R K COLLEGE OF ENGINEERING

(Approved by AICTE, New Delhi & Affiliated to JNTUK, Kakinada & SBTET, Amaravati)
(An ISO 9001:2015 Certified Institution)
Kethanakonda (V), Ibrahimpatnam (M), Vijayawada, AMARAVATI - AP - 521456

DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

COURSE OUTCOMES (COs)

Course Outcomes (COs) describe what students can able to do after completion of the course.

S.No	Year-Sem	Course Code	Course Name	Course Outcomes After completion of the course student can able to
1	I-I	PC	Electrical Machines Modeling and Analysis	CO1: Analyze the characteristics of different types of DC motors to design suitable controllers for different applications.
				CO2: Apply the knowledge of reference frame theory for AC machines to model the induction and Synchronous machines.
				CO3: Evaluate the steady state and transient behavior of induction and synchronous machines to propose the suitability of drives for different industrial applications
				CO4: Analyze the behavior of induction machines using voltage and torque equations.
2	I-I	PC	Analysis of Power Electronic Converters	CO1: Describe and analyze the operation of AC-DC converters.
				CO2: Analyze the operation of power factor correction converters.
				CO3: Analyze the operation of three phase inverters with PWM control.
				CO4: Study the principles of operation of multi-level inverters and their applications.
3	I-I	PE	Modern Control Theory	CO1: Formulate and solve the state equations of dynamic systems, analyze controllability and observability.
				CO2: Design a state feedback controller; design an observer.
				CO3: Linearize a nonlinear system model; analyze non-linear systems through describing functions.
				CO4: Determine the stability of a given system; generate a Lyapunov function.

R K COLLEGE OF ENGINEERING * Krishna Dt., * VIJAYAWADA

PRINCIPAL
R K COLLEGE OF ENGINEERING
Kethanakonda (V), Ibrahimpatnam (M),
Vijayawada, AMARAVATI-521 456.

				CO5: Minimize a given functional, design an optimal feedback gain matrix.
4	I-I	PE	HVDC Transmission and Flexible AC Transmission Systems	**CO1**: Compare HVDC and EHVAC transmission systems
				CO2: Analyze converter configurations used in HVDC and evaluate the performance metrics.
				CO3: Understand controllers for controlling the power flow through a dc link and compute filter Parameters.
				CO4: Apply impedance, phase angle and voltage control for real and reactive power flow in ac transmission systems with FACTS controller.
				CO5: Analyze and select a suitable FACTS controller for a given power flow condition.
5	I-I		Research Methodology and IPR	**CO1**: Understand approaches of investigation of solutions for research problem.
				CO2: Understand Effective literature studies approaches.
				CO3: Learn nature of Intellectual Property
				CO4: Know about the Patent Rights.
				CO5: Learn about the New Developments in IPR
6	I-I		Power Electronics Simulation Laboratory	**CO1**: To understand the operation of DC-DC converters by simulation.
				CO2: To understand the operation of AC-DC converters by simulation.
				CO3: To understand the operation of AC voltage regulators by simulation.
				CO4: To understand the operation of DC-AC converters by simulation.
7	I-I		Power Converters Laboratory	**CO1**: Students are able to implement the converter in real time applications.
				CO2: Students are able to implement the inverters in real time applications.
8	I-II	PC	Switched Mode Power Conversion	**CO1**: Analyze operation and control of non-isolated and isolated switch mode converters.
				CO2: Design of non-isolated and isolated switch mode converters.
				CO3: Analyze operation and control of resonant converters.
				CO4: Feedback design of switch mode converters based on linearized models.

R K COLLEGE OF ENGINEERING ★ Krishna Dt., ★ VIJAYAWADA

PRINCIPAL
R K COLLEGE OF ENGINEERING
Kethanakonda (V), Ibrahimpatnam (M),
Vijayawada, AMARAVATI-521 456.

9	I-II	PC	Power Electronic Control of Electrical Drives	**CO1**: Understand the concepts of scalar and vector control methods for drive systems.
				CO2: Analyze and design controllers and converters for induction motor, PMSM and BLDC drives.
				CO3: Select and implement proper control techniques for induction motor and PMSM for specific applications.
				CO4: Analyze and design control techniques and converters for SRM drives.
10	I-II	PE	Digital Control Systems	**CO1**: Analyze digital control systems using Z-transforms and Inverse Z-Transforms.
				CO2: Evaluate the state transition matrix and solve state equation for discrete model for continuous time systems, investigate the controllability and observability.
				CO3: Determine the stability; design state feedback controller.
				CO4: Design an observer.
				CO5: Solve a given optimal control problem.
11	I-II	PE	Microcontrollers	**CO1**: Design the interfacing circuits for input and output to PIC micro controllers and DSP processors.
				CO2: Write ALP for DSP processors.
				CO3: Design PWM controller for power electronic circuits using FPGA.
12	I-II		Electric Drives Simulation Laboratory	**CO1**: The student should analyze the performance of different electrical machines.
				CO2: The student should analyze the performance of different electrical drives
13	I-II		Electric Drives Laboratory	**CO1**: The student should Understand the performance of DC drives.
				CO2: The student should Understand the performance of AC drives.
14	II-III		Modeling and Simulation of Power Electronic Systems	**CO1**: Understand the back ground activities i.e. numerical solution used in the simulation software.
				CO2: Can judge or properly choose the required numerical solver to be used for analysis.
				CO3: Can understand and debug the convergence problems occurring during simulation.
				CO1: Understand the principle of energy audit and

R K COLLEGE OF ENGINEERING ★ Krishna Dt., ★ VIJAYAWADA

PRINCIPAL
R K COLLEGE OF ENGINEERING
Kethanakonda (V), Ibrahimpatnam (M),
Vijayawada, AMARAVATI-521 456.

15	II-III		Energy Audit Conservation & Management	their economic aspects.
				CO2: Recommend energy efficient motors and design good lighting system.
				CO3: Understand advantages to improve the power factor.
				CO4: Evaluate the depreciation of equipment.
16	II-III		Energy Audit Conservation & Management)	**CO1**: Understand the principle of energy audit and their economic aspects.
				CO2: Recommend energy efficient motors and design good lighting system.
				CO3: Understand advantages to improve the power factor.
				CO4: Evaluate the depreciation of equipment.
17	II-III		DISSERTATION PHASE-I	**CO1**: The Dissertation shall be related to the major field of his/her PG specialization work.
				CO2: The Dissertation should be one of the major pieces of evidence that students are familiar with or that student wants to be familiar with. It should reflect your specialist subject by means of deep and sustained study.
				CO3: The dissertation work shall be carried out by each candidate independently during the third and fourth semester under the guidance of one of the faculty members of the Department. If Page 18 of 18 the project work is of inter-disciplinary nature, a co-guide shall be taken from the same or any other relevant Department.
				CO4: Dissertation Phase-I includes literature review, required theoretical input, study and comparison of various approaches for the proposed dissertation work.
18	II-IV		DISSERTATION PHASE-II	**CO1**: Student should carry out the investigation by identifying sources of evidence, accessing those using accepted and rigorous academic methods, and analyzing and interpreting the material gathered by simulation/experimentation.
				CO2: A dissertation phase - II is student's own work & will need to keep up the effort, and the interest, over several months and through several stages.
				CO3: Student need to think carefully about the

R K COLLEGE OF ENGINEERING Krishna Dt., VIJAYAWADA

PRINCIPAL
R K COLLEGE OF ENGINEERING
Kethanakonda (V), Ibrahimpatnam (M),
Vijayawada, AMARAVATI-521 456.

				work & will need to keep up the effort, and the interest, over several months and through several stages.
				CO3: Student need to think carefully about the time necessary to carry-out and complete your project work and the relative writing up.
				CO4: The project should present an orderly and critical exposition of the existing knowledge of the subject and will embody results of original investigations demonstrating the capacity of the candidate to do independent research work.
				CO5: While writing the thesis/dissertation, the candidate will layout clearly the work done by him independently and the sources from which he has obtained other information contained.

HOD

HOD EEE
R K COLLEGE OF ENGINEERING
Kethanakonda (V), Ibrahimpatnam (M),
Vijayawada, AMARAVATI-521 456.

R K COLLEGE OF ENGINEERING Krishna Dt., VIJAYAWADA

PRINCIPAL

R K COLLEGE OF ENGINEERING
Kethanakonda (V), Ibrahimpatnam (M),
Vijayawada, AMARAVATI-521 456.