IV YEAR I SEMESTER COURSE OUTCOMES

SL.No.					
1	COURSE CODE:	R204102	COURSE NAME:	DIGITAL SIGNAL PROCESSING (PROFESSIONAL ELECTIVE –III)	
	CO1:	Know the concepts of Digital signal processing - frequency domain representation & z transform.			
	CO2:	Compute discrete Fourier transform and fast fourier transforms for different sequences.			
	CO3:	Design IIR filters through analog filter approximation and basic structure of IIR filters.			
	CO4:	Design FIR filters with window techniques and basic structure of FIR filters.			
	CO5:	Learn the concepts of Multirate Signal Processing.			
2	COURSE CODE:	R204102	COURSE NAME:	RENEWABLE AND DISTRIBUTED ENERGY TECHNOLOGIES (PROFESSIONAL ELECTIVE – III)	
	CO1:	Illustrate basic concepts of renewable and distributed sources			
	CO2:	Demonstrate the components of wind energy conversion systems.			
	CO3:	Model PV systems and analyse MPPT Techniques.			
	CO4:	Illustrate the concept of Energy Production from Hydro - Tidal and Geothermal.			
	CO5:	Distinguish between standalone and grid connected DG systems and design hybrid renewable energy systems.			
3	COURSE CODE:	R204102	COURSE NAME:	FLEXIBLE ALTERNATING CURRENT TRANSMISSION SYSTEMS (PROFESSIONAL ELECTIVE – III)	
	CO1:	Know the concepts of facts controller and power flow control in transmission line.			
	CO2:	Demonstrate operation and control of voltage source converter and know the concepts currentsource converter.			
	CO3:	Analyse compensation by using different compensators to improve stability and reduce power oscillations in the transmission lines.			
	CO4:	Know the concepts methods of compensations using series compensators.			
	CO5:	Analyse operation of Unified Power Flow Controller (UPFC) and Interline power flow controller(IPFC).			
4	COURSE CODE:	R204102	COURSE NAME:	POWER SYSTEM DEREGULATION (PROFESSIONAL ELECTIVE – III)	
	CO1:	Know the essential and operation of deregulated electricity market systems.			
	CO2:	Learn about the different structure model.			
	CO3:	Analyze various types of electricity market operational and control issues using new mathematical models.			
	CO4:	Analyse LMP's wheeling transactions and congestion management.			
	CO5:	Analyze impact of ancillary services.			
5	COURSE CODE:	R204102	COURSE NAME:	DATA BASE MANAGEMENT SYSTEMS (Professional Elective –III)	
	CO1:	Illustrate the concept of databases, database management systems, database languages, database structures and their work			
	CO2:	Apply ER modeling and Relational modeling for designing simple databases.			
	CO3:	Summarize the concepts related to relational model and SQL and Write database queries using Apply ER modeling and Relational modeling for designing simple databases.			
	CO4:	Design and develop databases from the real world by applying the concepts of Normalization.			
	CO5:	Outline the issues associated with Transaction Management and Recovery, Tree Structured Indexing			

6	**COURSE CODE:**	**R204102**	**COURSE NAME:**	**HYBRID ELECTRIC VEHICLES (PROFESSIONAL ELECTIVE –IV)**
	CO1:	Know the concept of electric vehicles and hybrid electric vehicles.		
	CO2:	Familiar with different configuration of hybrid electric vehicles.		
	CO3:	Choose an effective motor for EV and HEV application		
	CO4:	Understand the power converters used in hybrid electric vehicles		
	CO5:	Know different batteries and other energy storage systems.		
7	**COURSE CODE:**	**R204102**	**COURSE NAME:**	**HIGH VOLTAGE ENGINEERING (PROFESSIONAL ELECTIVE – IV)**
	CO1:	Recognise the dielectric properties of gaseous materials used in HV equipment.		
	CO2:	Differentiate the break down phenomenon in liquid and solid dielectric materials.		
	CO3:	Acquaint with the techniques of generation of high AC and DC voltages		
	CO4:	Acquaint with the techniques of generation of high Impulse voltages and currents.		
	CO5:	Getting the knowledge of measurement of high AC - DC - Impulse voltages and currents.		
8	**COURSE CODE:**	**R204102**	**COURSE NAME:**	**PROGRAMMABLE LOGIC CONTROLLERS AND APPLICATIONS (PROFESSIONAL ELECTIVE –IV)**
	CO1:	Illustrate I/O modules of PLC systems and ladder diagrams		
	CO2:	Demonstrate various types registers and programming instructions.		
	CO3:	Examine various types of PLC functions and its applications.		
	CO4:	Assess different data handling functions and its applications.		
	CO5:	Describe the analog operations and PID modules.		
9	**COURSE CODE:**	**R204102**	**COURSE NAME:**	**CLOUD COMPUTING WITH AWS (PROFESSIONAL ELECTIVE –IV)**
	CO1:	Understand and analyze the architecture of Cloud (Analyze).		
	CO2:	Identify and apply deployment and management options of AWS Cloud Architecture (Apply).		
	CO3:	Design architectures to decouple infrastructure and reduce interdependencies (Create).		
10	**COURSE CODE:**	**R204102**	**COURSE NAME:**	**DEEP LEARNING TECHNIQUES (PROFESSIONAL ELECTIVE –IV)**
	CO1:	Demonstrate the fundamental concepts learning techniques of Artificial Intelligence, Machine Learning and Deep Learning.		
	CO2:	Discuss the Neural Network training, various random models.		
	CO3:	Explain the Techniques of Keras, TensorFlow, Theano and CNTK		
	CO4:	Classify the Concepts of CNN and RNN		
	CO5:	Implement Interactive Applications of Deep Learning.		
11	**COURSE CODE:**	**R204102**	**COURSE NAME:**	**POWER SYSTEM OPERATION AND CONTROL (PROFESSIONAL ELECTIVE –V)**
	CO1:	Compute optimal load scheduling of Generators.		
	CO2:	Formulate hydrothermal scheduling and unit commitment problem..		
	CO3:	Analyse effect of Load Frequency Control for single area systems		
	CO4:	Analyse effect of Load Frequency Control for two area systems		
	CO5:	Describe the effect of reactive power control for transmission lines.		

12	**COURSE CODE:**	**R204102**	**COURSE NAME:**	**SWITCHED MODE POWER CONVERSION (PROFESSIONAL ELECTIVE –V)**
	CO1:	Design and analyse the operation of non-isolated switch mode converters.		
	CO2:	Analyze the operation of isolated switch mode converters.		
	CO3:	Illustrate the operation of resonant converters.		
	CO4:	Analyse the control schemes of converters and design transformer and inductor.		
	CO5:	Model the converters and design controller for closed loop operation.		
13	**COURSE CODE:**	**R2041025**	**COURSE NAME:**	**AI APPLICATIONS TO ELECTRICAL ENGINEERING (PROFESSIONAL ELECTIVE – V)**
	CO1:	Analyse different models of artificial neuron & Use learning methods of ANN.		
	CO2:	Evaluate different paradigms of ANN.		
	CO3:	Classify between classical and fuzzy sets.		
	CO4:	Illustrate different modules of Fuzzy logic controller.		
	CO5:	Apply Neural Networks and fuzzy logic for real-time applications.		
14	**COURSE CODE:**	**R204102**	**COURSE NAME:**	**DATA SCIENCE (PROFESSIONAL ELECTIVE –V)**
	CO1:	Acquire the knowledge and expertise to become a proficient data scientist		
	CO2:	Demonstrate an understanding of statistics and machine learning concepts that are vital for datascience		
	CO3:	Explain how data is collected, managed and stored for data science		
	CO4:	Interpret the key concepts in data science, including their real-world applications and the toolkit used by data scientists		
	CO5:	Illustrate data collection and management scripts using MongoDB		
15	**COURSE CODE:**	**R204102**	**COURSE NAME:**	**MEAN STACK TECHNOLOGIES (PROFESSIONAL ELECTIVE –V)**
	CO1:	Describe basics of Web Designing using HTML, DHTML, and CSS		
	CO2:	Build real world applications using client side and server side scripting languages		
	CO3:	Design and develop applications using web servers		
	CO4:	Analyze the basics of PHP programming		
	CO5:	Apply Database connectivity with case study for student Information System and Health Management system		
16	**COURSE CODE:**	**R204102**	**COURSE NAME:**	**CONCEPTS OF MICROPROCESSORS AND MICROCONTROLLERS (OPEN ELECTIVE –III)**
	CO1:	Know the concepts of the Microprocessor capability in general and explore the evaluation of microprocessors.		
	CO2:	Analyse the instruction sets - addressing modes - minimum and maximum modes operations of 8086 Microprocessors		
	CO3:	Analyse the Microcontroller and interfacing capability.		
	CO4:	Describe the architecture and interfacing of 8051 controller.		
	CO5:	Know the concepts of PIC micro controller and its programming		
17	**COURSE CODE:**	**R204102**	**COURSE NAME:**	**FUNDAMENTALS OF ELECTRIC VEHICLES (OPEN ELECTIVE-III)**
	CO1:	Illustrate different types of electric vehicles.		
	CO2:	Select suitable power converters for EV applications.		
	CO3:	Design HEV configuration for a specific application.		
	CO4:	Choose an effective method for EV and HEV applications.		
	CO5:	Analyse a battery management system for EV and HEV.		

18	**COURSE CODE:**	**R204102**	**COURSE NAME:**	**CONCEPTS OF INTERNET OF THINGS (OPEN ELECTIVE-III)**
	CO1:	Review Internet of Things (IoT).		
	CO2:	Demonstrate various business models relevant to IoT.		
	CO3:	Construct designs for web connectivity		
	CO4:	Organize sources of data acquisition related to IoT, integrate to enterprise systems.		
	CO5:	Describe IoT with Cloud technologies.		
19	**COURSE CODE:**	**R204102**	**COURSE NAME:**	**CONCEPTS OF POWER SYSTEM ENGINEERING (OPEN ELECTIVE-IV)**
	CO1:	Know the concepts of power generation by various types of power plants.		
	CO2:	Learn about transmission line concepts and distribution systems schemes.		
	CO3:	Learn about protection equipments and grounding methods of power system.		
	CO4:	Know the economic aspects of electrical energy and their importance.		
	CO5:	Know the importance of power factor improvement and voltage control in power systems.		
20	**COURSE CODE:**	**R204102**	**COURSE NAME:**	**CONCEPTS OF SMART GRID TECHNOLOGIES (OPEN ELECTIVE-IV)**
	CO1:	Know the concepts of smart grids and analyse the smart grid policies and developments in smart grids.		
	CO2:	Develop concepts of smart grid technologies in hybrid electrical vehicles etc.		
	CO3:	Know the concepts of smart substations - feeder automation - Battery Energy storage systems etc.		
	CO4:	Analyse micro grids and distributed generation systems.		
	CO5:	Analyse the effect of power quality in smart grid and to understand latest developments in ICT for smart grid.		
21	**COURSE CODE:**	**R204102**	**COURSE NAME:**	**UNIVERSAL HUMAN VALUES-2: UNDERSTANDING HARMONY**
	CO1:	Students will be able to discuss a holistic perspective based on self-exploration about themselves (human being), family, society and nature/existence, to explain (or developing clarity) of the harmony in the human being, family, society and nature/existence, to strengthen self-reflection and to judge the commitment and courage to act.		
22	**COURSE CODE:**	**R204102**	**COURSE NAME:**	**SKILL ADVANCED COURSE MACHINE LEARNING WITH PYTHON LAB**
	CO1:	Implement procedures for the machine learning algorithms		
	CO2:	Design and Develop Python programs for various Learning algorithms		
	CO3:	Apply appropriate data sets to the Machine Learning algorithms		
	CO4:	Develop Machine Learning algorithms to solve real world problems		
23	**COURSE CODE:**	**R204102**	**COURSE NAME:**	**EHVAC TRANSMISSION (Honors Engineering Course)**
	CO1:	Calculate the transmission line parameters.		
	CO2:	Calculate the field effects on EHV and UHV AC lines.		
	CO3:	Determine the corona, RI and audible noise in EHV and UHV lines.		
	CO4:	Analyze voltage control and compensation problems in EHV and UHV transmission systems.		
	CO5:	Understand reactive power compensation using SVC and TCR		
24	**COURSE CODE:**	**R204102**	**COURSE NAME:**	**SMART GRID TECHNOLOGIES (Honors Engineering Course)**
	CO1:	Know the concept of smart grid and analyse the smart grid policies and developments in smart grids.		
	CO2:	Develop concepts of smart grid technologies in hybrid electrical vehicles etc.		
	CO3:	Know the concepts of smart substations - feeder automation - Battery Energy storage systems etc.		
	CO4:	Analyse micro grids and distributed generation systems.		
	CO5:	Analyse the effect of power quality in smart grid and to understand latest developments in ICT for smart grid.		

25	**COURSE CODE:**	**R204102**	**COURSE NAME:**	**POWER ELECTRONIC CONTROL OF ELECTRIC DRIVES (Honors Engineering Course)**	
	CO1:	Understand the concepts of vector control methods for Induction Motor drive systems.			
	CO2:	Understand the principle of sensor less control of Induction Motor drive.			
	CO3:	Understand the principle of DTC of Induction Motor drive.			
	CO4:	Learn the modeling & control aspects of PMSM and BLDC Motor drives.			
	CO5:	Understand the construction operation and control aspects of SRM.			
26	**COURSE CODE:**	**R204102**	**COURSE NAME:**	**NEURAL NETWORKS AND FUZZY LOGIC (Minors Engineering Course)**	
	CO1:	Analyse different models of artificial neuron.			
	CO2:	Illustrate training and classification using perceptron algorithms.			
	CO3:	Evaluate different paradigms of ANN.			
	CO4:	Classify between classical and fuzzy sets.			
	CO5:	Analyse various modules of Fuzzy logic controller.			
27	**COURSE CODE:**	**R204102**	**COURSE NAME:**	**CONCEPTS OF ELECTRIC DRIVES AND ITS APPLICATIONS (Minors Engineering Course)**	
	CO1:	Explain the fundamentals of electric drive and different electric braking methods.			
	CO2:	Analyze the operation of Three-phase converter fed dc motors and four quadrant operations of dc motors using dual converters.			
	CO3:	Describe the DC-DC converter control of dc motors in various quadrants of operation			
	CO4:	Understand `the concept of speed control of induction motor by using AC voltage controllers, voltage source inverters and rotor side control.			
	CO5:	Understand the speed control mechanism of synchronous motors.			

PRINCIPAL