS LAB (KEE351)

Course Outcome	Statement (On completion of this course, the student will be able to)
KEE351.1	Analyze working of different semiconductor devices and its characteristics
KEE351.2	Design the passive oscillator circuit
KEE351.3	Understand basics of Op-amp Ics for industrial applications

COURSE NAME: ELECTRICAL MEASUREMENTS LAB (KEE352)

Course Outcome	Statement (On completion of this course, the student will be able to)
KEE352.1	Measure electrical engineering parameters using different measuring instruments
KEE352.2	Compute various physical parameters using different sensors
KEE352.3	Analyze and solve the variety of problems in the field of electrical engineering using MATLAB/LABVIEW

COURSE NAME: ELECTRICAL WORKSHOP (KEE353)

Course Outcome	Statement (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 rectifier in electronic systems.
KEE353.3	Understand all the fundamental concepts involving electrical and electronics Engineering.

COURSE NAME: MINI PROJECT/INTERNSHIP (KEE354)

Course Outcome	Statement (On completion of this course, the student will be able to)
KEE354.1	Investigate the emerging problems in electrical engineering and solve them by referring standard journals.
KEE354.2	Illustrate the state-of-the-art technologies in the area of electrical engineering.
KEE354.3	Analyze various technological advancements in the area of machines, control system through software or hardware implementation.
KEE354.4	Understand and evaluate the area for future knowledge and skill development.
KEE354.5	Formulate a research paper and write the project report.

COURSE NAME: POWER SYSTEM-I (KEE501)

Course Outcome	Statement (On completion of this course, the student will be able to)
KEE501.1	Describe the working principle and basic components of conventional power plants as well as the other aspects of power generation.
KEE501.2	Recognize elements of power system and their functions, as well as compare the different types of supply systems. Illustrate different types of conductors, transmission lines and various performance parameters of transmission line for short, medium and long transmission line
KEE501.3	Calculate sag and tension in overhead lines with and without wind and ice loading. Classify different type of insulators, determine potential distribution over a string of insulator, string efficiency and its improvement.
KEE501.4	Compute the inductance and capacitance of single phase, three phase lines with symmetrical and unsymmetrical spacing, composite conductors-transposition, bundled conductors, and understand the effect of earth on capacitance of transmission lines.
KEE501.5	Elucidate different types of cables and assess the resistance and capacitance parameters of cables, grading of cables and compare overhead lines and cables

COURSE NAME: Electrical Machine II (KEE503)

Course Outcome	Statement (On completion of this course, the student will be able to)
KEE503.1	Understand the basic concept of synchronous generator
KEE503.2	Analyse the basic principle and working of synchronous motor
KEE503.3	Evaluate the basic concept of three phase induction motor
KEE503.4	Study the working of high torque three phase induction motor
KEE503.5	Explain the basic concept of single-phase induction motor

COURSE NAME: INDUSTRIAL AUTOMATION AND CONTROL(KEE053)

Course Outcome	Statement (On completion of this course, the student will be able to)
KEE053.1	Understand the concept of automation, its terminology and basic communication protocol.
KEE053.2	Apply Relay logic for automation
KEE053.3	Learn about PLC, its operation and application in automation.
KEE053.4	Analyze the industrial sensors, its terminology and how one can interface with PLC.
KEE053.5	Demonstrate Pneumatic system and its application in industry.

COURSE NAME: Neural Networks & Fuzzy System (KEE056)

Course Outcome	Statement (On completion of this course, the student will be able to)
KEE056.1	Apply the concepts of feed forward neural networks and their learning techniques.
KEE056.2	Comprehend the architecture, develop algorithms and apply the concepts of back propagation networks
KEE056.3	Differentiate between the fuzzy and the crisp sets, apply the concepts of fuzziness and the fuzzy set theory.
KEE056.4	Select the membership functions, write rules and develop the fuzzy controller for Industrial applications.
KEE056.5	Demonstrate the working of fuzzy neural networks and identify its applications.

COURSE NAME: POWER SYSTEM –I LAB (KEE551)

Course Outcome	Statement (On completion of this course, the student will be able to)
KEE551.1	Use programming tools /Software: Scilab, MATLAB or any C, C++ - Compiler and formulate a program/simulation model for calculation of various parameters related to transmission line.

COURSE NAME: ELECTRICAL MACHINE–II LAB (KEE553)

Course Outcome	Statement (On completion of this course, the student will be able to)
KEE553.1	Conduct various tests on alternators and obtain their performance indices using standard analytical, graphical and software methods.
KEE553.2	Analyses the performance of induction machines using standard analytical, graphical and software methods.

COURSE NAME: MINI PROJECT/INTERNSHIP ASSESMENT (KEE554)

Course Outcome	Statement (On completion of this course, the student will be able to)
KEE554.1	Investigate the emerging problems in electrical engineering and solve them by referring standard journals.
KEE554.2	Illustrate the state-of-the-art technologies in the area of electrical engineering.
KEE554.3	Analyze various technological advancements in the area of machines, control system through software or hardware implementation.
KEE554.4	Understand and evaluate the area for future knowledge and skill development.
KEE554.5	Formulate a research paper and write the project report.

COURSE NAME Rural Development: Administration and Planning (KHU701)

Course Outcome	Statement (On completion of this course, the student will be able to)
KHU701.1	Students can understand the definitions, concepts and components of Rural Development
KHU701.2	Students will know the importance, structure, significance, resources of Indian rural economy.
KHU701.3	Students will have a clear idea about the area development programmes and its impact.
KHU701.4	Students will be able to acquire knowledge about rural entrepreneurship.
KHU701.5	Students will be able to understand about the using of different methods for human resource planning

COURSE NAME: Power Quality and FACTS (KEE074)

Course Outcome	Statement (On completion of this course, the student will be able to)
KEE074.1	Understand the power quality issues in electrical distribution network
KEE074.2	Evaluate the severity of voltage sag, voltage swell, harmonics, and transients in distribution networks
KEE074.3	Illustrate various sources of power quality disturbances and the basic of harmonics.
KEE074.4	Understand the methods to improve the power quality
KEE074.5	Design circuits to mitigate power quality issues

COURSE NAME: POWER SYSTEM PROTECTION (KEE077)

Course Outcome	Statement (On completion of this course, the student will be able to)
KEE077.1	Explain the purposes of protection, in relation to major types of relays and protection principles.
KEE077.2	Classify among the different relay principles on the basis of their characteristics.
KEE077.3	Identify the different protection schemes used for protection of transmission line.
KEE077.4	Define the various phenomenon occurred during faults and test the different circuit breakers.
KEE077.5	Describe the construction, working and capabilities of different type of circuit breaker for equipment and transmission line protection.

COURSE NAME: VALUE RELATIONSHIP & ETHICAL HUMAN CONDUCT- FOR A HAPPY & HARMONIOUS SOCIETY (KOE076)

Course Outcome	Statement (On completion of this course, the student will be able to)
KOE076.1	The students learn about different type of relations with expression & human conduct to attain comprehensive human goals
KOE076.2	Students understand about the conceptual frame work of undivided society as well as undivided human order.
KOE076.3	Student develop the exposure for transition from current state to the undivided society & universal human order.
KOE076.4	Students appreciate universal human order as continuity & expanse of order in living from family order to world family order.
KOE076.5	Students analyses current state & possibilities of participation in this direction to undivided society as well as universal human order.

COURSE NAME: Computerized Process Control (KOE092)

Course Outcome	Statement (On completion of this course, the student will be able to)
KOE092.1	Describe basics of Computerized process control, various types of Computerized process control, its classification and interfaces used.
KOE092.2	Discuss communication system used in industrial Computerized process control and basic knowledge of real time operating system
KOE092.3	Illustrate Mathematical model of computerized process control
KOE092.4	Apply informative computerized control for advanced control strategies in an industrial environment.
KOE092.5	Summarize various application of Computer Aided process control in industry

COURSE NAME: INDUSTRIAL AUTOMATION & PLC LAB (KEE751)

Course Outcome	Statement (On completion of this course, the student will be able to)
KEN751.1	Understand the automation of various plants.
KEN751.2	Understand the use of ladder programming for programmable logic controller.

COURSE NAME: MINI PROJECT OR INTERNSHIP ASSESSMENT (KEE752)

Course Outcome	Statement (On completion of this course, the student will be able to)
KEN752.1	Investigate the emerging problems in electrical engineering and solve them by referring standard journals.
KEN752.2	Illustrate the state-of-the-art technologies in the area of electrical engineering.
KEN752.3	Analyze various technological advancements in the area of machines, control system through software or hardware implementation.
KEN752.4	Understand and evaluate the area for future knowledge and skill development.
KEN752.5	Formulate a research paper and write the project report.

COURSE NAME: PROJECT (KEE753)

Course Outcome	Statement (On completion of this course, the student will be able to)
KEE753.1	Identify the particular problem in the field and demonstrate independent learning.
KEE753.2	Plan, design and analyze the particular problem as project
KEE753.3	Demonstrate the usefulness of project in society and understanding of professional ethics and participate in a class or project team.

Galgotias College of Engineering and Technology, Greater Noida

Department of Electrical Engineering

CO Statements: EVEN Semester 2021-22

Course Name: Technical Communication (KAS401)

Course outcome	Statement (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

Course Name: Maths IV (KAS402)

Course outcome	Statement (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	Analyse 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.

Course Name: Digital Electronics (KEE401)

Course outcome	Statement (On completion of this course, the student will be able to)
KEE401.1	Analyze and design of Combinational logic circuits.
KEE401.2	Analyze and design of Sequential logic circuits with their applications.
KEE401.3	Implement the Design procedure of Synchronous & Asynchronous Sequential Circuits.
KEE401.4	Apply the concept of Digital Logic Families with circuit implementation.
KEE401.5	Apply concepts of Digital Binary System and implementation of Gates.

Course Name: Electrical Machines-I (KEE 402)

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.

Course Name: Network Analysis & Synthesis (KEE 403)

Course outcome	**Statement (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.

COURSE NAME: Circuit Simulation Lab (KEE451)

Course Outcome	**Statement (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 analyses of filter.

COURSE NAME: Electrical Machine I Lab (KEE452)

Course Outcome	**Statement (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.

COURSE NAME: Digital Electronics Lab (KEE453)

Course Outcome	Statement (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.

COURSE NAME: SPECIAL ELECTRICAL MACHINE (KEE-061)

Course Outcome	Statement (On completion of this course, the student will be able to)
KEE061.1	Study the basic concept of poly phase induction machines
KEE061.2	Understand the basic principle and working of induction generator
KEE061.3	Explain the basic concept of poly phase Stepper Motors
KEE061.4	Analyse the basic principle and working of Permanent Magnet Machines
KEE061.5	Differentiate between different type poly phase Single Phase Commutator Motors

COURSE NAME: POWER SYSTEM II (KEE601)

Course Outcome	Statement (On completion of this course, the student will be able to)
KEE601.1	Apply the concepts of power system single line diagrams based on their symbolic representation and the concepts of per unit system in analyzing power system parameters arising due to occurrences of symmetrical and unsymmetrical faults
KEE601.2	Solve the power flow problems by using Gauss Siedel Method, Newton Raphson's Method, Decoupled and Fast Decoupled Load flow methods
KEE601.3	Understand the characteristics of voltage and current as travelling waves under different line terminations
KEE601.4	Analyze the power system stability conditions using equal area criteria and swing equation for stability and the criteria for steady state stability
KEE601.5	Understand the operating Principles of Various Power System protection apparatus and their associated terminology

COURSE NAME: MICROPROCESSOR AND MICROCONTROLLER (KEE602)

Course Outcome	Statement (On completion of this course, the student will be able to)
KEE602.1	Demonstrate the basic architecture of 8085 & 8086 Microprocessors
KEE602.2	Illustrate the programming model of microprocessors & write program using

	8085 microprocessors.
KEE602.3	Interface different external peripheral devices with 8085 microprocessors
KEE602.4	Comprehend the architecture of 8051 microcontroller
KEE602.5	Compare advance level microprocessor & microcontroller for different applications.

COURSE NAME: POWER ELECTRONICS (KEE603)

Course Outcome	Statement (On completion of this course, the student will be able to)
KEE603.1	Understand the characteristics as well as the operation of BJT, MOSFET, IGBT, SCR, TRIAC and GTO and identify their use in the power switching applications
KEE603.2	Ability to Comprehend the non-isolated DC-DC converters and apply their use in different Power electronics applications.
KEE603.3	Analyze the phase-controlled rectifiers and evaluate their performance parameters.
KEE603.4	Ability to apprehend the working of single-phase ac voltage controllers, cyclo-converters and their various applications.
KEE603.5	Ability to analyze a inverter for single and three phase system.

COURSE NAME: UNDERSTANDING THE HUMAN BEING COMPREHENSIVELY – HUMAN ASPIRATIONS AND ITS FULFILLMENT (KOE069)

Course Outcome	Statement (On completion of this course, the student will be able to)
KOE069.1	Understand the need, concept and content of value-education in individual's life and modifies their aspirations for happiness & prosperity.
KOE069.2	Comprehend the term self-exploration and its application for self-evaluation and development.
KOE069.3	Reconstruct the concepts about different values & discriminate between them.
KOE069.4	Analyze the concept of co-existence & evaluate the program to ensure self-regulation.
KOE069.5	Identify the holistic perception of harmony at level of self, family, society, nature and explain it by various examples.
KOE069.6	Apply professional ethics in their future profession & contribute for making a value-based society.

COURSE NAME: POWER SYSTEM –II LAB (KEE651)

Course Outcome	Statement (On completion of this course, the student will be able to)
KEE651.1	Test various relays for different characteristics and compare with the performance characteristics
KEE651.2	Select the power system data for load-flow and fault studies and to develop a program to solve power flow problem using NR and GS methods

KEE651.3	Analyze various types of short circuit faults
KEE651.4	Demonstrate different numerical integration methods and factors influencing transient stability
KEE651.5	Determine the effect of load in long transmission line

COURSE NAME: MICROPROCESSOR AND MICROCONTROLLER LAB (KEE652)

Course Outcome	Statement (On completion of this course, the student will be able to)
KEE652.1	Study of microprocessor system
KEE652.2	Development of flow chart for understanding the data flow
KEE652.3	Learning assembly language to program microprocessor-based system
KEE652.4	Interfacing different peripheral devices with microprocessor
KEE652.5	Building logic for microprocessor-based system

COURSE NAME: POWER ELECTRONICS LAB (KEE653)

Course Outcome	Statement (On completion of this course, the student will be able to)
KEE653.1	Understand various Power Electronics devices & its characteristics SCR, TRIAC, DIAC, IGBT, GTO etc.
KEE653.2	Understand application of Power Electronics devices in Choppers, Inverters and Converters etc. For different load.
KEE653.3	Design and simulate 1-3 phase half and full wave rectifiers, chopper inverter etc., using various power electronics devices MATLAB.

COURSE NAME: Introduction To Smart Grid (KOE084)

Course Outcome	Statement (On completion of this course, the student will be able to)
KOE084.1	Understand the features of Smart Grid.
KOE084.2	Assess the role of metering and automation.
KOE084.3	Understand Power distribution sector framework with different loads and generating sources.
KOE084.4	Analyse microgrids and Distributed energy resources (DER) with integration of different sources.
KOE084.5	Understand operation and importance of power quality in smart grid.

COURSE NAME: Project Management & Entrepreneurship (KHU802)

Course Outcome	Statement (On completion of this course, the student will be able to)
KHU802.1	
KHU802.2	
KHU802.3	Students can understand the preparation of a real time project feasibility

	report.
KHU802.4	Students will understand the Project finance and preparation of detailed project report.
KHU802.5	

COURSE NAME: PROJECT II(KEE851)

Course Outcome	**Statement (On completion of this course, the student will be able to)**
KEE851.1	Identify the particular problem in the field and demonstrate independent learning.
KEE851.2	Plan, design and analyze the particular problem as project
KEE851.3	Demonstrate the usefulness of project in society and understanding of professional ethics and participate in a class or project team.