

I SEMESTER

EE2201	Basic Electronics	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
	The student will be able to:														
CO-1	Understand and learn the basic concepts, working principles of various soft computing techniques, especially Fuzzy logic and Artificial Neural Networks.	3	3												
CO-2	Analyze the problem statements; provide engineering solutions through development of membership functions / membership graphs, Learning & Recognition approaches	3	3												
CO-3	Work on Case studies based on Application areas of Soft Computing, Design / Develop and Demonstrate models for Fuzzy controllers, Neural Networks	3	3												
CO-4	Get involved in self learning approach for developing models using Soft computing techniques, Reveal different applications of these models to solve engineering and other problems and develop solutions for problems related to society and industry needs, writing Technical reports, presentations.	3	3												
		3	3												

2	2	1	1	3	2			1	2	2	1	1	2	1
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EE2203	Signals & Systems	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
	Students will be able to														
CO-1	Classify continuous time signals and systems, transformation of independent variable.	3	3	1											
CO-2	Analyze Fourier series, Fourier transform representation of continuous-time periodic and aperiodic signals.	3	3	2											
CO-3	Determine and evaluate Laplace Transform of continuous time signals.	3	2	2											
CO-4	Analyze time & frequency characterization of Signals and Systems & Sampling Theorem	3	2	1											
		3	2.5	1.5											

EE2204	Lab : Programming Language	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO-1	To understand syntax and semantics of language	2	2	2		2								2	
CO-2	To understand and apply the basics of the programming language	2	2	2		2								2	
CO-3	To understand and apply special language features	2	2	2		2								2	
CO-4	To develop any application	2	2	2		2								2	
		2	2	2		2								2	

EE2205/ EE2206	Digital Logic Design/ Lab : Digital Logic Design	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
	Students will be able to:														
CO-1	Simplify combination logic circuits using Boolean algebra and exhibit the methods to solve logical functions using K-map and Quine-Mc-Clauskey methods.	2	1	2	1				1				3		
CO-2	Understand and apply the concept of combinational logic circuits in various digital systems.	2	2	2	1				1				3		
CO-3	Understand and demonstrate the various codes and illustrate concept of logic family with their characteristics.	3	3	3	1				1				3		
CO-4	Understand the working of Flip-flops and its use to design Synchronous counters and Design and demonstrate finite state machines.	3	3	3	1				1				3		
		2.5	2.25	2.5	1				1				3		

EE2207/ EE2208	Network Analysis/ Lab : Network Analysis	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
	On successful completion of this course, students should be able to:														
CO-1	Apply and analyze nodal and mesh analysis on circuits	3	3			1			1	1	1		1	1	
CO-2	Apply network theorems, initial and final conditions to analyze circuits	3	3			1			1	1	1		1	1	
CO-3	Understand, apply and analyze circuits in transform domain	3	3												
CO-4	Apply the concept of two – port networks to find different two-port parameters.	3	3												
CO-5	Students will be able to analysis network concepts using EDA Tool.					1			1	1	1		1	1	
		3	3			1			1	1	1		1	1	

IV Semester

GE2204	Advanced Mathematical Techniques	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
	Students will be able to														
CO-1	Utilize numerical techniques to obtain approximate solutions of mathematical equations	3	3												
CO-2	Measure the Statistical parameters for random variables	3	3												
CO-3	Explain the basic concept of fuzzy sets, Relations and fuzzy logic.	2	2												
CO-4	Design and determine the solution of linear programming problems	3	3												
		2.75	2.75												

EE2251 / EE2252	Electronic Circuits /Lab : Electronic Circuits	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO-1	Students will be able to know the low frequency parameters and analysis of BJT, MOSFET and its configuration.	3	3	2										1	1
CO-2	Students will be able to know the high frequency parameters and analysis of BJT, MOSFET and its configuration.	3	3	2										1	1
CO-3	Students will be able to analyze amplifiers with and without feedback.	3	3	1										1	1
CO-4	Students will be able to analyze Power amplifier and Oscillators.	2	3	1										1	1
CO-5	To implement transistorised circuits on breadboard, kits and/or using spice software for verification	2	1	2	3	3	2		2	2	2	1	1	1	1
		3	3	2	3	3	2		2	2	2	1	1	1	1

EE2253/ EE2254	Microcontroller & its Applications / Lab. Microcontroller & its Applications	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
	A student who completes this course will be able to:														
CO-1	Understand & Learn concept of Architecture of 8051 μ c	3	3	2	2	3	1	1					3	3	
CO-2	Apply the concept of programming language to interface I/O Devices	3	3	2	2	3	1	1					2	3	
CO-3	Establish the serial communication between the I/O Devices.	3	3	2	2	3	1	1	2	2	2	1	3	3	
CO-4	Design Data Acquisition System related to Industries	3	3	2	2	3	1	1	2	2	2	1	2	3	
		3	3	2	2	3	1	1	2	2	2	1	2.5	3	

EE2255/ EE2256	Analog Communication /Lab : Analog Communication	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
	Students will be able to													1	1
CO-1	Demonstrate and analyze various amplitudes, angle modulation techniques.	3	2	2										1	1
CO-2	Understand various types of receivers & noise in communication system and investigate noise parameters.	3	3	3										1	1
CO-3	Understand pulse modulation & multiplexing techniques.	3	1	1										1	1
CO-4	Apply the concept of Radiation & Propagation of waves to design communication system	3	2	3										1	1
CO-5	Use of Matlab software to write program & simulate communication systems.													1	1
		2.25	1.5	1.5										1	1

EE2257	Electromagnetic Fields	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
	After study through lectures and assignments, students will able to:														
CO-1	Define and recognize different co-ordinate systems, apply different techniques of vector calculus to understand concepts of electromagnetic field theory.	3	3												
CO-2	Determine the electromagnetic force exerted on charged particles, current elements, working principle of various electric and magnetic fields.	2	3												
CO-3	Explain fundamental laws governing electromagnetic fields and evaluate the physical quantities of electromagnetic fields in different media using the fundamental laws.	2	3												
CO-4	Deduce and justify the concepts of electromagnetic waves, means of transporting energy or information, in the form of radio waves.	2	3												
		2.25	3												

EE2258	Lab: Electronics Workshop	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
	Students Will able to														
CO-1	Identify different Electronics Components.	3	3											2	
CO-2	Do mini project to enhance their practical Knowledge.	3	3	3			2	2	2	3		2	2		
CO-3	Artwork, printing, Etching & drilling of PCB	2	2	2		2						2	2	2	
CO-4	Work in a teamwork	2	3	2			2	2	3	3	3	2	2		
		2.5	2.75	2.33		2	2	2	2.5	2.67	3	2	2	2	

V Semester

EE2301/ EE2302	Digital Signal Processing / Digital Signal Processing Lab	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
	On completion of this course, the student will be able to														
CO-1	Apply DFT and Z transform for the analysis of signals and systems	3	1	2	1	3			1	2	1		3	2	1
CO-2	Construct and optimize structures for the realization of discrete Time system	3	3	2	2	3			1	2	1		3	2	1
CO-3	Design of Analog and Digital Filters for given specifications	3	3	3	3	3			1	2	1		3	2	1
CO-4	Understand fundamentals and architecture of DSP processor.	1	1	1	1	1			1	2	1		1	1	1
CO-5	Simulation and verification of various transform techniques and filter Design	2	1	2	3	3	2		2	2	2	1	1	1	1
		2.4	1.8	2	2	2.6	2		1.2	2	1.2	1	2.2	1.6	1

EE2303/ EE2304	Analog Integrated Circuits & Its Applications /Lab: Analog Integrated Circuits & Its Applications	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
	On completion of this course														
CO-1	Student will acquire knowledge of the fundamentals, the different Parameters and internal structure of the operational amplifier.	3	3	1	1	1									
CO-2	Student will analyze and design the linear applications of the operational amplifier.	3	3	2	2	2	1		1	1			1	2	2
CO-3	Students will analyze and design active Butterworth filters using operational amplifier	3	3	2	2	2	1		1	1			1	2	2
CO-4	Student will analyze and design the non-linear applications of the operational amplifier	3	3	2	2	2	1		1	1			1	2	2
CO-5	Students will implement op-amp circuits on breadboard and using spice software for verification.					2	2		2	2	2		1	2	2
		3.00	3.00	1.75	1.75	1.80	1.25		1.25	1.25	2.00		1.00	2.00	2.00

EE2311/ EE2312	PE I: Computer Communication Network / Lab: PE I: Computer Communication Network	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
	On completion of this course, Students will be able to														
CO-1	Understand and explain the concept of Data Communication and networks, layered architecture and their applications, transmission Media, Media Access Control Wireless LAN, Network Connecting Devices in Computer Networks	3	2											2	
CO-2	Demonstrate Data Link Layer Protocols, Routing Algorithms, congestion Control, TCP/IP protocol, IP addressing	3	3											2	
CO-3	Describe design application layer protocols and internet applications such as Electronic Mail, and File Transfer, WWW and HTTP and DNS	3	1											2	
CO-4	Explain Cryptography, Digital Signature, Entity Authentication, FIREWALLS, SSL Services	1	1											2	
CO-5	Simulation													2	
		1.5	1.75											2	

EE2313/ EE2314	PE I: Embedded Systems / Lab: PE I: Embedded Systems	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
	On completion of this course, Students will be able to														
CO-1	Understand & Learn concept of Architecture & organization of ARM.	3	3	3											
CO-2	Understand & Learn concept of RTOS Architecture.	2	3	3											
CO-3	Apply the concept of programming language to interface I/O Devices.	1	2	3											
CO-4	Establish the communication between the different Devices	1	2	3											
		1.75	2.5	3											

EE2315/ EE2316	PE I: Algorithm & Data Structure / Lab: PE I: Algorithm & Data Structure	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
	On completion of this course, Students will be able to														
CO-1	Study the trade off method Demonstrate and analyze various techniques.	3	3	1	1	1									
CO-2	Demonstrate various operation on data Structure	3	3	3	3	2									
CO-3	Understand various types Data Structure	3	3	3	3	3									
CO-4	Implement various types algorithm and analyze performance of system.	3	2	3											
		3	2.8	2.5	2.3	2									

EE2317/ EE2318	PE I: Applied Machine Learning/ Lab: PE I: Applied Machine Learning	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
	On completion of this course, Students will be able to														
CO-1	Develop an appreciation for what is involved in learning from data, machine learning techniques that are suitable for the different applications	3	3	3	3	3	1	1					2		
CO-2	Design an appropriate learning model from set of samples to meet the desired needs	3	3	3	3	3	1	1					2		
CO-3	Compare different machine learning techniques and demonstrate the comprehension of the trade-offs involved in design choices	3	3	3	3	3	1	1					2		
CO-4	Integrate machine learning algorithms with ensemble methods and explain modern technologies like deep and shallow learning	3	2	2	2	3	1	1					1		
		3	2.75	2.75	2.75	3	1	1					1.75		

CO-1	Understand the use of block diagram and signal flow graph as a modeling tool and the role of feedback in control systems.	3	3	2	2												
CO-2	Understand the response characteristics of basic first- and second-order dynamic systems. Be able to use Routh's criterion for absolute and relative stability analysis.	3	3	2	2												
CO-3	Construct and recognize the properties of root-locus and its role in the analysis of control systems.	3	3	2	2												
CO-4	Obtain frequency response indices. Be able to draw frequency response plots such as polar plot, Bode plot etc.	3	3	2	2												
		3	3	2	2												

EE2352	Transmission Lines and Wave Guides	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
	After the completion of course students will be able to														
CO-1	Explain fundamental parameters of transmission line and its constraints in high frequency transmission of information.	3	2	1	1	2									
CO-2	Make use of Transmission line to develop impedance matching networks and any communication system.	3	3	1	2	2				1					2
CO-3	Relate the propagation characteristics of electromagnetic waves in various wave guide structures.	3	3	1	2	2				1					
CO-4	Analyze transmission line using Smith Chart and Design Impedance Matching network.	3	3	1	2	2				1					2
		3	2.75	1	1.75	2				1					2

EE2353/EE2354	Digital Communication/Lab: Digital Communication	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	Understand different modulation and demodulation schemes	3	2	1	1	2									3
CO2	Apply the knowledge of signal space representation	3	3	1	2	2				1					3
CO3	Analyze the coding techniques for communication systems.	3	3	2	2	2				1					3
CO4	Describe different digital spread spectrum techniques	3	3	1	2	2				1					3
CO5	Students will be able to write program and draw simulink model using Matlab software					3	2				2				3
		3.00	2.75	1.25	1.75	2.20	2.00			1.00	2.00				3.00

EE2361	PE II: Internet of Things EE2362- Lab: PE II: Internet of Things	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
	Upon successful completion of the course, the student will be able to:														
CO-1	Understanding of IoT value chain structure (device, data cloud), application areas and technologies involved	1	2	1		1									
CO-2	Understand IoT sensors and technological challenges faced by IoT devices, with a focus on wireless, energy, power, RF and sensing modules	2	2	1		1									3
CO-3	Market forecast for IoT devices with a focus on sensors	2	2	2		1									3
CO-4	Explore and learn about Internet of Things with the help of preparing projects designed for Raspberry Pi	2	1	2		2									3
		1.75	1.75	1.5		1.25									3

EE2363/ EE2364	PE II: Digital CMOS Circuits / Lab: PE II: Digital CMOS Circuits	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
	A student who completes this course will be able to:														
CO-1	Describe and interpret the basic concepts of MOS transistors	1	2												
CO-2	Construct the ability to design a system, component or process as per needs and specifications.	2	3	3											
CO-3	Analyze inverter design, characteristics and applications and performance parameters of CMOS Circuits.	1	3	3											3
CO-4	Evaluate circuits using different CMOS styles and measure performance of the complex logic structures	2	3	3											3
		2	3	3											3

EE2365/ EE2366	PE II: Digital Image Processing / Lab: PE II: Digital Image Processing	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
	Students will be to														
CO-1	Understand the basic concepts of digital image processing and f digital image geometry.	2	1	2	1	2			1	2	1		3	2	1
CO-2	Implement the image enhancement and restoration techniques in spatial and frequency domain.	2	3	2	2	3			1	2	1		3	2	1
CO-3	Apply and implement image segmentation techniques using edge detection and merging.	2	3	2	3	3			1	2	1		3	2	1
CO-4	Apply different Image processing algorithms	2	2	2	3	2			1	2	1		2	2	1
		2	2.25	2	2.25	2.5			1	2	1		2.75	2	1

EE2367	PE II: Object Oriented Programming	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO-1	Understand the concept of concepts of Object Oriented Programming.	3	3	3	3	3	3			2		1	1	1	1
CO-2	Analyze the using the concept of Inheritance, Polymorphism, Overloading	3	2	3	2	3	3			2		1	1	1	1
CO-3	Choose the appropriate data structure and algorithm design method for a specified application.	3	2	3	2	3	3			2		1	1	1	1
CO-4	Develop and use linear and non linear data structures and advanced features.	3	2	3	2	3	3			2		1	1	1	1
		3	2.25	3	2.25	3	3			2		1	1	1	1

EE2368	Lab: PE II: Object Oriented Programming	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
	Students	3	3	3	3	3	3			2		1	1	1	1
CO-1	Will learn the basic concepts of Object Oriented Programming.	3	2	3	2	3	3			2		1	1	1	1
CO-2	Will design programming the concept of Inheritance, Polymorphism, Overloading	3	2	3	2	3	3			2		1	1	1	1
CO-3	Can choose the appropriate data structure and algorithm design method for a specified application.	3	2	3	2	3	3			2		1	1	1	1
CO-4	Will be able to use linear and non linear data structures and advanced features of C++ specifically stream I/O, templates and Exception Handling.	3	2	3	2	3	3			2		1	1	1	1
		3	2.2	3	2.2	3	3			2		1	1	1	1

EE2381	OE III : Fuzzy Logic & Neural Network	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
	On completion of this course, Students will be able to														
CO-1	Understand and learn the basic concepts, working principles of various soft computing techniques, especially Fuzzy logic and Artificial Neural Networks.	3	2	1		1	1	1	2	1	1		1		
CO-2	Analyze the problem statements; provide engineering solutions through development of membership functions / membership graphs, Learning & Recognition approaches	3	3	3	2	2	1	1	2	1	1		1	3	
CO-3	Work on Case studies based on Application areas of Soft Computing, Design / Develop and Demonstrate models for Fuzzy controllers, Neural Networks	3	3	3	3	2	2	1	2	2	2	1	3	3	
CO-4	Get involved in self learning approach for developing models using Soft computing techniques, Reveal different applications of these models to solve engineering and other problems and develop solutions for problems related to society and industry needs, writing Technical reports, presentations.	3	3	3	3	2	2	1	2	2	2	2	3	3	
		3	2.75	2.5	2.66667	1.75	1.5	1	2	1.5	1.5	1.5	2	3	

EE2382	OE III : Basics of Analog and Digital Communication Systems	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
	Students will be able to														
CO-1	Understand different modulation and demodulation schemes for analog communication with the concept of noise		2	2	2				2					2	
CO-2	Understand different pulse analog and digital modulation techniques.		2	2	2				2					2	
CO-3	Understand different digital modulation schemes		2	2	2				2					2	
CO-4	Understand the different coding techniques for communication systems.		2	2	2				2					2	
		2	2	2					2					2	

EE2383	OE III: Biomedical Instrumentation	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
	Students will be able to														
CO-1	Describe the basic concepts of biomedical instrumentation and principle of transducer used in biomedical instrumentation	2	2	2					2				2		
CO-2	Explain cardiovascular, blood pressure measurement and analyze ECG, plethysmograph and spirogram	2	2	2					2				2		
CO-3	Identify various techniques used in generation and measurement of x-rays, EMG and use of pacemakers, defibrillators in health care.	2	2	2					2				2		
CO-4	Recognize concept of Telemedicine, its applications and use of internet resource for hospital management system.	2	2	2					2				2		
		2	2	2					2				2		

EE2391	OE IV : Data Acquisition & Signal Conditioning	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
	After study through lectures and assignments, Students will be able to:														
CO-1	Describe the basic model of data acquisition system and the various methods and attributes of signal conditioning	3	2	3				2					3		
CO-2	Identify the various types of data acquisition hardware and the serial data communication standards.	3	3	3				3					2		
CO-3	Distinguish different standards for connection of different programmable instruments like GPIB and SCPI	3	2	3				2					2		
CO-4	Define use of Ethernet, Medium Access control and USB	3	2	3				3					3		
		3	2.25	3				2.5					2.5		

EE2392	OE IV : Microprocessor Programming	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
	Students														
CO-1	Will be able to understand the architecture of 8085.	3	3	3	3	3	3			2		1	1	1	1
CO-2	Will demonstrate the ability to identify, Formulate and design Program for an assigned task.	3	2	3	2	3	3			2		1	1	1	1
CO-3	Will be able to interface Peripheral devices.	3	2	3	2	3	3			2		1	1	1	1
CO-4	Will apply the knowledge of microprocessor in their respective field.	3	2	3	2	3	3			2		1	1	1	1
		3	2.25	3	2.25	3	3			2		1	1	1	1

EE2393	OE IV : Consumer Electronics	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
	Students will be able to														
CO-1	Understand the knowledge of the safety aspects in the field of Electrical and Electronics products.	2				2	3						2		
CO-2	Analyze the basics of Audio and Video Systems.	2				2							2		
CO-3	Know about recent trends in Processors and computer peripherals, mobile and wireless technologies.	2				2							2		
CO-4	Understand the basics of refrigeration cycle and cooling system.	2				2	2						3		
		2				2	2.5						2.25		

EE2401/EE2402	Digital System Design	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
1	Understand hardware description language and able to design and simulate digital systems using different abstraction levels	3.00	3.00	2.00										2.00	
2	Apply and design combinational and sequential logic circuits.	2.00	3.00	2.00										2.00	
3	Apply and design the basics of synchronous sequential logic and finite state machines.	3.00	2.00	2.00										2.00	
4	Analyze building blocks in digital system and explain the programmable devices and able to design digital systems using modern design tools	2.00	2.00	2.00										2.00	
5	valuate practical experiments to solve problems using an appropriate designing method									2.00	2.00		2.00	2.00	
		2.50	2.50	2.00						2.00	2.00		2.00	2.00	

EE2411	PE III: Switching Theory & Finite Automata	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
1	Apply basic techniques and fundamental concepts used in the implementation of digital systems.	2.00	2.00	2.00											
2	Analyze different faults models & testing principles in Combinational & Sequential circuit.	2.00	2.00	1.00											
3	Evaluate logical design methods for implementation of different machine.	3.00	2.00	1.00											
4	Design synchronous and asynchronous sequential circuits & finite state machine.	2.00	2.00	3.00					1.00						

EE2412	PE III :Power Electronics	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
1	Students will be able to study the characteristics of various devices	3.00	2.00	3.00					1.00						
2	Students will understand how the semiconductor devices are used as a converter and how they satisfy the requirement of load.	2.00	2.00	2.00					1.00						
3	Student will help to develop the concept of resonant inverter	2.00	2.00	3.00					1.00						
4	Student will come to know that a dc chopper can be used as a dc transformer to step up or step down a fixed dc voltage.	1.00	2.00	3.00											

EE2413	PE III: Wireless Sensor Network	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
1	Understand the WSN node Architecture and Network Architecture and explain the basic concepts of wireless sensor networks	2.00	3.00	2.00					1.00				1.00		
2	Describe and explain communication protocols adopted in wireless sensor networks	2.00	2.00	2.00					2.00				1.00		
3	Identify the Wireless Sensor Network Platforms	3.00	2.00	3.00					2.00				1.00		
4	Describe and explain the hardware, software and communication for wireless sensor network nodes	3.00	2.00	2.00					2.00				1.00		

EE2414	PE III: VLSI Signal Processing	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
1	Design architectures for DSP algorithms.	3.00	2.00	1.00		2.00				1.00			1.00		3.00
2	Apply the optimization concept in terms of area, speed and power on DSP systems.	3.00	2.00	1.00		2.00				2.00			1.00		3.00
3	Optimize DSP arithmetic	2.00	2.00	3.00		2.00				1.00			1.00		2.00
4	Design of algorithm structure for DSP algorithms based on algorithmic transformation.	2.00	2.00	3.00						2.00			2.00		2.00

EE2421/ EE2422	PE IV: Wireless Communication/ Wireless Communication	Lab:PE IV:	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
1	Students will be able to understand basic concepts of wireless communication system		3.00	3.00		2.00								1.00		
2	Students will be able to apply the knowledge of Cellular concepts on wireless medium.		3.00	3.00		3.00								1.00		
3	Students will be able to analyze wireless communication using mathematical analysis.		3.00	2.00		2.00								2.00		
4	Students will be able to describe the importance of various wireless networking standards along with applications and standard formats used for transmission		3.00	3.00										2.00		
5	Students will be able to use modern tools to simulate & Evaluate various wireless communication parameters for the given problem statement						3.00			1.00				2.00		
			3.00	2.75		2.33	3.00			1.00				1.60		

EE2423	PE IV: RF and Microwave/ EE2424Lab:PE IV: RF and Microwave	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
1	Analyze the causes of failure of conventional tubes at high frequency and the detail concept of liner beam O type tubes and linear beam M type tubes	2.00	3.00		3.00				2.00	2.00	2.00				
2	Analyze transmission characteristics of Microwave passive Devices	2.00	3.00		3.00				2.00	2.00	2.00				
3	Understand different types microwave measurement techniques.	1.00	2.00		3.00				2.00	2.00	2.00				
4	Analyze and understand the use of Microwave solid state devices and design of microwave filters by various methods.	3.00	3.00		3.00				2.00	2.00	2.00				

EE2425	PE IV: Analog VLSI Design	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
1	Student will be able to understand and explain concepts related to MOSFET	2.00											2.00	1.00	
2	Student will be able to apply the knowledge of circuit analysis models in analysis of analog VLSI circuit	3.00		2.00						2.00			2.00	1.00	
3	Student will be able to analyze given analog VLSI circuit to arrive at a suitable conclusion		3.00	2.00	2.00								2.00	1.00	
4	Student will be able to design analog VLSI circuit for given application and specifications	3.00	3.00	2.00	2.00					2.00			2.00	1.00	

EE2429/ EE2430	PE IV: Operating Systems/ Lab: PE IV: Operating Systems	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
1	Understand the concepts of operating systems and processes	2.00	2.00	1.00	1.00										
2	Learn processes, threads and memory management and storage structures	3.00	2.00	2.00	2.00										
3	Evaluate the algorithms and solutions for operating system management	2.00	2.00	2.00	2.00										
4	Analyze the security issues in operating systems	3.00	2.00	1.00	1.00										

EE2432	PE V: Nano Electronics	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
1	Understand basic concepts of Nanoelectronics	2.00											1.00		
2	Apply the knowledge of Nanoelectronicsto basic parameters of MOS transistors	2.00	2.00										2.00		
3	Analyze MOS parameters using mathematical analysis.	2.00	2.00										2.00		
4	Describe the fabrication process on MOS transistors	1.00											2.00		

EE2433	PE V: Optical Communication	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
1	To learn the basic elements of optical fiber transmission link, fiber glass modes configurations and structures.	2.00	3.00	2.00					2.00				1.00		
2	To understand different kinds of losses, signal attenuation in optical fibers & other dispersion factor.	2.00	2.00	2.00					3.00				1.00		
3	To learn various optical sources, LED/LASER structures, receivers (PIN, APD), and noise performance.	2.00	2.00	3.00					2.00				2.00		
4	Understanding of optical network system components, variety of networking aspects.	2.00	2.00	2.00					2.00				1.00		

EE2435	PE V: RF Circuit Design	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
1	Students will have an ability to demonstrate in depth knowledge of general RF circuits, components, fundamental parameters of transmission line and its constraints in high frequency transmission of information.	3.00	2.00	2.00						1.00					
2	Students will be able to understand and use Smith Chart circuits in RF applications.	3.00	2.00	2.00						1.00					
3	Students will be able to Design impedance matching networks.	3.00	2.00	2.00						1.00					
4	Students will be able to Design passive RF filters, RF amplifiers and RF Oscillators.	3.00	2.00	2.00						1.00					

EE2401/EE2402	PE-VI: MEMS	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
1	Students will be able to understand working principles of MEMS technology.	2.00	2.00	3.00					2.00						
2	Students will be able to Learn the basic principles and applications of Micro fabrication and micromachining processes.	3.00	2.00	2.00					3.00						
3	Students will be able to Discuss various applications of RF MEMS.	2.00	3.00	2.00					2.00						
4	Students will be able to Classify types of microsensors and micro actuators used in Micro systems	2.00	2.00	2.00					2.00						

EE2442	EE2443PE-VI: Biomedical Instrumentation	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
1	Students will be able to understand the basic concepts of biomedical instrumentation and principle of transducer used in biomedical instrumentation	2.00	3.00	3.00	2.00										
2	Students will be able to understand cardiovascular, blood pressure measurement and analyze ECG, plethysmograph and spirogram	3.00	3.00	2.00	2.00										
3	Students will be able to understand various techniques used in generation and measurement of x-rays, EMG and use of pacemakers, defibrillators in health care.	2.00	2.00	1.00	3.00										
4	Students will be able to understand concept of Telemedicine, its applications and use of internet resource for hospital management system.	2.00	1.00	2.00	2.00										

EE2445	PE-VI:Computer Organization	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
1	Understand the basic concepts of peripherals of computer system	2.00	2.00	1.00						2.00			3.00		
2	Apply the design issues in the development of computer system architecture	3.00	3.00	3.00	1.00					2.00			3.00		
3	Analyze the concepts of Parallel processing and pipelining for computer architecture design.	3.00	3.00	3.00	2.00					2.00			3.00		
4	Evaluate parameters required for processor design	3.00	3.00	3.00						2.00			3.00		

EE2410	Industrial Training / CRT	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
1	Students will improve communication Skills & Vocabulary						1.00	1.00	2.00		2.00	1.00	2.00		
2	Students will apply reasoning knowledge to solve problems.						1.00	1.00	2.00		2.00	1.00	2.00		
3	Students will solve quantitative problems effectively.						1.00	1.00	2.00		2.00	1.00	2.00		
4	Students will apply fundamentals of Electronics Engineering applications.						1.00	1.00	2.00		2.00	1.00	2.00		

EE2409	Mini Project	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
1	Students will deliver oral presentation, with particular emphasis on the logical organization of relevant content and information, use of appropriate style, pacing and body language, proper handling of questions, and effective time management.(Presentation Skill)	1.00	1.00								3.00	2.00	1.00		
2	Students will demonstrate knowledge of contemporary issues in their chosen field of research.	3.00	3.00	3.00	3.00		3.00	3.00	3.00			3.00	3.00	3.00	3.00
3	Students will demonstrate the competency to work in team.(Team Work)								2.00	2.00	3.00	2.00			
4	Students will Critically analyze a selected topic to recognize, formulate and solve problem and apply problem solutions to achieve appropriate practical outcomes.(Literature survey and innovativeness)	1.00	1.00	1.00	1.00		3.00	3.00	3.00	3.00	3.00	3.00	2.00	2.00	2.00
5	Students will Competent in team for a project, by participating in competitions.								3.00	3.00	3.00	3.00			

EE2409	Major Project	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
1	Students will deliver oral presentation, with particular emphasis on the logical organization of relevant content and information, use of appropriate style, pacing and body language, proper handling of questions, and effective time management.(Presentation Skill)	1.00	1.00								3.00	2.00	1.00		
2	Students will demonstrate knowledge of contemporary issues in their chosen field of research.	3.00	3.00	3.00	3.00		3.00	3.00	3.00			3.00	3.00	3.00	3.00
3	Students will demonstrate the competency to work in team.(Team Work)								2.00	2.00	3.00	2.00			
4	Students will Critically analyze a selected topic to recognize, formulate and solve problem and apply problem solutions to achieve appropriate practical outcomes.(Literature survey and innovativeness)	1.00	1.00	1.00	1.00		3.00	3.00	3.00	3.00	3.00	3.00	2.00	2.00	2.00
5	Students will Competent in team for a project, by participating in competitions.								3.00	3.00	3.00	3.00			