Koneru Lakshmaiah Education Foundation
(Category -1, Deemed to be University estd. u/s. 3 of the UGC Act. 1956)
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Department of Electrical and Electronics Engineering
Program: M. Tech – Power Electronics & Drives
Academic Year: 2021-2022 Batch

Course Code	Course Title	CO NO	Description of the Course Outcome
21EE5112	Analysis Of Power Converters	CO1	Analyze the various 3-phase controlled rectifiers and power factor correction converters with different load
		CO2	Analyze the performance of Switch-Mode PWM and different control techniques for Inverters
		CO3	Analyze the performance of dc-dc switch regulators with CCM and DCM operation.
		CO4	Understand the operations and performance of various ac-ac regulators with different loads and its.
		CO5	Demonstrate and test basic power electronic converters by hardware realization and MATLAB software.
21EE5111	Modeling and Analysis of Electrical Machines	CO1	Apply the basic concepts of Electromagnetic Energy Conversion Principles to DC Machines
		CO2	Understand the performance of electrical machines through mathematical modeling
		CO3	Illustrate the dynamic behaviour of electrical machines under different operating conditions
		CO4	Analysis of special machines
21EE5113	Power Electronic Control of Drives	CO1	Analyze ac-dc and dc-dc converter fed DC motor drives
		CO2	Understand converter fed stator side control of Induction Motor drives.
		CO3	Analyze rotor side control and slip power recovery scheme of 3-phase Induction Motor drives
		CO4	Analyze frequency control of Synchronous Motor drives for variable speed operation
18EE5104	Modern Control Theory	CO1	Understand the basics of Z-Transforms and Digital control systems DCS components
		CO2	Apply various stability analysis technics to digital control systems
		CO3	Apply various stability analysis technics to non-linear control systems
		CO4	Apply the basics of optimal control problem to state feedback controller design
21EE5114	Digital Simulation of Power Electronic Systems	CO1	Understand Pspice modeling of power semiconductor devices and passive components behavior with protection circuits.

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		CO2	Analyze performance of AC-DC controlled, uncontrolled converters and DC-DC converters using Pspice and Matlab Simulink model.
		CO3	Evaluate DC-AC converters performance using modern simulation tools.
		CO4	Analyze AC voltage controller and cyclo-converter performance with programming and simulation tools.
21EE51A1	Soft Computing Techniques	CO1	Demonstrate model, learning and training methods of Artificial Neural networks
		CO2	Apply Genetic algorithms to engineering problems
		CO3	Demonstrate characteristics of Fuzzy systems
		CO4	Apply Neual netwotks and fuzzy logic to motor controls
21EE5211	Switched Mode Power Supplies	CO1	Analyze the concepts of Resonant switch Converters, L-type, M-type, Load resonant converters
		CO2	Analyze the operation of soft switched isolated converter and Quasi resonant inverter
		CO3	Analyze the concept of Z-source to inverter and analyze the concept of multi-level to inverters, Analysis and comparison of Multi level Inverters
		CO4	Apply different PWM techniques for Multi-level inverters, Apply the Concept of Matrix converter for direct AC-AC conversion
		CO5	Analyze the concepts of Advanced power converters through Lab experiments
21EE5212	Advanced Electrical Drives	CO1	Understand the modeling of AC machines
		CO2	Contrast the speed control performance of 3-Phase induction and synchronous motor drive using vector control methods
		CO3	Analyze the dynamic behavior of SRM motor drives under various control methods
		CO4	Distinguish the performance of BLDC Motor drive using various control techniques
21EE5214	Smart Grids Technologies	CO1	Understand the basic concepts of smart grid, terminology, challenges and initiatives.
		CO2	Identify various smart operations of power system structure, components, and monitoring techniques.
		CO3	Apply smart metering and advanced metering infrastructure with monitoring, protection and measuring units.
		CO4	Illustrate various communication protocols and cyber-security importance in smart grid.
21EE51B2	Digital Signal Processors and Applications	CO1	Apply basic digital program logics for programming CPLD and FPGA
		CO2	Understanding ASIC physical design flow

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		CO3	Understanding Analog VLSI design
		CO4	Analyse the control logics for motor application using VHDL program
21EE52E2	Battery Management Systems for Electric Vehicle	CO1	Demonstrate Mechanics of Electric vehicle
		CO2	Demonstrate Power train components of Electric vehicle
		CO3	Apply controllers to electric vehicle drive system
		CO4	Outline energy storage systems for Electric vehicles
21EE51B3	OPTIMIZATION TECHNIQUES	CO1	Understand classical optimization techniques, describe clearly the problems with and without constraints, identify its parts and analyze the individual functions, Feasibility study for solving an optimization problem.
		CO2	Design and apply mathematical translation of the verbal formulation of an optimization problem and design algorithms of linear programming problems, the repetitive use of which will lead reliably to finding an approximate solution.
		CO3	Evaluate and measure the performance of an algorithm of different methods to solve non-linear programming problems, study and solve optimization problems.
		CO4	Analyze optimization techniques using algorithms. Investigate, study, develop, organize and promote innovative solutions for various applications.
21EE52C1	FACTS DEVICES	CO 1	Interpret the significance of FACTS devices in power system
		CO 2	Demonstrate the operation and control of shunt compensation devices
		CO 3	Demonstrate the operation and control of series compensation devices
		CO 4	Demonstratetheoperation and applications of special FACTS devices like UPFC and IPFC
21EE52D2	POWER QUALITY	CO1	Outline basic power quality issues
		CO2	Demonstrate conventional loop control for voltage and current balance
		CO3	Demonstrate DSTATCOM for power quality restoration
		CO4	Apply combined compensation techniques for power quality restoration

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