Government College of Engineering, Salem - 11

Department of Electronics and Communication Engineering

COs - POs and PSO Mapping

Course Articulation Matrix – 18 Regulation

Semester - III														
18MA303 - Linear Algebra and Numerical Methods														
	Program Outcomes												**Program Specific Outcomes**		
Course Outcomes	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**	**3**
1	Learn about the vector spaces, linear transformation and composition of linear maps.	3	2	-	2	-	-	-	-	-	-	-	-	2	-	-
2	Obtain the knowledge about interpolation and fitting the curves by Least Square Method.	3	2	-	2	-	-	-	-	-	-	-	-	2	-	-
3	Differentiate and integrate numerically.	3	2	-	2	-	-	-	-	-	-	-	-	2	-	-
4	Solve the initial value problems by using single-step and multi-step methods	3	2	-	2	-	-	-	-	-	-	-	-	2	-	-
5	Find the numerical solution of partial differential equation by using Finite difference methods.	3	2	-	2	-	-	-	-	-	-	-	-	2	-	-
Average		3	2	-	2	-	-	-	-	-	-	-	-	2	-	-

Semester - III															
18EC301- Semiconductor Physics and Devices															
		Program Outcomes												Program Specific Outcomes		
	Course Outcomes	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	Understand the characteristics of diodes and special semiconductor devices.	2	3	1	2	3	2	3	-	-	-	-	-	3	2	1
2	Acquire knowledge on working principles, characteristics and applications of BJT and FET.	2	2	1	3	2	2	2	-	-	-	-	-	3	3	2
3	Analyse the frequency response characteristics of amplifiers.	1	1	2	2	3	1	-	-	-	-	-	1	2	1	1
4	Design and analyse power and feedback amplifiers.	3	1	2	2	1	2	2	-	-	-	-	1	2	2	1
	Average	**2.0**	**1.7**	**1.5**	**2.2**	**2.2**	**1.7**	**1.3**	**-**	**-**	**-**	**-**	**1.0**	**2.5**	**2.0**	**1.2**

Semester - III															
18EC302- Digital System Design															
	Program Outcomes													**Program Specific Outcomes**		
Course Outcomes	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**	**3**
1 Minimize Boolean expressions and implement using logic gates	3	2	2	2	3	2	3	2	-	-	-	-	3	2	1
2 Design and analyse combinational logic circuits.	3	3	2	2	3	3	2	1	1	-	-	-	2	3	1
3 Design and analyse synchronous and asynchronous sequential logic circuits	2	2	3	3	2	1	2	1	1	-	-	-	3	2	2
4 Understand the concepts of memories and PLDs and implementation of circuits using memory and PLDs.	2	1	2	1	2	2	3	1	-	-	-	-	2	1	1
Average	**2.3**	**2.0**	**2.3**	**2.0**	**2.3**	**2.0**	**2.3**	**1.0**	**1.0**	**-**	**-**	**-**	**2.3**	**2.0**	**1.3**

Semester - III															
18EC303- Signals And Systems															
	Program Outcomes												Program Specific Outcomes		
Course Outcomes	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1 Analyse different types of signals.	2	1	2	2	3	2	1	-	-	-	-	-	2	1	-
2 Represent continuous and discrete systems in time and frequency domain using different transforms.	2	2	3	1	2	1	2	-	-	-	-	-	1	1	-
3 Analyse and Investigate system using Laplace transform and Z transform.	2	2	1	3	1	1	2	-	-	-	-	-	2	2	1
4 Sampling and reconstruction of a signal.	1	1	2	2	1	1	1	-	-	-	-	-	1	2	-
Average	1.7	1.5	2.0	2.0	1.7	1.2	1.5	-	-	-	-	-	1.5	1.5	1.0

18EC304- Network Theory and Synthesis

Course Outcomes		Program Outcomes												Program Specific Outcomes		
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO1	Analyse the electric circuit using best suited network theorem	3	2	3	3	1	1	2	-	-	-	1	1	2	2	1
CO2	Apply the knowledge of Fourier Series, Fourier Transform and Laplace Transform to analyse the circuit	2	3	1	2	2	1	1	-	-	-	1	1	2	1	1
CO3	Understand and analyse the resonance behaviour of circuit, and apply the knowledge to design bandlimited circuits according to the application.	3	3	2	2	2	1	2	-	-	-	-	1	1	2	-
CO4	Analyse the linear network parameters, and its interaction with other network and to learn elementary network synthesis process.	2	2	3	1	2	2	1	-	-	-	1	-	1	2	1
Average		2.5	2.5	2.5	1.5	2.0	1.5	1.5	-	-	-	1.0	0.5	1.0	2.0	1.0

Semester - III															
18EC305- Transmission Lines and Waveguides															
		Program Outcomes												Program Specific Outcomes		
	Course Outcomes	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	Anlyze the propagation of signals through transmission lines.	2	1	3	2	2	1	1	-	-	-	-	-	2	2	1
2	Calculate reflection and transmission coefficients, standing wave ratio and power for transmission lines using HF applications.	3	2	2	3	1	2	2	-	-	-	-	-	2	1	1
3	Compute various parameters for loaded transmission lines using Smith chart and acquire knowledge of stub matching in Transmission Lines.	2	1	1	2	2	1	1	-	-	-	-	-	1	1	-
4	Determine parameters such as frequency, phase constant, velocity, attenuation and associated characteristic impedance for different types of waveguides.	1	2	1	2	3	1	2	-	-	-	-	-	2	2	1
Average		1.5	1.5	1.0	2.0	2.5	1.0	1.5	-	-	-	-	-	1.5	1.5	1.0

Semester - III															
18MC301- Indian Constitution															
		Program Outcomes												Program Specific Outcomes		
	Course Outcomes	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	understand the emergence and evolution of the Indian Constitution	-	-	-	-	-	-	-	-	1	1	-	1	-	-	-
2	explain the key concepts of Indian Political System	-	-	-	-	-	-	-	-	1	1	-	1	-	-	-
3	describe the role of constitution in a democratic society.	-	-	-	-	-	-	-	-	1	1	-	1	-	-	-
4	present the structure and functions of the Central and State Governments, the Legislature and the Judiciary	-	-	-	-	-	-	-	-	1	1	-	1	-	-	-
Average		-	-	-	-	-	-	-	-	1	1	-	1	-	-	-

<table>
<tr><td colspan="17" align="center">Semester - III</td></tr>
<tr><td colspan="17" align="center">18EC306- Electronic Devices and Circuits Laboratory</td></tr>
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| | Course Outcomes | \multicolumn{12}{c}{Program Outcomes} | \multicolumn{3}{c}{Program Specific Outcomes} |

	Course Outcomes	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	Analyze the characteristics of diodes and transistors.	2	2	1	1	2	1	1	-	-	-	-	-	1	1	1
2	Design electronic circuits such as rectifiers and analyse their performance.	2	1	2	3	3	1	1	-	-	-	-	-	2	1	1
3	Analyze the frequency response of small signal, power and feedback amplifiers using discrete components.	1	2	1	2	2	1	1	-	-	-	-	-	1	2	1
4	Test electronic circuits and their performance.	2	3	2	2	2	2	2	-	-	-	-	-	2	1	1
	Average	**1.6**	**2.0**	**1.6**	**2.3**	**2.3**	**1.3**	**1.3**	**-**	**-**	**-**	**-**	**-**	**1.6**	**1.3**	**1.0**

Semester - III															
18EC307- Digital System Design Lab															
	Program Outcomes												Program Specific Outcomes		
Course Outcomes		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**	**3**
1	Design and Construct combinational logic circuits.	3	2	2	2	3	2	1	2	-	-	-	-	2	2	1
2	Design and Construct counters and shift registers.	2	3	2	2	1	3	2	1	-	-	-	-	2	1	1
3	Understand the concept of Hazard and construct Hazard free Circuit.	2	2	2	3	2	2	2	1	-	-	-	-	1	2	2
4	Understand the concept ROM, PLA and PAL.	2	1	2	1	2	2	3	1	-	-	-	-	2	1	1
Average		**2.2**	**2.0**	**2.0**	**2.0**	**2.0**	**2.2**	**2.0**	**1.2**	**-**	**-**	**-**	**-**	**1.7**	**1.5**	**1.2**

Semester - IV															
18MA402- Probability and Stochastic Processes															
	Program Outcomes												Program Specific Outcomes		
Course Outcomes	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**	**3**
1 Apply the concept of FEM for solving static structural problems.	3	2	-	2	-	-	-	-	-	-	-	-	2	-	-
2 Apply the concept of FEM for modal analysis.	3	2	-	2	-	-	-	-	-	-	-	-	2	-	-
3 Apply the FEM technology for Thermal stress analysis.	3	2	-	2	-	-	-	-	-	-	-	-	2	-	-
Average	3	2	-	2	-	-	-	-	-	-	-	-	2	-	-

Semester - IV															
18EC401- Antenna and Wave Propagation															
	Program Outcomes												Program Specific Outcomes		
Course Outcomes	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**	**3**
1 Understand the behavior of antenna and its performance parameters.	3	3	3	3	1	-	-	-	-	-	1	1	-	2	1
2 Design and analyze antenna arrays.	3	3	3	2	-	1	-	-	-	-	1	1	1	2	-
3 Design and analyze aperture and lens antennas.	3	3	3	2	-	1	-	-	-	-	1	1	-	-	-
4 Study radio wave propagation and its effects.	2	3	3	2	-	1	-	-	-	-	1	1	-	1	2
Average	**2.7**	**3.0**	**3.0**	**2.2**	**1.0**	**1.0**	**-**	**-**	**-**	**-**	**1.0**	**1.0**	**1.0**	**1.6**	**1.5**

Semester - IV															
18EC402- Analog Circuits															
		Program Outcomes												Program Specific Outcomes		
Course Outcomes		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	Develop feedback amplifiers.	2	3	3	2	-	2	-	-	-	-	-	-	-	-	1
2	Design LC and RC oscillators, tuned amplifiers, multivibrators, power amplifier.	2	3	3	2	-	2	-	-	-	-	-	-	1	-	-
3	Develop competence in linear and nonlinear Opamp circuit analysis.	2	3	3	2	-	-	-	-	-	-	-	-	-	-	2
4	Differentiate A/D and D/A converter, understand their types and analyze their applications.	1	-	-	2	-	-	-	-	-	-	-	-	1	-	-
Average		1.7	3.3	3.3	2.0	-	2.0	-	-	-	-	-	-	1.0	-	1.5

Semester - IV														
18EC403- Microprocessors and Microcontrollers														
	Program Outcomes												**Program Specific Outcomes**		
Course Outcomes	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**	**3**
1 Understands the internal architecture and organization of 8085,8086.	1	2	2	1	-	-	-	-	-	-	2	-	-	-	-
2 Understands the interfacing techniques to 8086 and 8051 and can develop assembly language programming to design microprocessor/ micro controller based systems.	1	2	2	1	-	-	-	-	-	-	2	-	1	-	-
3 Illustrate how the different peripherals (8255, 8253 etc.)are interfaced with Microprocessor.	-	2	3	2	-	-	-	-	-	-	2	2	-	2	-
4 Design any application specific circuit for real-time applications.	1	3	3	3	1	-	-	-	-	-	2	3	-	-	-
Average	**1.0**	**2.3**	**2.6**	**2.0**	**1.0**	**-**	**-**	**-**	**-**	**-**	**2.0**	**1.6**	**1.0**	**2.0**	**-**

Semester - IV															
18EC404- Analog Communication															
	Program Outcomes													**Program Specific Outcomes**		
Course Outcomes	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**	**3**
1	Knowledge on designing AM and FM communication systems	3	3	2	1	-	-	-	-	-	-	-	-	-	-	-
2	The exposure to the sources of noise and its effects in Communication systems	1	-	3	-	-	-	-	-	-	-	-	-	1	-	-
3	Ability to analyze the performance of receiver in the presence of noise	1	-	3	-	-	-	-	-	-	-	-	-	-	2	1
4	Ability to measure the capacity of a channel	1	-	2	-	-	1	-	-	-	-	-	-	-	-	-
Average	**1.5**	**3.0**	**2.5**	**1.0**	**-**	**1.0**	**-**	**-**	**-**	**-**	**-**	**-**	**1.0**	**2.0**	**1.0**

Semester - IV															
18EC405- Control Systems															
		Program Outcomes												Program Specific Outcomes		
Course Outcomes		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	Design oscillators, multivibrators and power amplifiers for the variety of engineering applications.	2	3	3	3	-	-	-	-	-	-	1	1	-	-	-
2	Design Filters Using Opamp and Perform Experiment on Frequency Response.	2	3	3	3	-	-	-	-	-	-	1	1	-	-	-
3	Design and simulate multivibrators using Simulation Tool.	2	2	-	-	3	-	-	-	-	-	-	-	-	-	-
4	Design analog circuits and test their performance	2	2	-	3	3	-	-	-	-	-	-	-	-	-	-
Average		-	0.7	3.0	3.0	3.0	-	-	-	-	-	1.0	1.0	-	-	-

Semester - IV															
18EC406- Analog Circuits Laboratory															
		Program Outcomes												Program Specific Outcomes		
Course Outcomes		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**	**3**
1	Design oscillators, multivibrators and power amplifiers for the variety of engineering applications.	2	3	3	3	-	-	-	-	-	-	1	1	-	-	-
2	Design Filters Using Opamp and Perform Experiment on Frequency Response.	2	3	3	3	-	-	-	-	-	-	1	1	-	-	-
3	Design and simulate multivibrators using Simulation Tool.	2	2	-	-	3	-	-	-	-	-	-	-	-	-	-
4	Design analog circuits and test their performance	2	2	-	3	3	-	-	-	-	-	-	-	-	-	-
Average		**2.0**	**2.5**	**3.0**	**3.0**	**3.0**	**-**	**-**	**-**	**-**	**-**	**1.0**	**1.0**	**-**	**-**	**-**

Semester - IV															
18EC407- Microprocessors and Microcontrollers Laboratory															
		Program Outcomes												Program Specific Outcomes		
	Course Outcomes	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**	**3**
1	Understands the internal architecture and organization of 8085,8086.	1	2	2	1	-	-	-	-	-	-	2	-	-	-	1
2	Understands the interfacing techniques to 8086 and 8051 and can develop assembly language programming to design microprocessor/ micro controller based systems.	1	2	2	1	-	-	-	-	-	-	2	-	1	-	-
3	Illustrate how the different peripherals (8255, 8253 etc.)are interfaced with Microprocessor.	-	2	3	2	-	-	-	-	-	-	2	2	-	2	-
4	Design any application specific circuit for real-time applications.	1	3	3	3	1	-	-	-	-	-	2	3	-	-	2
	Average	**1.0**	**2.2**	**2.5**	**1.7**	**1.0**	**-**	**-**	**-**	**-**	**-**	**2.0**	**3.0**	**1.0**	**2.0**	**1.5**

Semester - IV															
18EC502- Computer Architecture															
		Program Outcomes												Program Specific Outcomes		
	Course Outcomes	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	Understand the design of hardware and software components in computer architecture.	2	1	1	-	-	-	-	-	-	-	-	-	2	1	2
2	Illustrate the fixed point and floating-point arithmetic for ALU operation.	2	1	1	-	-	-	-	-	-	-	-	-	-	-	-
3	Discuss about implementation schemes of control unit and pipeline performance	2	1	1	-	-	-	-	-	-	-	-	-	-	-	1
4	Explain the concept of various memories and Input / Output organization.	3	2	2	-	-	-	-	-	-	-	-	-	-	-	2
	Average	2.2	1.2	1.2	-	-	-	-	-	-	-	-	-	2.0	1.0	1.6

Semester - IV

18EC501- Digital Communication

	Course Outcomes	Program Outcomes												Program Specific Outcomes		
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	Analyze the performance of a baseband and pass band digital communication system in terms of error rate and spectral efficiency.	3	3	3	3	-	2	-	-	-	-	-	-	-	1	1
2	Perform the time and frequency domain analysis of the signals in a digital communication system and error free communication.	3	3	2	1	-	1	-	-	-	-	-	-	-	1	1
3	Select the blocks in a design of digital communication system.	1	2	2	2	-	2	-	-	-	-	-	-	-	1	2
4	Analyze Performance of spread spectrum communication system.	1	3	3	3	-	1	-	-	-	-	1	1	-	1	2
	Average	2.0	2.7	2.5	2.2	-	1.5	-	-	-	-	1.0	1.0	-	1.0	1.5

Semester - V														
18EC503- Digital Signal Processing														
	Program Outcomes												Program Specific Outcomes		
Course Outcomes	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	Analyse the need for Discrete Fourier Transform, Fast Fourier Transform algorithms in digital signals & systems.	2	3	3	2	-	2	-	-	-	-	-	-	1	-	-
2	Design and realize IIR, FIR filters and characterize finite Word length effect on filters.	2	3	3	2	-	2	-	-	-	-	-	-	1	-	-
3	Gain the knowledge on DSP architecture and programming	2	3	3	2	-	2	-	-	-	-	-	-	1	-	1
4	Apply the concepts of Multirate signal processing in real time applications.	2	3	3	2	-	2	-	-	-	-	-	-	1	-	1
Average		2.0	3.0	3.0	2.0	-	2.0	-	-	-	-	-	-	1.0	-	1.0

SEMESTER-V															
18EC504 - Computer Networks															
		Program Outcomes												Program Specific Outcomes		
Course Outcomes		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	Classify the available networks and the media used in the networking based on the standards.	-	3	3	3	-	-	-	-	-	-	-	-	-	1	1
2	Design an error free and controlled data communication.	3	3	3	3	3	-	-	-	-	-	-	-	-	1	1
3	Find the efficient route between source and destination	3	3	3	3	3	-	-	-	-	-	-	-	-	-	1
4	Analyze the quality service of the networks and Create a secured communication.	-	3	3	3	2	-	-	-	-	-	-	-	-	-	1
Average		3.0	3.0	3.0	3.0	2.6	-	-	-	-	-	-	-	-	1.0	1.0

SEMESTER-V															
18EC505- Communication Systems Laboratory															
		Program Outcomes												Program Specific Outcomes		
Course Outcomes		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**	**3**
1	Generate and analyse analog and digital l modulated signals.	2	2	2	2	-	-	-	-	-	-	-	-	-	-	1
2	Sample the given analog signal for various sampling frequency.	2	2	3	3	2	2	-	-	-	-	-	-	-	-	1
3	Generate various signals and analyse the frequency components using spectrum analyser.	2	2	3	3	2	2	-	-	-	-	-	-	-	-	-
4	Write codes for various analog and digital modulation schemes.	2	2	3	3	2	2	-	-	-	-	-	-	-	-	1
Average		**2.0**	**2.0**	**2.7**	**2.7**	**2.0**	**2.0**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1.0**

SEMESTER-V															
18EC506- Digital Signal Processing Lab															
Course Outcomes	**Program Outcomes**												**Program Specific Outcomes**		
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**	**3**
1 Generate and analyze various signal processing algorithms.	3	1	1	2	-	1	-	-	-	-	-	-	3	3	2
2 Implement FFT algorithms, Linear/Circular convolution.	3	3	3	1	3	1	-	-	-	-	-	-	3	3	2
3 Design IIR and FIR filters.	3	2	3	3	1	1	-	-	-	-	-	-	3	3	2
4 Implement DSP algorithms using TMS320C54X processor.	3	3	3	3	2	2	-	-	-	-	-	-	3	3	2
Average	**3.0**	**2.2**	**2.5**	**2.2**	**2.0**	**1.2**	**-**	**-**	**-**	**-**	**-**	**-**	**3.0**	**3.0**	**2.0**

Semester - VI															
18EC601 - VLSI Design															
		Program Outcomes												Program Specific Outcomes		
Course Outcomes		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	Use analytical methods and circuit analysis models in analysis of CMOS circuits.	3	1	1	2	-	1	-	-	-	-	-	-	3	3	2
2	Understand the CMOS process technology and design layout diagrams.	3	3	3	1	3	1	-	-	-	-	-	-	3	3	2
3	Able to learn and design data path systems.	3	2	3	3	1	1	-	-	-	-	-	-	3	3	2
4	Model the digital system using Verilog Hardware Description Language and learn FPGA architectures.	3	3	3	3	2	2	-	-	-	-	-	-	3	3	2
Average		3.0	2.2	2.2	2.2	2.0	1.2	-	-	-	-	-	-	3.0	3.0	2.0

		Semester - VI														
		18EC602 - Embedded Systems														
		Program Outcomes												Program Specific Outcomes		
	Course Outcomes	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	Ability to understand and analyze Embedded systems	3	2	2	1	1	1	-	-	-	-	-	-	1	3	1
2	Ability to study about the bus Communication and Peripheral interfacing	3	1	1	1	1	1	-	-	-	-	-	-	1	3	1
3	Ability to acquire knowledge on Real time operating system	3	2	3	2	1	1	-	-	-	-	-	-	3	3	3
4	Design and Analyze the real-time applications of embedded-systems	3	3	3	2	1	1	-	-	-	-	-	-	1	3	3
Average		3.0	2.0	2.2	1.5	1.0	1.0	-	-	-	-	-	-	1.5	3.0	2.0

Semester - VI															
18EC603 - VLSI Design Laboratory															
		Program Outcomes												Program Specific Outcomes		
Course Outcomes		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**	**3**
1	To demonstrate a clear understanding in VeriLog HDL.	3	2	2	2	2	1	-	-	2	2	1	1	1	3	3
2	Model a combinational circuit using Verilog HDL.	3	2	2	2	2	1	-	-	2	2	1	1	3	3	3
3	Model sequential circuit using Verilog HDL.	3	2	2	2	2	1	-	-	2	2	1	1	3	3	3
4	Import the logic modules into FPGA boards.	3	2	2	2	2	1	-	-	2	2	1	1	3	3	3
Average		**3.0**	**2.0**	**2.0**	**2.0**	**2.0**	**1.0**	**-**	**-**	**2.0**	**2.0**	**1.0**	**1.0**	**2.5**	**3.0**	**3.0**

Semester - VII															
18EC701 - Optical And Microwave Engineering															
	Program Outcomes													**Program Specific Outcomes**		
Course Outcomes	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**	**3**
1	Explain the active and passive microwave components used in microwave communication.	3	3	3	2	3	3	2	-	-	-	2	-	3	3	3
2	Have an in-depth knowledge of microwave generation and amplification.	2	3	3	2	2	2	3	-	-	-	2	-	3	3	3
3	Calculate the degradation in the signal due to losses and dispersion.	2	2	2	3	3	2	2	-	-	-	2	-	3	2	2
4	Explain the various optical sources and optical detectors and their use in the optical communication system.	3	3	3	2	2	3	2	-	-	-	2	-	3	3	3
Average	**2.5**	**2.7**	**2.7**	**2.2**	**2.5**	**2.5**	**2.2**	**-**	**-**	**-**	**2.0**	**-**	**3.0**	**2.7**	**2.7**

Semester - VII															
18ECM701 - Principles Of Management															
		Program Outcomes												Program Specific Outcomes		
Course Outcomes		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	Apply the principles of management for all kinds of people in all kinds of organizations.	-	-	2	-	-	-	3	3	3	-	-	3	3	-	-
2	Understanding of the managerial functions like planning, organizing, staffing, leading and controlling.	-	-	2	-	-	-	3	3	3	-	-	3	3	-	-
3	Gain Basic knowledge on international aspect of management	-	-	3	-	-	-	2	3	3	-	-	3	3	-	-
4	Understand Total Quality Management	-	-	3	-	-	-	3	3	2	-	-	3	3	-	-
Average		-	-	2.5	-	-	-	2.7	3.0	2.7	-	-	3.0	3.0	-	-

Semester - VII															
18EC702 - Optical Communication and Microwave Engineering Lab															
		Program Outcomes												**Program Specific Outcomes**		
Course Outcomes		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	Analyze the performance of simple optical link.	-	3	3	2	3	3	2	-	-	-	2	-	3	3	2
2	Gain knowledge on testing microwave and optical components.	-	3	3	2	2	2	3	-	-	-	2	-	3	3	2
3	Analyze the mode characteristics of fiber	-	2	2	3	3	2	2	-	-	-	2	-	3	3	2
4	Analyze the radiation of pattern of antenna, Measure Impedance, VSWR and Frequency, Measure microwave power	-	3	3	2	2	3	2	-	-	-	2	-	3	3	2
Average		-	**2.7**	**2.7**	**2.2**	**2.5**	**2.5**	**2.2**	-	-	-	**2.0**	-	**3.0**	**3.0**	**2.0**

Semester - VII															
18EC703 - Embedded Systems Laboratory															
		Program Outcomes											Program Specific Outcomes		
Course Outcomes		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	Write, debug and compile embedded processors programs for a given Application.	-	3	3	2	3	3	2	-	-	-	2	-	3	3	2
2	Interface and control stepper and DC motors .	-	3	3	2	2	2	3	-	-	-	2	-	3	3	2
3	Interface A/D and D/A convertors with embedded system .	-	2	2	3	3	2	2	-	-	-	2	-	3	3	2
4	Implement interrupt control for a given embedded System.	-	3	3	2	2	3	2	-	-	-	2	-	3	3	2
Average		-	2.7	2.7	2.2	2.5	2.5	2.2	-	-	-	2.0	-	3.0	3.0	2.0

Semester - VII															
18ECPE601 - Program Electives (PE) Electronic Measurements															
		Program Outcomes												Program Specific Outcomes		
Course Outcomes		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	Identify errors in different types of electrical measurements.	2	-	-	-	1	1	-	-	-	-	-	1	1	-	2
2	To categorize different instruments used for signal generation and analysis.	2	-	-	-	1	1	-	-	-	-	-	1	1	-	2
3	Have knowledge on digital instruments, data display and recording Systems.	2	-	-	-	1	1	-	-	-	-	-	1	1	-	2
4	To understand the function of Analog and Digital data acquisition systems.	2	-	-	-	1	1	-	-	-	-	-	1	1	-	2
Average		2	-	-	-	1	1	-	-	-	-	-	1	1	-	2

<table>
<tr><td colspan="18">Semester - VII</td></tr>
<tr><td colspan="18">18ECPE602 - Physics Of Optoelectronics</td></tr>
<tr><td colspan="3" rowspan="2"></td><td colspan="12">Program Outcomes</td><td colspan="3">Program Specific Outcomes</td></tr>
</table>

	Course Outcomes	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	Understand the physics bebind the semiconductors devices.	2	-	-	-	1	1	-	-	-	-	-	-	1	1	2
2	Gain knowledge on principle of working of optical semiconductor devices.	2	-	-	-	1	1	-	-	-	-	-	-	1	1	2
3	Gain knowledge on principle of working photo detectors.	2	-	-	-	1	1	-	-	-	-	-	-	1	1	2
4	Understand and design opto electronic modulators and other optical devices.	2	-	-	-	1	1	-	-	-	-	-	-	1	1	2
	Average	**2.0**	-	-	-	**1.0**	**1.0**	-	-	-	-	-	-	**1.0**	**1.0**	**2.0**

Semester - VII															
18ECPE603 - Digital Image Processing															
		Program Outcomes												Program Specific Outcomes		
Course Outcomes		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	Conceptual understanding of digital image processing and analyze various images transforms.	2	-	-	-	1	1	1	-	-	-	-	-	1	1	2
2	Demonstrate the understanding of image enhancement and restoration algorithms.	2	-	-	-	1	1	1	-	-	-	-	-	1	1	2
3	Interpret image segmentation and representation techniques.	2	-	-	-	1	1	1	-	-	-	-	-	1	1	2
4	Categorize various compression techniques and Interpret Image compression standards.	2	-	-	-	1	1	1	-	-	-	-	-	1	1	2
Average		2.0	-	-	-	1.0	1.0	1.0	-	-	-	-	-	1.0	1.0	2.0

Semester - VII															
18ECPE604 - Wireless Communication															
		Program Outcomes												Program Specific Outcomes		
Course Outcomes		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**	**3**
1	Classify the available wireless communication systems and standards.	2	-	-	-	1	1	2	-	-	-	-	-	1	1	2
2	Analyse various propagation mechanism models, small& large scale and multipath fading models in mobile environment.	2	-	-	-	1	1	1	-	-	-	-	-	1	1	2
3	Select the modulation techniques and multiple access techniques for mobile environment.	2	-	-	-	1	1	1	-	-	-	-	-	1	1	2
4	Analyze the speech signal parameters and identify Codecs for mobile communication.	2	-	-	2	1	1	1	-	-	-	-	-	1	1	2
Average		**2.0**	**-**	**-**	**0.5**	**1.0**	**1.0**	**1.0**	**-**	**-**	**-**	**-**	**-**	**1.0**	**1.0**	**2.0**

Semester - VII															
18ECPE701 - FPGA Based System Design															
		Program Outcomes												Program Specific Outcomes		
Course Outcomes		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**	**3**
1	Understand the basic concepts of FPGA based systems.	1	3	3	3	3	2	2	-	-	-	2	-	3	3	2
2	Design Combinational logic.	1	3	3	3	3	2	1	-	-	-	2	-	1	3	2
3	Design Sequential logic.	1	3	3	3	3	2	1	-	-	-	2	-	1	3	2
4	Know the concepts of architecture and large scale systems.	-	2	3	2	3	2	1	-	-	-	2	-	3	3	2
Average		**1.0**	**2.7**	**3.0**	**2.7**	**3.0**	**2.0**	**1.2**	**-**	**-**	**-**	**2.0**	**-**	**2.0**	**3.0**	**2.0**

Semester - VII															
18ECPE702 - Radar Communication															
		Program Outcomes												Program Specific Outcomes		
Course Outcomes		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**	**3**
1	Gain basic understanding on various types of RADARs	-	3	3	2	2	2	2	-	-	-	2	-	2	2	3
2	Analyze and design RADAR transmitter and receiver.	1	3	3	2	2	2	2	-	-	-	2	-	2	2	3
3	Design antenna for RADAR applications.	2	3	3	3	2	3	2	-	-	-	2	-	2	2	3
4	Utilize knowledge on RADARs for target detection and weather prediction based applications.	1	3	3	3	3	3	3	-	-	-	2	-	3	2	3
Average		**1.3**	**3.0**	**3.0**	**2.5**	**2.2**	**2.5**	**2.2**	**-**	**-**	**-**	**2.0**	**-**	**2.2**	**2.0**	**3.0**

Semester - VII

18ECPE703 - Internet Of Things

	Course Outcomes	1	2	3	4	5	6	7	8	9	10	11	12	Program Specific Outcomes 1	2	3
1	Understand the vision of IoT from a global context.	-	1	3	2	3	2	3	-	-	-	3	-	3	3	3
2	Determine the Market perspective of IoT.	-	1	3	2	3	2	3	-	-	-	3	-	3	3	3
3	Understand the IoT technology fundamentals and build the state of the art architecture in IoT.	-	2	3	2	3	2	3	-	-	-	3	-	3	3	3
4	Apply the knowledge of IoT in Industrial and Commercial Building Automation and Real World Design Constraints.	-	2	3	2	3	2	3	-	-	-	3	-	3	3	3
	Average	-	1.2	3.0	2.0	3.0	2.0	3.0	-	-	-	3.0	-	3.0	3.0	3.0

Semester - VII															
18ECPE704 - Nano Electronics															
		Program Outcomes												**Program Specific Outcomes**	
Course Outcomes		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**	**3**

	Course Outcomes	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	Understand problem to down scaling while moving to Nano electronics.	-	-	2	3	2	2	2	-	-	-	2	-	3	3	2
2	Gain knowledge on how physical properties of devices is exploited to build Nano electronics.	-	-	1	2	2	2	2	-	-	-	2	-	2	2	1
3	Understand the fabrication technique.	-	-	2	3	2	2	2	-	-	-	2	-	3	3	2
4	Understand how spinning properties of electrons are exploited to build Nano devices.	-	-	1	2	3	2	2	-	-	-	2	-	2	2	1
Average		-	-	1.5	2.5	2.2	2.0	2.0	-	-	-	2.0	-	2.5	2.5	1.5

Semester - VII															
18ECPE705 - VLSI Testing															
		Program Outcomes												Program Specific Outcomes		
Course Outcomes		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	Have basic knowledge on fault modelling, testing and test generation in logic circuits.	3	3	-	3	3	1	-	-	-	-	2	-	3	1	1
2	Understand the delay test methodologies.	3	3	-	3	3	1	-	-	-	-	2	-	3	1	1
3	Exposure to testability approaches and test vector generation algorithms for memory and logic Circuits	3	3	-	3	3	1	-	-	-	-	2	-	3	1	1
4	Understanding of the various fault diagnosis methods in logic systems.	3	3	-	3	3	1	-	-	-	-	2	-	3	1	1
Average		**3.0**	**3.0**	**-**	**3.0**	**3.0**	**1.0**	**-**	**-**	**-**	**-**	**2.0**	**-**	**3.0**	**1.0**	**1.0**

18ECPE706 - Advanced Radiating System

	Course Outcomes	Program Outcomes												Program Specific Outcomes		
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	Solve and design basic problems antennas	3	3	-	3	3	1	1	-	2	-	3	2	3	3	3
2	Analyse radiation from aperture, array and microstrip antennas	3	3	-	3	3	1	1	-	2	-	3	2	3	3	3
3	Understand EMC for any electronic equipments	3	3	-	3	3	1	1	-	2	-	3	2	3	3	3
4	Use measurement techniques to study radiation pattern.	3	3	-	3	3	1	1	-	2	-	3	2	3	3	3
	Average	3.0	3.0	-	3.0	3.0	1.0	1.0	-	2.0	-	3.0	2.0	3.0	3.0	3.0

Semester - VII															
18ECPE707 - High Speed Networks															
		Program Outcomes												**Program Specific Outcomes**		
Course Outcomes		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**	**3**
1	ATM Frame Relay Network along with comparison of TCP/IP network model.	3	2	1	2	2	-	1	-	1	-	1	-	2	2	1
2	The techniques involved to support real-time traffic and congestion control.	3	2	1	2	2	-	1	-	1	-	1	-	2	2	1
3	The concept queuing mechanism in integrated and differentiated service architecture.	3	2	1	2	2	-	1	-	1	-	1	-	2	2	1
4	Different levels of quality of service (Q.S) to different applications.	3	2	1	2	2	-	1	-	1	-	1	-	2	2	1
Average		**3.0**	**2.0**	**1.0**	**2.0**	**2.0**	**-**	**1.0**	**-**	**1.0**	**-**	**1.0**	**-**	**2.0**	**2.0**	**1.0**

Semester - VII															
18ECPE708 - Virtual Instrumentation															
		Program Outcomes												Program Specific Outcomes		
	Course Outcomes	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**	**3**
1	Apply structured programming concepts in developing VI programs and employ various debugging techniques.	3	3	2	2	3	-	-	-	1	-	2	-	3	2	2
2	Create applications that uses plug in DAQ boards and built in analysis functions to process the data.	3	3	2	2	3	-	-	-	1	-	2	-	3	2	2
3	design and analyze various applications using signal Processing tool kit	3	3	2	2	3	-	-	-	1	-	2	-	3	2	2
4	design and analyze various applications using control and simulation tool kit.	3	3	2	2	3	-	-	-	1	-	2	-	3	2	2
Average		**3.0**	**3.0**	**2.0**	**2.0**	**3.0**	**-**	**-**	**-**	**1.0**	**-**	**2.0**	**-**	**3.0**	**2.0**	**2.0**

Semester - VII															
18ECPE801 - Low Power VLSI Design															
		Program Outcomes												Program Specific Outcomes		
Course Outcomes		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	Identify sources of power dissipation in an IC.	1	3	3	1	-	-	-	-	-	-	-	-	2	3	-
2	Understand simulation based power estimation and analysis.	-	2	-	-	3	-	-	-	-	-	-	-	2	3	-
3	Design circuit at low power.	2	2	1	2	-	-	-	-	-	-	-	-	1	1	-
4	Identify suitable techniques to reduce power.	-	3	2	1	-	2	-	-	-	-	-	-	2	3	-
Average		1.5	2.5	2.0	1.3	3.0	2.0	-	-	-	-	-	-	1.7	2.5	-

Semester - VII															
18ECPE802 - Multimedia Compression Techniques															
	Program Outcomes												**Program Specific Outcomes**		
Course Outcomes	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**	**3**
1 Represent the multimedia data in different formats for various applications.	1	3	3	1	-	2	-	-	1	-	-	-	1	3	-
2 To understand different coding techniques and apply various algorithms for compression.	2	2	1	1	3	2	-	-	1	-	-	-	2	1	-
3 To understand the quality and performance of various text and audio compression algorithms.	2	2	1	2	3	2	-	-	1	-	-	-	1	1	-
4 Apply various image and video compression algorithms for practical applications	-	3	2	1	1	2	-	-	1	-	-	-	2	3	-
Average	**1.6**	**2.5**	**1.7**	**1.2**	**2.3**	**2.0**	**-**	**-**	**1.0**	**-**	**-**	**-**	**1.5**	**2.0**	**-**

Semester - VII															
18ECPE803 - Software Defined Radio															
		Program Outcomes												Program Specific Outcomes		
Course Outcomes		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**	**3**
1	Define the principles of Software defined Radio.	2	2	-	2	-	2	-	-	-	-	-	-	3	3	-
2	Study the principal Challenge of receiver design.	2	2	1	1	2	2	-	-	-	-	-	-	2	1	-
3	Perform hardware implementation of Smart antennas.	2	2	1	2	2	2	-	-	-	-	-	-	2	2	-
4	Understand the Tradeoffs in using DSPs FPGAs and ASICs.	2	3	2	1	1	3	-	-	-	-	-	-	2	3	-
Average		**2.0**	**2.2**	**1.3**	**1.5**	**1.2**	**2.2**	**-**	**-**	**-**	**-**	**-**	**-**	**2.2**	**2.2**	**-**

Semester - VII															
18ECPE804 - Pattern Recognition															
	Program Outcomes												Program Specific Outcomes		
Course Outcomes	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**	**3**
1	Solve pattern and unsupervised classification problems.	1	2	3	1	1	2	-	-	-	-	-	-	1	3	-
2	Perform feature extraction and selection.	2	2	2	1	3	2	-	-	-	-	-	-	2	1	-
3	Execute structural pattern recognition.	2	2	1	2	3	2	-	-	-	-	-	-	1	1	-
4	Apply neural network and fuzzy logic technique in pattern recognition.	1	2	2	1	1	2	-	-	-	-	-	-	2	3	-
Average		**1.5**	**2.0**	**2.0**	**1.2**	**2.0**	**2.0**	**-**	**-**	**-**	**-**	**-**	**-**	**1.5**	**2.0**	**-**

Semester - VII															
18ECPE805 - System On Chip Design															
		Program Outcomes												Program Specific Outcomes		
	Course Outcomes	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	Understand the Concepts and methodology of System on chip.	-	-	3	-	-	-	-	-	-	-	-	-	-	-	2
2	Design different methodology for logic cores, memory cores and analog cores.	2	3	2	2	2	-	-	-	-	-	-	-	3	2	-
3	Design SOC validation	2	2	2	-	2	-	-	-	-	-	-	-	2	-	-
4	Test different logic cores.	2	3	2	2	2	-	-	-	-	-	-	-	3	2	-
Average		**2.0**	**2.6**	**2.0**	**2.0**	**2.0**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2.6**	**2.0**	**2.0**

Semester - VII															
18ECPE806 - Wireless Sensor Networks															
	Program Outcomes												Program Specific Outcomes		
Course Outcomes	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1 Know the basics of wireless sensor networks.	2	2	-	2	-	-	-	-	-	-	-	-	2	-	-
2 Identify suitable protocols for various layers of wireless sensor networks.	2	-	2	2	3	2	-	-	-	-	-	-	2	3	-
3 Gain knowledge on various topologies available in wireless sensor networks.	2	-	2	-	-	-	-	-	-	2	-	-	2	-	3
4 Be familiar with the platforms and tools for wireless sensor networks	3	2	2	3	3	-	-	-	-	-	-	-	2	3	3
Average	2.2	2.0	2.0	2.3	3.0	2.0	-	-	-	2.0	-	-	2.0	3.0	3.0

Semester - VII															
18ECPE807 - Microwave Integrated Circuits															
		Program Outcomes												**Program Specific Outcomes**		
Course Outcomes		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**	**3**
1	Analyse passive and non-passive reciprocal microwave devices.	2	3	3	-	2	-	-	-	-	-	-	-	3	-	2
2	Learn the various coplanar MICs and their applications.	-	-	-	2	2	2	-	-	-	-	-	-	-	2	2
3	Design various microwave circuits like amplifiers, oscillators and mixers.	3	2	3	-	2	-	-	-	-	-	-	-	3	2	-
4	Gain knowledge on Microwave fabrication technique and microwave transmission lines.	2	-	-	2	2	-	-	-	-	-	-	-	2	-	2
Average		**2.3**	**2.5**	**1.5**	**2.0**	**2.0**	**2.0**	**-**	**-**	**-**	**-**	**-**	**-**	**2.6**	**2.0**	**2.0**

Semester - VII															
18ECPE808 - Physics Of Sensors															
		Program Outcomes												Program Specific Outcomes		
Course Outcomes		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**	**3**
1	Understand the basic principles of operation of different types of sensors	1	-	2	2	-	-	-	-	-	-	-	-	-	2	-
2	Discuss common practices and algorithms for processing raw sensor information	2	2	3	3	1	-	-	-	-	-	-	-	2	1	2
3	Configure, calibrate and use modern sensors in the context of mobile robots	2	3	3	2	2	-	-	-	-	-	-	-	2	3	-
4	List the reasons about limitations and advantages of different sensors in different application contexts	3	2	3	-	2	-	-	-	-	-	-	-	3	2	-
Average		**2.0**	**2.3**	**2.7**	**2.3**	**1.6**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2.3**	**2.0**	**2.0**

Semester - VII															
18ECPE809 - Network Security															
		Program Outcomes												Program Specific Outcomes		
	Course Outcomes	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	Understand the fundamentals of networks security, security architecture, threats and vulnerabilities	1	2	3	1	-	-	-	-	2	-	-	-	2	1	-
2	Apply the different cryptographic operations of symmetric cryptographic algorithms and public key cryptography.	2	3	1	1	2	1	-	-	-	-	-	-	2	1	-
3	Apply the various Authentication schemes to simulate different applications.	2	3	1	2	1	1	-	-	-	-	-	-	2	2	2
4	Understand various Security practices and System security standards.	2	3	2	2	1	2	-	-	2	-	-	-	3	3	2
Average		2.0	3.0	1.3	1.6	1.3	1.3	-	-	2.0	-	-	-	2.3	2.0	2.0

Semester - VII															
18ECPE810 - Satellite Communication															
		Program Outcomes												Program Specific Outcomes		
Course Outcomes		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**	**3**
1	Understand the orbital laws and elements of satellite communication.	1	2	1	1	-	1	-	-	2	-	-	-	1	1	-
2	Understand the concept of geostationary orbit and the station keeping.	2	2	1	1	-	1	-	-	2	-	-	-	1	1	-
3	Know the concept of different earth segments and noise interference.	2	2	2	2	1	2	-	-	2	-	-	-	2	2	-
4	Know the available satellite access methods, direct satellite services and various applications.	1	3	3	2	2	2	-	-	2	-	-	-	2	2	-
Average		**1.5**	**2.2**	**1.7**	**1.5**	**1.5**	**1.5**	**-**	**-**	**2.0**	**-**	**-**	**-**	**1.5**	**1.5**	**-**

Semester - VII														
18ECPE811 - Bio-Medical Electronics														
Course Outcomes	**Program Outcomes**												**Program Specific Outcomes**		
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**	**3**
1 Know the human body electro-physiological parameters and recording of bio-potentials.	1	2	2	2	-	1	-	-	2	-	-	-	2	1	-
2 Comprehend the non-electrical physiological parameters and their measurement – body temperature, blood pressure, pulse, blood cell count, blood flow meter etc.	2	3	3	2	-	2	-	-	1	-	-	-	2	1	2
3 Examine the internal organs through imaging.	2	3	3	1	2	2	-	-	2	-	-	-	3	2	-
4 Distinguish diagnostic equipment from therapeutic equipment.	2	3	3	1	1	3	-	-	2	-	-	-	2	2	-
Average	**2.0**	**3.0**	**3.0**	**1.3**	**1.5**	**2.3**	**-**	**-**	**1.6**	**-**	**-**	**-**	**2.3**	**1.6**	**2.0**

Semester - VII															
18ECPE812 - Artificial Intelligence And Machine Learning															
		Program Outcomes												Program Specific Outcomes		
Course Outcomes		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**	**3**
1	Provides a basic exposition to the goals and methods of Artificial Intelligence	1	2	2	1	1	1	-	-	1	-	-	-	2	2	-
2	Study of the design of intelligent computational agents	2	3	1	1	2	1	-	-	1	-	-	-	2	2	-
3	The knowledge acquired through learning can be used both for problem solving and for reasoning planning, natural language understanding, computer vision, automatic programming and machine learning.	2	2	2	2	3	2	-	-	1	-	-	-	2	2	-
4	To enhance their knowledge in their Research works in future.	2	3	2	1	3	3	-	-	2	-	-	-	3	3	2
Average		**2.0**	**2.5**	**2.0**	**1.5**	**3.0**	**2.5**	**-**	**-**	**1.5**	**-**	**-**	**-**	**2.5**	**2.5**	**2.0**

Semester - VII															
18ECOE01 - Fundamentals Of Electron Devices															
		Program Outcomes												Program Specific Outcomes		
Course Outcomes		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	Understand the characteristics of diodes and special semiconductor devices.	3	3	-	2	1	-	-	-	-	-	-	-	2	1	1
2	Describe the various configurations and equivalent circuits of Bipolar Junction Transistors.	3	3	-	2	1	-	-	-	-	-	-	-	2	1	1
3	Have in depth knowledge on working principles and characteristics of FET.	3	3	-	2	1	-	-	-	-	-	-	-	2	1	1
4	Acquire knowledge on Power and display devices.	3	3	-	2	1	-	-	-	-	-	-	-	2	1	1
Average		3.0	3.0	-	2.0	1.0	-	-	-	-	-	-	-	2.0	1.0	1.0

Semester - VII

18ECOE02 - Principles Of Modern Communication Systems

	Course Outcomes	Program Outcomes												Program Specific Outcomes		
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	Understand the need for modulation and how analog modulation takes place	3	3	2	2	1	2	-	-	1	-	2	-	2	2	1
2	Understand the need for modulation and how analog modulation takes place	3	3	2	2	1	2	-	-	1	-	2	-	2	2	1
3	Have the knowledge about satellite communication.	3	3	2	2	1	2	-	-	1	-	2	-	2	2	1
4	Have the basics of wireless and mobile communication.	3	3	2	2	1	2	-	-	1	-	2	-	2	2	1
	Average	3.0	3.0	2.0	2.0	1.0	2.0	-	-	1.0	-	2.0	-	2.0	2.0	1.0

Semester - VII															
18ECOE03 - Microcontrollers And Its Applications															
Course Outcomes		Program Outcomes												Program Specific Outcomes		
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	Knowledge on architecture and programming concepts 8051 Microcontroller.	1	3	3	1	1	1	-	-	-	-	-	-	2	3	-
2	Knowledge on peripheral interfacing concepts.	2	2	1	2	3	1	-	-	-	-	-	-	2	3	-
3	Classify and understand assembly language instructions and skills for assembly language programming.	2	2	1	2	1	1	-	-	-	-	-	-	1	1	-
4	Apply assembly language programming to interface develop microcontroller applications.	2	3	2	1	1	2	-	-	-	-	-	-	2	3	-
Average		2.0	2.3	1.3	1.6	1.6	1.3	-	-	-	-	-	-	1.6	2.3	-

Semester - VII															
18ECOE04 - Basic VLSI Design															
	Program Outcomes												**Program Specific Outcomes**		
Course Outcomes	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**	**3**
1	Know the VLSI fabrication technology.	2	3	1	1	1	1	-	-	-	-	-	-	2	1	-
2	Design MOS transistor circuits.	2	2	1	2	1	2	-	-	-	-	-	-	2	1	-
3	Analyze CMOS circuits	2	3	1	2	1	1	-	-	-	-	-	-	2	1	-
4	Write simple programs in VHDL and know FPGA and its applications	2	3	2	1	1	2	-	-	-	-	-	-	2	3	-
Average		**2.0**	**2.7**	**1.2**	**1.5**	**1.0**	**1.5**	**-**	**-**	**-**	**-**	**-**	**-**	**2.0**	**1.5**	**-**

	Semester - VII															
	18ECOE05 - Basics Of Embedded Systems															
		Program Outcomes												**Program Specific Outcomes**		
	Course Outcomes	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**	**3**
1	Outline the concepts of embedded systems.	1	2	-	-	2	-	-	-	-	-	-	-	3	-	2
2	Understand the concept of memory management system and interfaces.	1	-	2	2	-	-	-	-	-	-	-	-	-	2	-
3	Understand real time operating system	1	-	2	2	-	-	-	-	-	-	-	-	-	2	-
4	Design and Analyze the real-time applications of embedded-systems	2	-	-	2	2	-	-	-	-	-	-	-	2	-	2
	Average	**1.2**	**2.0**	**2.0**	**2.0**	**2.0**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2.0**	**2.0**	**2.0**

Semester - VII															
18ECOE06 - Basics Of Internet of Things															
Course Outcomes		Program Outcomes												Program Specific Outcomes		
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	Differentiate M2M and IoT design methodology.	1	2	2	1	1	1	-	-	1	-	-	-	2	1	-
2	Describe the various IoT components.	1	2	1	1	2	2	-	-	2	-	-	-	2	2	-
3	Design small system using Raspberry Pi.	2	3	1	2	3	2	-	-	2	-	-	-	3	3	2
4	Discuss the various applications of IoT.	2	3	3	3	3	3	-	-	2	-	-	-	3	3	2
Average		1.5	2.5	1.7	1.7	2.2	2.0	-	-	1.7	-	-	-	2.5	2.2	2.0

Semester - VIII															
18EC801- Project work															
		Program Outcomes												Program Specific Outcomes		
	Course Outcomes	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	Discover potential research areas in the field of ECE	2	3	3	3	3	2	2	-	-	-	1	-	1	2	3
2	Conduct a survey of several available literature in the preferred field of study	-	3	3	3	3	2	2	-	-	-	1	-	1	2	3
3	Compare and contrast the several existing solutions for research	-	3	3	3		2	2	-	-	-	1	-	1	2	3
4	Demonstrate an ability to work in teams and manage the conduct of the research study.	-	-	-	-	-	-	-	-	3	-	2	3	1	2	3
5	Formulate and propose a plan for creating a solution for the research plan identified	-	3	3	3	-	2	2	3	-	-	1	-	1	-	3
6	To report and present the findings of the study conducted in the preferred domain	-	3	-	-	-	-	-	-	3	3	1	-	1	-	-
Average		2.0	3.0	3.0	3.0	3.0	2.0	2.0	3.0	3.0	3.0	1.2	3.0	1.0	2.0	3.0