BVRIT HYDERABAD College of Engineering for Women

(Approved by AICTE | Affiliated to JNTUH)
(NAAC Accredited – A Grade | NBA Accredited B. Tech. (EEE, ECE, CSE and IT))
Bachupally, Hyderabad -500 090

Department of Electronics and Communication Engineering

Course Outcomes – R22 Regulations

I Year I Semester

CO No.	Course Outcomes
C116- ELEMENTS OF ELECTRONICS AND COMMUNICATION ENGINEERING EC106ES	
C116.1	Identify the different components and ICs used for electronic applications.
C116.2	Measure different parameters using various measuring devices.
C116.3	Distinguish various signals used for analog and digital communications
C116.4	Describe the significance of Electronics and communication subjects and various Software tools

C116-Elements of Electronics and Communication Engineering EC106ES													
CO	Program Outcomes (PO) and Program Specific Outcomes (PSO)												
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C116.1	3	2	1	1	1	1	-	-	-	-	-	2	3	2
C116.2	3	2	3	1	2	2	-	-	-	-	-	2	3	2
C116.3	3	3	2	1	2	2	-	-	-	-	-	2	3	2
C116.4	3	1	1	1	2	1	-	-	-	-	-	2	2	2

I Year II Semester

CO No.	Course Outcomes
C125- Electronic Devices and Circuits EC205ES	
C125.1	Analyse the characteristics of PN junction diode.
C125.2	Construct diode circuits for various applications.
C125.3	Illustrate the transistor working in different configurations.
C125.4	Differentiate between FET and BJT devices.
C125.5	Illustrate the operation and characteristics of special purpose diodes.
C125.6	Use diode and transistor as switches in electronic circuits.

C125-Electronic Devices and Circuits EC205ES													
CO	Program Outcomes (PO) and Program Specific Outcomes (PSO)												
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C125.1	3	1	2	1	-	-	-	-	-	-	-	1	3	1
C125.2	3	1	2	1	-	-	-	-	-	-	-	1	3	2
C125.3	3	2	3	1	-	-	-	-	-	-	-	1	2	1
C125.4	3	3	3	1	-	-	-	-	-	-	-	1	2	2
C125.5	2	1	2	1	-	-	-	-	-	-	-	1	2	2
C125.6	3	3	3	1	-	-	-	-	-	-	-	1	3	2

CO No.	Course Outcomes
C126- Applied Python Programming Laboratory EC206ES	
C126.1	Build basic programs using fundamental programming constructs
C126.2	Acquire the knowledge of functions and packages
C126.3	Write and execute Python codes for different applications.
C126.4	Capable to implement on hardware boards

C126-Applied Python Programming Laboratory EC206ES														
CO	**Program Outcomes (PO) and Program Specific Outcomes (PSO)**													
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
C126.1	3	1	2	-	-	1	-	-	-	-	-	1	1	1
C126.2	3	2	3	1	-	-	1	-	1	2	-	1	1	1
C126.3	3	2	3	-	2	2	1	1	-	-	2	1	1	1
C126.4	3	3	3	1	1	2	1	1	-	1	-	1	2	2

CO No.	Course Outcomes EC209ES
C129- ELECTRONIC DEVICES AND CIRCUITS LABORATORY	
C129.1	Analyze the characteristics of PN junction diode and its applications.
C129.2	Verify the characteristics of various configurations of BJT and MOS FET.
C129.3	Analyze the switching characteristics of a transistor.
C129.4	Verify the characteristics of various special purpose diodes and transistors.

Electronic Devices and Circuits Laboratory EC209ES														
CO	**Program Outcomes (PO) and Program Specific Outcomes (PSO)**													
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
C129.1	3	3	1	1	3	-	-	-	-	-	-	-	1	1
C129.2	3	3	3	1	3	-	-	-	-	-	-	-	2	1
C129.3	3	3	1	1	3	-	-	-	-	-	-	-	1	1
C129.4	3	3	3	1	3	-	-	-	-	-	-	-	2	1

II YEAR I SEMESTER

CO No.	Course Outcomes
C211- Numerical Methods and Complex Variables MA301BS	
C211.1	Analyse periodic and aperiodic signals using Fourier series and Fourier transforms
C211.2	Estimate unknown values for a given data using Interpolation and method of least squares.
C211.3	Apply numerical methods to solve algebraic and transcendental equations.
C211.4	Apply numerical methods to evaluate definite integrals and solve initial value problems.
C211.5	Analyse the complex functions with reference to their analyticity
C211.6	Apply the knowledge of complex functions to evaluate various integrals.

C211- Numerical Methods and Complex Variables MA301BS														
CO	**Program Outcomes (PO) and Program Specific Outcomes (PSO)**													
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
C211.1	3	3	2	2	2	-	-	-	-	-	-	1	2	1
C211.2	3	3	2	1	1	-	-	-	-	-	-	1	1	1
C211.3	3	3	2	2	2	-	-	-	-	-	-	1	2	1
C211.4	3	3	2	2	2	-	-	-	-	-	-	1	2	1
C211.5	3	3	2	3	2	-	-	-	-	-	-	1	3	2
C211.6	3	3	2	3	2	-	-	-	-	-	-	1	3	2

CO No.	Course Outcomes
C212-Analog Circuits EC302PC	
C212.1	Apply the biasing and stabilization techniques for the bipolar junction transistor and FET.
C212.2	Explore different types of single and multistage BJT amplifiers.
C212.3	Analyze the small signal model of various FET Amplifiers.
C212.4	Derive high frequency transistor parameters using hybrid pi model.
C212.5	Examine the characteristics of different Feedback Amplifiers.
C212.6	Design various sinusoidal oscillator circuits for given frequencies.

C212-Analog Circuits EC302PC														
CO	**Program Outcomes (PO) and Program Specific Outcomes (PSO)**													
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
C212.1	3	2	3	2	-	-	-	-	-	-	-	1	3	2
C212.2	3	3	3	3	-	-	-	-	-	-	-	1	3	2
C212.3	3	3	3	3	-	-	-	-	-	-	-	1	3	2
C212.4	3	2	3	1	-	-	-	-	-	-	-	1	3	2
C212.5	3	3	3	3	-	-	-	-	-	-	-	1	3	2
C212.6	3	2	3	2	-	-	-	-	-	-	-	1	3	2

CO No.	Course Outcomes
C213- Network analysis and Synthesis EC303PC	
C213.1	Analyze the electrical circuits using the concepts of network topology and coupled circuits.
C213.2	Analyze the Steady state and transient analysis of RLC Circuits.
C213.3	Characterization of two port network parameters.
C213.4	Design and analysis of various types of attenuators.
C213.5	Design and analysis of various types of filters
C213.6	Synthesize various types of networks using network functions.

C213- Network analysis and Synthesis EC303PC														
CO	**Program Outcomes (PO) and Program Specific Outcomes (PSO)**													
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
C213.1	3	2	-	1	-	-	-	-	-	-	1	1	2	1
C213.2	3	2	-	1	-	-	-	-	-	-	1	1	2	1
C213.3	3	2	-	1	-	-	-	-	-	-	1	1	2	1
C213.4	3	3	3	1	-	-	-	-	-	-	-	2	2	1
C213.5	3	3	3	1	-	-	-	-	-	-	-	2	2	1
C213.6	3	2	1	2	-	1	-	-	-	-	-	1	2	1

CO No.	Course Outcomes
C214- Digital Logic Design EC304PC	
C214.1	Apply the concepts of number systems and codes in digital system design.
C214.2	Minimize Boolean expressions using various techniques.
C214.3	Compare various characteristics of logic families.
C214.4	Realize combinational logic circuits for given specifications.
C214.5	Design Shift Registers and Counters using flip-flops
C214.6	Design and Optimize state machines.

C214-Digital Logic Design EC304PC														
CO	**Program Outcomes (PO) and Program Specific Outcomes (PSO)**													
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
C214.1	3	2	2	-	-	-	-	-	-	-	-	2	3	2
C214.2	3	3	2	1	-	-	-	-	-	-	-	2	3	2
C214.3	3	3	3	2	-	-	-	-	-	-	-	1	2	3
C214.4	3	3	3	1	-	-	-	-	-	-	-	2	3	1
C214.5	3	3	2	1	-	-	-	-	-	-	-	2	2	1
C214.6	3	3	2	1	-	-	-	-	-	-	-	2	3	2

CO No.	Course Outcomes
C215- Signals and Systems EC305PC	
C215.1	Analyze the orthogonality of real and complex signals.
C215.2	Determine the Spectral characteristics of Periodic and aperiodic continuous signals.
C215.3	Analyze the signal transmission through linear time invariant systems.
C215.4	Analyze continuous and discrete-time signals and systems using Laplace and Z Transforms respectively.
C215.5	Illustrate the need of sampling theorem in analog to digital signal conversion.
C215.6	Explain the concepts of correlation and its application in removal of noise.

C215-Signals and Systems EC305PC														
CO	**Program Outcomes (PO) and Program Specific Outcomes (PSO)**													
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
C215.1	3	2	2	2	-	-	-	-	-	-	-	1	3	-
C215.2	3	2	2	2	-	-	-	-	-	-	-	1	2	-
C215.3	3	2	2	2	-	-	-	-	-	-	-	1	3	-
C215.4	3	2	2	1	-	-	-	-	-	-	-	1	2	-
C215.5	3	2	2	1	-	-	-	-	-	-	-	1	2	-
C215.6	3	1	2	2	-	-	-	-	-	-	-	1	3	-

CO No.	Course Outcomes
C216-Analog Circuits Laboratory EC306PC	
C216.1	Design amplifiers with required Q point.
C216.2	Examine the frequency response of CE amplifier for low and high frequencies.
C216.3	Analyze the frequency response of multistage and feedback amplifiers.
C216.4	Design and verify the Colpitts and RC phase shift Oscillators for a given frequency.

C216-Analog Circuits Laboratory EC306PC														
CO	**Program Outcomes (PO) and Program Specific Outcomes (PSO)**													
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
C216.1	3	3	3	2	3	-	-	-	-	-	-	-	2	1
C216.2	3	3	2	2	3	-	-	-	-	-	-	-	2	1
C216.3	3	3	2	2	3	-	-	-	-	-	-	-	2	1
C216.4	3	3	3	2	3	-	-	-	-	-	-	-	1	1

CO No.	Course Outcomes
C217-Digital Logic Design Laboratory EC307PC	
C217.1	Realize different combinational circuits using gates.
C217.2	Implement Boolean functions using combinational building blocks.
C217.3	Design and verify sequential circuits and state machines using flipflops.
C217.4	Realize all logic gates using DTL and TTL logic families.

C217-Digital Logic Design Laboratory EC307PC														
CO	Program Outcomes (PO) and Program Specific Outcomes (PSO)													
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C217.1	3	3	3	2	2	-	-	-	-	-	-	2	1	3
C217.2	3	3	3	2	2	-	-	-	-	-	-	2	1	3
C217.3	3	3	3	3	2	-	-	-	-	-	-	2	1	3
C217.4	3	3	3	1	2	-	-	-	-	-	-	2	1	1

CO No.	Course Outcomes
C218- Basic Simulation Laboratory EC308PC	
C218.1	Perform various operations on signals.
C218.2	Verify the properties of LTI system and its response for different inputs.
C218.3	Analyze the signals and systems using various transforms.
C218.4	Apply the concepts of random signals /process for real time applications.

C218- Basic Simulation Laboratory EC308PC														
CO	Program Outcomes (PO) and Program Specific Outcomes (PSO)													
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C218.1	3	1	-	1	3	-	-	-	-	-	-	1	1	-
C218.2	3	2	-	2	3	-	-	-	-	-	-	1	2	-
C218.3	3	2	-	2	3	-	-	-	-	-	-	2	2	-
C218.4	3	2	-	2	3	-	-	-	-	-	-	2	2	-

CO No.	Course Outcomes
	C219- Constitution of India MC309
C219.1	Discuss the growth and importance of civil and economic rights
C219.2	Discuss the conceptualization of social reforms leading to revolution in India.
C219.3	Discuss the proposal of direct elections through adult suffrage in the Indian Constitution
C219.4	Discuss the passage of the Hindu Code Bill of 1956
C219.5	Understand the Parliamentary form of Government in India
C219.6	Discuss the role and importance of Election Commission

C219- Constitution of India MC309														
CO	Program Outcomes (PO) and Program Specific Outcomes (PSO)													
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C219.1	-	-	-	-	-	-	-	1	-	-	-	-	-	-
C219.2	-	-	-	-	-	-	-	-	-	-	-	1	-	-
C219.3	-	-	-	-	-	1	-	-	-	-	-	-	-	-
C219.4	-	-	-	-	-	-	-	1	-	-	-	-	-	-
C219.5	-	-	-	-	-	1	-	-	-	-	-	-	-	-
C219.6	-	-	-	-	-	-	-	-	-	-	-	1	-	-

II YEAR II SEMESTER

CO No.	Course Outcomes
C221- Probability Theory and Stochastic Processes EC401PC	
C221.1	Apply the basic concepts, theorems related to probability and its applications.
C221.2	Perform operations on single and multiple random variables for information retrieval.
C221.3	Estimate the statistical parameters of a random process in time domain.
C221.4	Estimate the spectral characteristics of a random process.
C221.5	Summarise various types of noise and its impact on system performance.
C221.6	Illustrate the concepts of information theory and various source coding techniques.

C221- Probability Theory and Stochastic Processes EC401PC														
CO	**Program Outcomes (PO) and Program Specific Outcomes (PSO)**													
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
C221.1	3	3	3	3	-	-	-	-	-	-	-	2	2	-
C221.2	3	3	3	3	-	-	-	-	-	-	-	1	2	-
C221.3	3	3	3	3	-	-	-	-	-	-	-	1	2	-
C221.4	3	3	3	3	-	-	-	-	-	-	-	1	2	-
C221.5	3	3	2	2	-	-	-	-	-	-	-	2	2	-
C221.6	3	3	2	2	-	-	-	-	-	-	-	1	2	-

CO No.	Course Outcomes
C222- Electromagnetic Fields and Transmission Lines EC402PC	
C222.1	Apply the laws of electrostatics for different types of charge distributions.
C222.2	Apply the laws of magneto-statics for different types of current distributions.
C222.3	Analyze boundary conditions using Maxwell's equations at different media interfaces.
C222.4	Solve the Maxwell's equations of Time Varying fields and obtain the wave phenomenon in various media.
C222.5	Analyze the Reflection and Refraction of Plane Waves in conductors and dielectrics.
C222.6	Calculate various transmission line parameters with conventional and graphical methods.

C222- Electromagnetic Fields and Transmission Lines EC402PC														
CO	**Program Outcomes (PO) and Program Specific Outcomes (PSO)**													
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
C222.1	3	3	3	3	2	-	-	-	-	-	-	-	3	-
C222.2	3	3	3	3	2	-	-	-	-	-	-	-	3	-
C222.3	3	3	3	3	2	-	-	-	-	-	-	-	3	-
C222.4	3	3	3	3	2	-	-	-	-	-	-	-	3	-
C222.5	3	3	3	2	2	-	-	-	-	-	-	-	2	-
C222.6	3	2	3	1	2	-	-	-	-	-	-	-	2	-

CO No.	Course Outcomes
C223- Analog and Digital Communications EC403PC	
C223.1	Analyze various modulation/demodulation techniques of amplitude modulation.
C223.2	Explain various modulation/demodulation techniques of angle modulation.
C223.3	Classify various types of transmitters and receivers used in AM and FM.
C223.4	Explain different types of pulse modulation techniques and multiplexing schemes.
C223.5	Explain various pulse code modulation techniques.
C223.6	Analyze various digital modulation/demodulation techniques and optimal reception of signal.

C223- Analog and Digital Communications EC403PC														
CO	**Program Outcomes (PO) and Program Specific Outcomes (PSO)**													
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
C223.1	3	3	2	2	-	-	-	-	-	-	-	1	2	-
C223.2	3	3	2	2	-	-	-	-	-	-	-	1	2	-
C223.3	3	3	2	2	-	-	-	-	-	-	-	1	2	-
C223.4	3	3	2	2	-	-	-	-	-	-	-	1	2	-
C223.5	3	3	3	2	-	-	-	-	-	-	-	1	2	-
C223.6	3	3	3	3	-	-	-	-	-	-	-	1	2	-

CO No.	Course Outcomes
C224-Linear and Digital IC Applications EC404PC	
C224.1	Describe the principles of Op-Amps and derive the applications of the same.
C224.2	Analyze IC 555 timer and its applications.
C224.3	Choose the appropriate ADC and DAC in real life applications.
C224.4	Design combinational logic circuits for various applications.
C224.5	Design sequential logic circuits for simple applications.
C224.6	Understand the working of semiconductor memories.

C224-Linear and Digital IC Applications EC404PC														
CO	**Program Outcomes (PO) and Program Specific Outcomes (PSO)**													
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
C224.1	3	2	2	2	-	-	-	-	-	-	-	2	3	2
C224.2	3	3	2	1	-	-	-	-	-	-	-	2	3	2
C224.3	3	3	3	2	-	-	-	-	-	-	-	1	2	3
C224.4	3	3	3	2	-	-	-	-	-	-	-	2	3	2
C224.5	3	3	3	2	-	-	-	-	-	-	-	2	2	2
C224.6	3	3	2	1	-	-	-	-	-	-	-	2	3	3

CO No.	Course Outcomes
C225-Electronic Circuit Analysis EC405PC	
C225.1	Analyze different types of power amplifiers forgiven specifications.
C225.2	Design various types of tuned amplifiers for specific applications.
C225.3	Design different multivibrators using transistors.
C225.4	Optimize time base waveform generators.
C225.5	Apply the concepts of synchronization and frequency division in relaxation and sweep circuits.
C225.6	Illustrate the operation, types, and pedestal removal of sampling gates.

C225-ElectronicCircuitAnalysis EC405PC													
CO	**Program Outcomes (PO) and Program Specific Outcomes (PSO)**												
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
C225.1	2	1	1	1	-	-	-	-	-	-	-	1	2	1
C225.2	3	3	3	2	-	-	-	-	-	-	-	1	2	1
C225.3	3	3	2	3	-	-	-	-	-	-	-	2	2	1
C225.4	2	2	2	1	-	-	-	-	-	-	-	-	1	1
C225.5	2	2	2	1	-	-	-	-	-	-	-	-	1	1
C225.6	2	2	2	1	-	-	-	-	-	-	-	-	2	1

CO No.	Course Outcomes
C226- Analog and Digital Communications Laboratory EC406PC	
C226.1	Analyze the spectrum of various analog modulation/demodulation techniques.
C226.2	Verify multiplexing and demultiplexing using FDM.
C226.3	Examine various pulse modulation/demodulation techniques.
C226.4	Analyze different digital modulation/demodulation schemes.

C226- Analog and Digital Communications Laboratory EC406PC													
CO	**Program Outcomes (PO) and Program Specific Outcomes (PSO)**												
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
C226.1	3	2	2	2	3	-	-	-	-	-	-	1	2	-
C226.2	3	2	2	3	3	-	-	-	-	-	-	1	2	-
C226.3	3	2	2	3	2	-	-	-	-	-	-	1	2	-
C226.4	3	2	2	2	2	-	-	-	-	-	-	1	2	-

CO No.	Course Outcomes
C227-Linear and Digital IC Applications Lab EC407PC	
C227.1	Design analog circuits for practical applications using Op Amp IC-741.
C227.2	Design multi vibrators using IC555 and Schmitt trigger using IC741
C227.3	Design waveform generators, ADC and DAC.
C227.4	Design combinational and sequential circuits using digital ICs.

C227-Linear and Digital IC Applications Laboratory EC407PC														
CO	**Program Outcomes (PO) and Program Specific Outcomes (PSO)**													
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
C227.1	2	1	3	3	3	-	-	-	-	-	-	2	2	3
C227.2	1	2	2	2	3	-	-	-	-	-	-	1	2	2
C227.3	2	1	2	3	3	-	-	-	-	-	-	2	3	3
C227.4	1	2	3	3	3	-	-	-	-	-	-	3	2	2

CO No.	Course Outcomes
C228 Electronic Circuit Analysis Lab EC408PC	
C228.1	Design and verify power amplifiers and find efficiency.
C228.2	Design and verify tuned amplifiers and find Q-factor.
C228.3	Design and verify different Multivibrators.
C228.4	Verify the operation of sampling gates and sweep generators.

C228 Electronic Circuit Analysis Lab EC408PC														
CO	**Program Outcomes (PO) and Program Specific Outcomes (PSO)**													
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
C228.1	3	3	3	2	3	-	-	-	-	-	-	1	2	1
C228.2	3	3	3	2	3	-	-	-	-	-	-	1	2	1
C228.3	3	3	3	3	3	-	-	-	-	-	-	2	1	1
C228.4	3	2	3	3	3	-	-	-	-	-	-	3	1	1

CO No.	Course Outcomes
C229 Real Time Project/ Field Based Project EC409PC	
C229.1	Apply theoretical concepts and principles to identify the real-world problem.
C229.2	Develop a project proposal with clear goals, methods and resources required.
C229.3	Choose appropriate tools and technologies for effective implementation of the project.
C229.4	Showcase strong collaboration and teamwork abilities
C229.5	Demonstrate effective communication skills through report writing and presentations

C229 Real Time Project/ Field Based Project EC409PC														
CO	Program Outcomes (PO) and Program Specific Outcomes (PSO)													
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C229.1	3	3	1	1	-	2	-	-	-	-	-	3	3	3
C229.2	3	3	3	3	2	1	-	2	2	-	3	2	3	3
C229.3	3	2	3	3	3	-	-	-	-	-	2	3	3	3
C229.4	-	-	1	1	-	-	-	2	3	-	2	2	2	2
C229.5	-	-	-	-	-	-	-	-	3	3	-	2	1	1

CO No.	Course Outcomes
C22A Gender Sensitization Lab MC410	
C22A.1	Develop a better understanding of important issues related to gender in contemporary India.
C22A.2	Analyze basic dimensions of the biological, sociological, psychological and legal aspects of gender
C22A.3	Develop a sense of appreciation of women in all walks of life and will be equipped to work and live together as equals.
C22A.4	Examine the new laws for women protection & relief, and empower students to understand and respond to gender violence

C22A Gender Sensitization Lab MC410														
CO	Program Outcomes (PO) and Program Specific Outcomes (PSO)													
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C22A.1	-	-	-	-	-	2	-	-	-	-	-	-	-	-
C22A.2	-	-	-	-	-	2	-	1	-	-	-	-	-	-
C22A.3	-	-	-	-	-	2	-	1	1	2	-	-	-	-
C22A.4	-	-	-	-	-	2	-	1	2	2	-	-	-	-

III YEAR I SEMESTER

CO No.	Course Outcomes
C311- Microcontrollers EC501PC	
C311.1	Differentiate architectural features and modes of operation of 8086 microprocessor and 8051 microcontrollers.
C311.2	Summarize the addressing modes, instruction set and assembler directives of 8086 Microprocessor and 8051 Micro controller.
C311.3	Write assembly language programs for 8086 Microprocessor and 8051 Microcontroller.
C311.4	Explore serial communication standards and interface various peripheral devices, memory with 8051 microcontrollers.
C311.5	Analyze the architectural features and instruction set of ARM processor
C311.6	Describe the architectural feature of CORTEX and OMAP processors

C311- Microcontrollers EC501PC														
CO	**Program Outcomes (PO) and Program Specific Outcomes (PSO)**													
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
C311.1	3	3	3	2	1	-	-	-	-	-	1	3	3	3
C311.2	3	3	2			-	-	-	1	-	2	2	3	3
C311.3	3	3	2	2		-	-	-	2	-	-	3	3	3
C311.4	3	3	2	2	2	2	2	1	2	2	2	2	2	2
C311.5	3	3	2	2	2	-	-	-	-	-	-	2	2	2
C311.6	3	3	2	2	2	-	-	-	-	-	-	2	2	2

CO No.	Course Outcomes
C312- IoT Architectures and Protocols EC502PC	
C312.1	Articulate the concept of IoT, its architectures and functional stacks
C312.2	Explore different sensing and actuation elements in IoT.
C312.3	Interpret the transition from Machine-to-Machine (M2M) to Internet of Things (IoT)
C312.4	Understand the data link and network layer protocols for diverse IoT networks.
C312.5	Understand the Transport, Session and service layer protocols for diverse IoT networks.
C312.6	Acquire knowledge on the role of Security in IoT protocols.

C312- IoT Architectures and Protocols EC502PC														
CO	**Program Outcomes (PO) and Program Specific Outcomes (PSO)**													
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
C312.1	3	-	1	1	-	-	-	-	-	-	-	-	1	1
C312.2	3	-	1	1	-	1	-	-	-	-	-	-	1	1
C312.3	3	2	1	1	-	1	-	-	-	-	-	-	1	1
C312.4	3	2	-	1	-	-	-	-	-	-	-	-	1	1
C312.5	3	2	-	1	-	-	-	-	-	-	-	-	1	1
C312.6	3	2	-	1	-	-	-	-	-	-	-	-	1	1

CO No.	Course Outcomes
C313- Control Systems EC503PC	
C313.1	Compute transfer function of a system by different techniques.
C313.2	Evaluate the time response of systems for standard input signals.
C313.3	Probe the stability of a system using time domain approach
C313.4	Probe the stability of a system using frequency domain approach
C313.5	Examine the performance of systems with compensators and controllers
C313.6	Construct state models for continuous time systems and comment on controllability and observability of the system

C313- Control Systems EC503PC														
CO	**Program Outcomes (PO) and Program Specific Outcomes (PSO)**													
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
C313.1	2	1										1	1	1
C313.2	3	2	1	2										1
C313.3	3	3	1									1		1
C313.4	3	3	1	1								1	1	1
C313.5	3	3	1	1								1	1	1
C313.6	3	2										1		

CO No.	Course Outcomes
C314- Business Economics & Financial Analysis SM504MS	
C314.1	Understand the Economic Concepts in business decision making process.
C314.2	Familiarize with the cost concepts, market structures.
C314.3	Make use of break-even analysis, CVP Analysis, pricing strategies.
C314.4	Examine financial accounting and analyze various financial statements.
C314.5	Interpret various financial statements by applying different types of ratios.
C314.6	Examine the usefulness of Investment decisions of a company.

C314- Business Economics & Financial Analysis SM504MS														
CO	**Program Outcomes (PO) and Program Specific Outcomes (PSO)**													
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO 2**
C314.1	2	-	1	1	1	1	-	1	1	2	-	-	-	-
C314.2	1	1	2	-	1	-	-	-	-	-	-	-	-	-
C314.3	1	1	2	1	2	-	-	-	-	-	1	-	-	-
C314.4	-	1	-	1	1	-	-	-	1	-	-	1	-	-
C314.5	1	1	1	1		-	-	-	-	1	-	-	-	-
C314.6	-	1	-	-	1	-	-	1	-	-	1	-	-	-

Professional Electives

CO No.	Course Outcomes
C315- Computer Organization & Operating Systems EC511PE	
C315.1	Develop proficiency in core computer architecture concepts and enabling them to design efficient systems
C315.2	Understand the principles of microprogrammed and hardwired control unit design, and gain expertise in memory systems
C315.3	Acquire a comprehensive understanding of input-output organization, including peripheral devices, interface types, data transfer modes, and protocols
C315.4	Gain a thorough understanding of operating systems, including their functions, protection and security mechanisms, structures, and services
C315.5	Understand memory management techniques, including swapping, paging, and segmentation, as well as the principles of deadlock
C315.6	Develop a comprehensive understanding of file system interfaces and implementations, including file concepts, access methods, directory structures, allocation strategies, and free-space management

C315- Computer Organization & Operating Systems EC511PE													
CO	**Program Outcomes (PO) and Program Specific Outcomes (PSO)**												
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO 2**
C315.1	3	3	1	2	1	1	-	1	1	1	1	2	1	1
C315.2	2	2	1	1	2	1	1	1	2	1	1	1	1	1
C315.3	1	3	1	1	2	2	1	1	1	1	1	2	1	1
C315.4	1	2	2	1	1	1	1	1	1	1	2	1	1	2
C315.5	3	1	2	2	1	2	1	1	2	1	1	2	2	1
C315.6	2	2	1	2	1	1	1	1	1	1	-	2	1	1

CO No.	Course Outcomes
C316- Data Communications and Computer Networks EC512PE	
C316.1	Analyze the Categories and functions of various Data communication Networks
C316.2	Design and analyze various error detection techniques.
C316.3	Demonstrate the mechanism of routing the data in network layer
C315.4	Analyze the significance of various Flow control and Congestion control Mechanisms
C316.5	Analyze the Functioning of various Application layer Protocols.
C316.6	Analyze the features and operations of various user interface protocols.

C316- Data Communications and Computer Networks EC512PE														
CO	**Program Outcomes (PO) and Program Specific Outcomes (PSO)**													
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO 2**
C316.1	3	1	1	1	1	1						2	2	3
C316.2	3	1	1	1	1	1						2	2	2
C316.3	1	2	1	1	1	1						2	1	2
C315.4	3	3	3	2	1	1	1		1	1	2	3	3	3
C316.5	3	1	1	1	1	1						2	2	2
C316.6	3	3	3	3	1	2	1	1	1	2	2	3	3	3

CO No.	Course Outcomes
C317- Electronic Measurements and Instrumentation EC513PE	
C317.1	Illustrate the characteristics and operating principles of measuring systems.
C317.2	Summarize the construction and operation of various Wave Analysers and Signal generators.
C317.3	Analyse the working principles and applications of different types of Oscilloscopes
C317.4	Utilise transducers to compute various electrical parameters.
C317.5	Measure R, L and C values using different bridge circuits.
C317.6	Make use of measuring devices to measure different physical parameters

C317- Electronic Measurements and Instrumentation EC513PE													
CO	**Program Outcomes (PO) and Program Specific Outcomes (PSO)**												
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO 2**
C317.1	3	1	1	-	-	-	-	-	-	-	-	-	1	-
C317.2	3	3	2	-	-	-	1	-	-	1	-	-	1	-
C317.3	3	2	2	2	-	-	-	-	-	1	-	-	1	-
C317.4	3	3	3	1	-	-	-	-	-	-	-	-	1	-
C317.5	3	2	1	1	-	-	1	-	-	-	-	-	1	1
C317.6	3	2	1	1	-	-	1	-	-	-	-	-	1	1

CO No.	Course Outcomes
C318- Microcontrollers Laboratory EC505PC	
C318.1	Develop 8086 assembly language programs using macro assembler.
C318.2	Build 8051 assembly language programs for simple arithmetic and logical operations and verify using Keil IDE.
C318.3	Write assembly language programs to configure various peripheral devices using 8051 kits.
C318.4	Interface various input/output devices to ARM Cortex M3 processor using development board and GNU toolchain.

C318- Microcontrollers Laboratory EC505PC													
CO	**Program Outcomes (PO) and Program Specific Outcomes (PSO)**												
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO 2**
C318.1	3	3	3	2	3	2	1	-	2	2	2	2	3	3
C318.2	3	3	3	2	3	2	1	-	2	2	2	2	3	3
C318.3	3	3	3	2	3	2	1	-	2	2	2	2	3	3
C318.4	3	3	3	2	3	2	1	-	2	2	2	2	3	3

CO No.	Course Outcomes
C319- IoT Architectures and Protocols Laboratory EC506PC	
C319.1	Analyze integration of sensors and actuators with IoT boards.
C319.2	Establish interfaces between the sensors and processor to facilitate data transmission.
C319.3	Perform automation and processing of images using Arduino, Node MCU, or Raspberry Pi
C319.4	Understand the application of SPI, I2C and UART communication Protocols.

C319- IoT Architectures and Protocols Laboratory EC506PC														
CO	Program Outcomes (PO) and Program Specific Outcomes (PSO)													
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO 2
C319.1	2	2	2	2	2	2	1	-	-	-	-	-	2	2
C319.2	2	2	2	2	2	2	1	-	-	-	-	-	2	2
C319.3	2	2	2	2	2	2	1	-	-	-	-	-	2	2
C319.4	2	2	2	2	2	2	1	-	-	-	-	-	2	2

CO No.	Course Outcomes
C31A- Advanced English Communication Skills Laboratory EN508HS	
C31A.1	Build sound vocabulary and its proper use contextually
C31A.2	Analyze the given text and respond appropriately and develop efficacious writing skills
C31A.3	Develop effective speaking skills and Maximize job prospects
C31A.4	Plan and make different forms of presentation using various techniques

C31A- Advanced English Communication Skills Laboratory EN508HS														
CO	Program Outcomes (PO) and Program Specific Outcomes (PSO)													
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO 2
C31A.1	-	-	-	-	-	-	-	-	-	3	2	2	-	-
C31A.2	-	-	-	-	-	-	-	2	-	3	2	1	-	-
C31A.3	-	-	-	-	-	-	-	2	1	3	2	1	-	-
C31A.4	-	-	-	-	-	-	-	2	1	3	2	1	-	-

CO No.	Course Outcomes
C31B- Intellectual Property Rights MC510	
C31B.1	Understand the fundamental aspects of Intellectual property Rights who are going to play a major role in development and management of innovative projects in industries.
C31B.2	Examine Trademarks, Acquisition of Trade Mark Rights and its registration processes.
C31B.3	Evaluate various aspects relating to copyrights and its procedure for registration processes.
C31B.4	Evaluate with the Trade Secret Law, protection for submission, Unfair Competition.
C31B.5	Evaluate on the International Developments in Intellectual Property Rights.
C31B.6	Interpret about current trends in IPR and the steps taken by the Government of India in fostering IPR.

C31B- Intellectual Property Rights MC510														
CO	Program Outcomes (PO) and Program Specific Outcomes (PSO)													
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO 2
C31B.1	-	-	-	-	-	1	-	-	1	-	-	-	-	-
C31B.2	-	-	-	-	-	1	-	-	-	-	-	1	-	-
C31B.3	-	-	-	-	-	-	1	-	-	-	1	-	-	-
C31B.4	-	-	-	-	-	-	-	-	-	-	1	1	-	-
C31B.5	-	-	-	-	1	-	-	-	-	-	-	1	-	-
C31B.6	1	-	-	-	-	-	-	-	-	-	-	1	-	-

III YEAR II SEMESTER

CO No.	Course Outcomes
C321- Antennas and Wave Propagation EC601PC	
C321.1	Understand the fundamental antenna parameters involved in designing antennas.
C321.2	Examine the radiation pattern of linear wire antennas.
C321.3	Analyze the geometric characteristics of different antenna types.
C321.4	Create varied antenna arrays to optimize gain in the desired direction.
C321.5	Evaluate antenna performance by measuring antenna parameters.
C321.6	Investigate the attributes of wave propagation in diverse atmospheric layers.

C321- Antennas and Wave Propagation EC601PC													
CO	**Program Outcomes (PO) and Program Specific Outcomes (PSO)**												
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO 2**
C321.1	3	3	3	3	-	-	1	-	-	-	-	2	2	-
C321.2	3	3	3	3	-	1	1	-	-	-	-	2	2	-
C321.3	3	3	3	3	2	1	1	-	-	-	-	2	2	-
C321.4	3	3	3	3	1	1	1	-	-	-	-	2	2	-
C321.5	3	3	3	3	2	1	1	-	-	-	-	2	2	-
C321.6	3	3	3	3	-	-	1	-	-	-	-	2	2	-

CO No.	Course Outcomes
C322- Digital Signal Processing EC602PC	
C322.1	Determine the behaviour of LTI systems by solving difference equation
C322.2	Understand the concepts of multi rate digital signal processing
C322.3	Analyze digital signals in frequency domain using DFS and DFT
C322.4	Compute DFT using FFT algorithms
C322.5	Design and implement IIR and FIR digital filters
C322.6	Analyze the effects of finite word length representation

C322- Digital Signal Processing EC602PC													
CO	**Program Outcomes (PO) and Program Specific Outcomes (PSO)**												
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO 2**
C322.1	3	3	2	3	2	-	-	-	-	-	-	1	1	-
C322.2	3	3	2	2	2	-	-	-	-	-	-	1	2	-
C322.3	3	3	1	2	2	-	-	-	-	-	-	1	1	-
C322.4	3	3	3	2	2	-	-	-	-	-	-	2	2	-
C322.5	3	3	3	2	2	-	-	-	-	-	-	2	2	-
C322.6	2	2	2	2	2	-	-	-	-	-	-	2	2	-

CO No.	Course Outcomes
C323- CMOS VLSI Design EC603PC	
C323.1	Summarize the steps in VLSI fabrication process of different MOS Technologies
C323.2	Examine the electrical properties and models of CMOS circuits.
C323.3	Construct layouts using stick diagrams in accordance with the design rules.
C323.4	Implement complex digital logic circuits using switch logic and PLDs.
C323.5	Build different VLSI subsystems using CMOS logic.
C323.6	Explore the concept of testing and fault tolerant systems.

C323- CMOS VLSI Design EC603PC														
CO	Program Outcomes (PO) and Program Specific Outcomes (PSO)													
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO 2
C323.1	3	-	-	-	-	-	-	-	1	1	-	2	1	-
C323.2	3	3	1	2	-	-	-	-	-	-	-	2	2	2
C323.3	3	3	3	2	-	-	-	-	1	1	-	2	2	
C323.4	3	3	3	2	-	-	-	-	-	-	-	2	3	2
C323.5	3	3	3	2	-	-	-	-	-	-	-	2	2	2
C323.6	3	3		2	-	-	-	-	-	-	-	2	1	1

III-II Professional Electives

CO No.	Course Outcomes
C324- Digital Image Processing EC621PE	
C324.1	Explain the fundamentals of digital image processing
C324.2	Analyze the digital image using different image transforms
C324.3	Apply spatial and frequency domain filtering techniques for image enhancement
C324.4	Estimate the original image from a noisy one using different approaches in image restoration
C324.5	Examine different types of discontinuities using image segmentation algorithms
C324.6	Apply Morphological operations and compression techniques on different images

C324- Digital Image Processing EC621PE														
CO	Program Outcomes (PO) and Program Specific Outcomes (PSO)													
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO 2
C324.1	2	1	-	-	1	-	-	-	-	-	-	1	-	-
C324.2	3	3	2	2	1	1	1	-	-	-	-	2	2	-
C324.3	3	3	3	2	1	2	2	-	-	-	-	2	2	-
C324.4	3	3	3	2	1	2	2	-	-	-	-	2	2	-
C324.5	3	3	3	2	1	2	2	-	-	-	-	2	2	-
C324.6	3	3	3	2	1	2	2	-	-	-	-	2	2	-

CO No.	Course Outcomes
C325- Mobile Communications and Networks EC622PE	
C325.1	Understand various techniques that improves the efficiency of cellular communication system
C325.2	Design an effective cellular system considering the effects of co-channel and non co-channel interferences
C325.3	Explore the factors that affect signal coverage in various contours
C325.4	Illustrate the concepts of effective frequency management and channel assignment
C325.5	Assimilate the concept of handoff mechanism and dropped call
C325.6	Elucidate the concept of Adhoc networks and design goals of MAC layer

C325- Mobile Communications and Networks EC622PE														
CO	**Program Outcomes (PO) and Program Specific Outcomes (PSO)**													
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO 2**
C325.1	3	3	3	2	-	2	2	-	-	-	-	2	2	-
C325.2	3	3	3	2	-	2	2	-	-	-	-	2	2	-
C325.3	3	3	3	2	-	2	2	-	-	-	-	2	2	-
C325.4	3	3	3	2	-	1	1	-	-	-	-	2	2	-
C325.5	3	3	3	2	-	-	-	-	-	-	-	2	2	-
C325.6	3	3	3	2	-	-	-	-	-	-	-	2	2	-

CO No.	Course Outcomes
C326- Embedded System Design EC623PE	
C326.1	Distinguish the embedded systems from general purpose processing systems.
C326.2	Recommend suitable hardware for different applications of embedded systems.
C326.3	Select different types and amount of memory based on embedded system specifications.
C326.4	Explain the Embedded firmware design approaches, development languages and device drivers
C326.5	Analyze the issues and techniques of Task synchronization and communication in embedded firmware.
C326.6	Differentiate between general purpose operating systems and RTOS.

C326- Embedded System Design EC623PE														
CO	**Program Outcomes (PO) and Program Specific Outcomes (PSO)**													
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO 2**
C326.1	3	3	3	2	2	1	2	-	2	-	2	2	2	3
C326.2	3	3	3	2	2	2	3	1	3	-	2	3	3	3
C326.3	3	3	3	2	2	-	2	-	2	-	2	3	2	3
C326.4	3	2	3	2	2	1	2	-	3	2	2	3	2	2
C326.5	3	3	2	2	2	-	-	-	2	-	2	2	2	1
C326.6	3	3	3	2	2	1	1	-	2	-	1	2	2	1

III-II Open Electives

CO No.	Course Outcomes
C327- Fundamentals of Internet of Things	
C327.1	Develop a clear comprehension of IoT and M2M concepts, facilitating the construction of IoT applications.
C327.2	Gain expertise in programming to configure Arduino boards for various designs.
C327.3	Effectively deploy python programs into Raspberry Pi boards in diverse scenarios.
C327.4	Demonstrate an understanding of data handling and analytics within Software-Defined Networking (SDN).
C327.5	Apply IoT concepts effectively for practical application development.
C327.6	Understand the role of cloud-computing in a typical IoT system with case studies.

C327- Fundamentals of Internet of Things														
CO	**Program Outcomes (PO) and Program Specific Outcomes (PSO)**													
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO 2**
C327.1	3	-	1	1	-	-	-	-	-	-	-	-	1	1
C327.2	3	-	1	1	-	1	1	-	-	-	-	-	1	1
C327.3	3	2	1	1	-	1	1	-	-	-	-	-	1	1
C327.4	3	2	-	1	-	-	-	-	-	-	-	-	1	1
C327.5	3	2	-	1	-	-	1	-	-	-	-	-	1	1
C327.6	3	2	-	1	-	1	-	-	-	-	-	-	1	1

CO No.	Course Outcomes
C328- Principles of Signal Processing	
C328.1	Analyze the Orthogonality of real and complex signals.
C328.2	Analyze the signal transmission through linear time invariant systems.
C328.3	Apply the concepts of convolution and correlation in signal and system analysis.
C328.4	Illustrate the need for sampling theorem for analog sto digital signal conversion.
C328.5	Analyze the temporal and spectral characteristics of random processes.
C328.6	Estimate various noise parameters of a communication system.

C328- Principles of Signal Processing														
CO	**Program Outcomes (PO) and Program Specific Outcomes (PSO)**													
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO 2**
C328.1	3	3	1	2	1	1	1	-	-	-	-	1	2	-
C328.2	3	3	3	3	2	2	2	-	-	-	-	2	2	-
C328.3	3	3	3	3	2	2	2	-	-	-	-	1	2	-
C328.4	3	3	3	3	2	2	2	-	-	-	-	2	2	-
C328.5	3	3	3	3	2	2	2	-	-	-	-	1	2	-
C328.6	3	3	3	3	2	2	2	-	-	-	-	2	2	-

CO No.	Course Outcomes
C329- Digital Electronics for Engineering	
C329.1	Apply the concepts of number systems and codes in digital system design
C329.2	Minimize Boolean expressions using various techniques
C329.3	Design of different combinational logic circuits for given specifications.
C329.4	Design of different sequential logic circuits for given specifications.
C329.5	Realization of logic families using diodes and transistors
C329.6	Understand the operational principles of Op-Amps.

C329-Digital Electronics for Engineering														
CO	**Program Outcomes (PO) and Program Specific Outcomes (PSO)**													
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO 2**
C329.1	3	2	2	-	-	-	-	-	-	-	-	2	-	-
C329.2	3	3	2	1	-	-	-	-	-	-	-	2	-	-
C329.3	3	3	3	1	-	-	-	-	-	-	-	2	-	-
C329.4	3	3	3	1	-	-	-	-	-	-	-	2	-	-
C329.5	3	3	3	2	-	-	-	-	-	-	-	1	-	-
C329.6	3	2	2	2	-	-	-	-	-	-	-	2	-	-

CO No.	Course Outcomes
C32A- Digital Signal Processing Laboratory EC604PC	
C32A.1	Generate sinusoidal and noise waveforms using different approaches.
C32A.2	Analyze Impulse and frequency response of various digital filters.
C32A.3	Verify different algorithms of DSP through simulation.
C32A.4	Implement various DSP algorithms in hardware.

C32A- Digital Signal Processing Laboratory EC604PC														
CO	**Program Outcomes (PO) and Program Specific Outcomes (PSO)**													
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO 2**
C32A.1	2	1	-	-	3	-	-	-	2	2	-	1	1	-
C32A.2	2	3	2	2	3	-	-	-	2	2	-	1	2	-
C32A.3	2	2	2	1	3	-	-	-	2	2	-	1	2	-
C32A.4	3	2	2	2	3	-	-	-	2	2	-	1	2	-

CO No.	Course Outcomes
C32B- CMOS VLSI Design Laboratory EC605PC	
C32B.1	Verify the functionality of digital circuits using Xilinx ISIM simulator
C32B.2	Implement digital circuits on various FPGA boards using Xilinx tools
C32B.3	Design layout for digital circuits and perform physical verification
C32B.4	Analyze static timing, IR drop and crosstalk in digital circuit layouts

C32B- CMOS VLSI Design Laboratory EC605PC														
CO	Program Outcomes (PO) and Program Specific Outcomes (PSO)													
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO 2
C32B.1	3	3	2	1	3	-	-	2	2	2	-	3	3	1
C32B.2	3	3	3	2	3	-	-	2	2	2	-	2	2	1
C32B.3	3	3	3	1	3	-	-	2	2	2	-	3	2	-
C32B.4	3	3	3	3	3	-	-	2	2	2	-	2	3	-

CO No.	Course Outcomes
C32C- Advanced Communication Laboratory EC606PC	
C32C.1	Analyze the radiation pattern and radiation resistance of different antennas
C32C.2	Illustrate the generation of Eye and constellation diagram using simulation tool
C32C.3	Generate and detect various digital modulated signals
C32C.4	Demonstrate the acquisition of various sensors data

C32C- Advanced Communication Laboratory EC606PC														
CO	Program Outcomes (PO) and Program Specific Outcomes (PSO)													
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO 2
C32C.1	3	2	2	2	3	1	-	-	2	1	-	1	1	-
C32C.2	3	2	2	2	3	1	-	-	2	1	-	1	1	-
C32C.3	3	2	1	1	3	1	-	-	2	1	-	1	1	-
C32C.4	3	2	1	1	3	1	-	-	2	1	-	1	1	-

CO No.	Course Outcomes
C32E- Environmental Science MC609	
C32E.1	Discover knowledge regarding environment and its components.
C32E.2	Understand the classification, importance and conservation of natural resources.
C32E.3	Perceive the knowledge regarding different Bio -Geo classification of India.
C32E.4	Examine impacts of pollution on the environment and their control measures.
C32E.5	Analyze Environmental laws and Environmental Impact Assessments.
C32E.6	Determine sustainable development that aims to meet raising human needs.

C32E- Environmental Science MC609														
CO	Program Outcomes (PO) and Program Specific Outcomes (PSO)													
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO 2
C32E.1	1	-	2	-	-	-	2	-	-	-	-	1	-	-
C32E.2	-	2	2	-	-	-	2	1	-	2	-	2	-	-
C32E.3	-	1	1	1	-	1	2	2	-	-	-	1	-	1
C32E.4	1	2	2	-		1		-	-	-	-	1	-	1
C32E.5	-	1	1	-	-	-	2	1	1	-	1	-	-	-
C32E.6	-	1	2	-	-	-	2	-	-	1	-	2	-	1

IV YEAR I SEMESTER

CO No.	Course Outcomes
C411- Microwave and Optical Communications EC701PC	
C411.1	Analyze the characteristics of O-type and M-type tubes
C411.2	Illustrate the operation of various solid state devices
C411.3	Explain various waveguide components and their applications.
C411.4	Estimate S-parameters of multiport junction devices
C411.5	Measure various parameters using microwave bench
C411.6	Understand an optical fiber communication system

C411- Microwave and Optical Communications EC701PC													
CO	Program Outcomes (PO) and Program Specific Outcomes (PSO)												
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO 2
C411.1	3	2	1	-	-	1	1	-	-	-	-	1	1	-
C411.2	3	2	2	-	-	1	1	-	-	-	-	2	2	-
C411.3	3	3	3	1	-	1	1	-	-	-	-	2	2	-
C411.4	3	3	2	1	-	1	1	-	-	-	-	2	2	-
C411.5	3	3	2	1	-	1	1	-	-	-	-	1	2	-
C411.6	3	3	2	1	-	1	2	-	-	-	-	2	2	-

IV-I Professional Electives

CO No.	Course Outcomes
C412- Radar Systems EC731PE	
C412.1	Understand the concepts of Radar System and measure its parameters
C412.2	Analyze the functionality of CW and FMCW radar.
C412.3	Classify the mechanism of detecting stationary and moving targets
C412.4	Compare the working mechanism of various tracking radars.
C412.5	Explain the detection mechanism of Radar signals in noisy environment
C412.6	Assess various components and parameters of Radar receivers

C412- Radar Systems EC731PE														
CO	Program Outcomes (PO) and Program Specific Outcomes (PSO)													
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO 2
C412.1	3	3	1	1	-	1	1	-	-	-	-	2	2	-
C412.2	3	2	1	-	-	1	1	-	-	-	-	1	1	-
C412.3	3	2	1	1	-	1	1	-	-	-	-	2	1	-
C412.4	3	2	1	1	-	1	1	-	-	-	-	2	1	-
C412.5	3	2	2	2	-	1	1	-	-	-	-	1	1	-
C412.6	3	3	2	1	-	1	1	-	-	-	-	2	1	-

CO No.	Course Outcomes
C413-CMOS Analog IC Design EC732PE	
C413.1	Demonstrate the understanding of basic MOS devices and components
C413.2	Differentiate between Small signal and Large signal models of MOS transistor
C413.3	Illustrate the construction and operation of various CMOS sub circuits
C413.4	Examine the characteristics of different CMOS amplifiers
C413.5	Design CMOS operational amplifiers for given specifications
C413.6	Characterize various CMOS open loop comparators

C413-CMOS Analog IC Design EC732PE														
CO	**Program Outcomes (PO) and Program Specific Outcomes (PSO)**													
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO 2**
C413.1	3	3	3	3	-	-	-	-	-	-	-	3	2	-
C413.2	3	3	3	3	-	-	-	-	-	-	-	1	1	-
C413.3	3	2	2	2	-	-	-	-	-	-	-	3	3	-
C413.4	3	3	3	3	-	-	1	-	-	-	-	2	2	-
C413.5	3	3	3	3	-	-	1	-	-	-	-	2	3	-
C413.6	3	2	2	2	-	-	-	-	-	-	-	1	2	-

CO No.	Course Outcomes
C414- Artificial Neural Networks EC733PE	
C414.1	Infer the similarity of Biological networks and Neural networks
C414.2	understand the architecture and learning algorithms
C414.3	Perform the training of neural networks using various learning rules.
C414.4	Analyze the concepts of backward propagations.
C414.5	Applying SOM for computer simulation.
C414.6	Analyze and construct the Hopfield models.

C414- Artificial Neural Networks EC733PE														
CO	**Program Outcomes (PO) and Program Specific Outcomes (PSO)**													
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO 2**
C414.1	2	2											1	
C414.2	3	2	1					2					2	
C414.3		1	2					2		1				1
C414.4	1	1	1					1						
C414.5	1	2	2		2		2	2	2			3	2	3
C414.6	1	1	2					2		1		3	2	2

CO No.	Course Outcomes
C415- Network Security and Cryptography EC741PE	
C415.1	Illustrate the concepts and principles of security Attacks, Services and Mechanisms.
C415.2	Evaluate applications of Cryptographic algorithms in real time scenarios.
C415.3	Apply various public key cryptography techniques
C415.4	Demonstrate the techniques like Message authentication, Hash function and Authentication applications.
C415.5	Assess different key management techniques and solutions for web security.
C415.6	Analyze various case studies to identify the security vulnerabilities and prevention techniques.

C415- Network Security and Cryptography EC741PE														
CO	**Program Outcomes (PO) and Program Specific Outcomes (PSO)**													
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO 2**
C415.1	3	3	3	3	3	2	2	2	1	2	2	3	1	-
C415.2	3	3	3	3	3	2	2	2	2	2	2	2	1	-
C415.3	3	3	3	3	2	2	2	1	1	1	1	1	1	-
C415.4	3	3	3	3	2	2	1	1	1	2	2	2	1	-
C415.5	2	3	3	3	3	3	2	2	2	2	2	3	1	-
C415.6	3	3	3	3	3	3	2	2	1	1	1	2	1	-

CO No.	Course Outcomes
C416-Satellite Communications EC742PE	
C416.1	Describe the basic concepts of satellite communication and orbital mechanics.
C416.2	Explain the functionality of various satellite subsystems.
C416.3	Design a satellite link for specified C/N and familiarize various multiple access techniques.
C416.4	Explain various subsystems of the earth station
C416.5	Analyze various parameters of LEO and GEO satellite systems.
C416.6	Understand the concepts of Satellite Positioning Systems.

C416-Satellite Communications EC742PE														
CO	**Program Outcomes (PO) and Program Specific Outcomes (PSO)**													
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO 2**
C416.1	3	2	2	-	1	-	-	-	-	-	-	2	1	-
C416.2	2	2	1	2	-	-	-	-	-	-	-	1	1	-
C416.3	3	2	2	1	-	-	-	-	-	-	-	3	2	-
C416.4	2	2	2	1	2	-	-	-	-	-	-	2	1	-
C416.5	2	2	2	-	-	-	-	-	-	-	-	-	-	-
C416.6	2	2	2	1	2	-	-	-	-	-	-	2	1	-

CO No.	Course Outcomes
C417- Biomedical Instrumentation EC743PE	
C417.1	Analyse the characteristics of Bio Signals and related Instruments
C417.2	Explore different types of Bio Potential Electrodes
C417.3	Understand various measurements of the cardiovascular system.
C417.4	Analyse the working of Neurological measuring Instruments.
C417.5	Illustrate Therapeutic equipment and Respiratory Instrumentation systems
C417.6	Describe the different principles for medical imaging.

C417- Biomedical Instrumentation EC743PE													
CO	**Program Outcomes (PO) and Program Specific Outcomes (PSO)**												
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO 2**
C417.1	3	3	3	2	-	3	1	-	-	1	-	1	2	2
C417.2	3	3	3	2	-	3	1	-	-	1	-	1	3	2
C417.3	3	2	2	2	-	-	1	-	-	1	-	-	1	2
C417.4	3	3	1	1	-	2	1	-	-	1	-	1	3	3
C417.5	3	3	3	3	1	2	1	-	-	1	-	1	1	2
C417.6	3	3	3	3	2	1	-	-	-	-	-	1	2	3

IV-I Open Electives

CO No.	Course Outcomes
C418- Electronic Sensors	
C418.1	Illustrate the characteristics and operating principles of Sensors
C418.2	Summarize the construction and operation of various Electro Mechanical Sensors.
C418.3	Analyze the working principles and applications of different Thermal Sensors
C418.4	Explore the working principles of different Magnetic Sensors
C418.5	Utilize Radiation and Electro Analytical Sensors to compute radiation and various electrical parameters.
C418.6	Make use of smart sensors to measure different physical parameters and apply them in various Fields

C418- Electronic Sensors													
CO	**Program Outcomes (PO) and Program Specific Outcomes (PSO)**												
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO 2**
C418.1	3	1	1	-	1	1	-	-	-	-	-	1	1	-
C418.2	3	3	2	-	-	1	1	-	-	1	-	1	1	-
C418.3	3	2	2	2	1	1	-	-	-	1	-	1	1	-
C418.4	3	3	3	1	-	-	-	-	-	-	-	1	1	-
C418.5	3	2	1	1	-	-	1	-	-	-	-	1	1	1
C418.6	3	2	1	1	-	-	1	-	-	-	-	1	1	1

CO No.	Course Outcomes
C419- Electronics for Health Care	
C419.1	Analyse, concepts and applications related to Electronic Health Records.
C419.2	Acquire knowledge on (Electronic Health Records) EHRs and their Implementation.
C419.3	Measure various parameters using patient monitoring systems
C419.4	Evaluating Patient Monitoring Systems, with a focus on system operation, measurement techniques, and instrumentation.
C419.5	Illustrate concepts related to Biomedical Telemetry and Telemedicine, including wireless systems, signal transmission, and telemedicine applications.
C419.6	Explain concepts regarding therapeutic devices

C419- Electronics for Health Care														
CO	**Program Outcomes (PO) and Program Specific Outcomes (PSO)**													
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO 2**
C419.1	3	3	3	2	-	3	1	-	-	1	-	1	2	2
C419.2	3	3	3	2	-	3	1	-	-	1	-	1	3	2
C419.3	3	2	2	2	-	-	1	-	-	1	-	-	1	2
C419.4	3	3	1	1	-	2	1	-	-	1	-	1	3	3
C419.5	3	3	3	3	1	2	1	-	-	1	-	1	1	2
C419.6	3	3	3	3	2	1	-	-	-	-	-	1	2	3

CO No.	Course Outcomes
C41A- Telecommunications for Society	
C41A.1	Illustrate the fundamental concepts in telecommunications
C41A.2	Analyze QoS requirements for voice, data, and image transmission
C41A.3	Explain the Voice telephony transmission
C41A.4	Identify essential video pasrameters and transmission standards.
C41A.5	Understand diverse methods of transmitting television program channels.
C41A.6	Understand the characteristics of CATV.

C41A-Telecommunications for Society														
CO	**Program Outcomes (PO) and Program Specific Outcomes (PSO)**													
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO 2**
C41A.1	2	1	-	1	-	-	-	-	-	-	-	1	-	-
C41A.2	2	1	-	1	-	-	-	-	-	-	-	1	1	-
C41A.3	2	1	-	1	-	1	-	-	-	-	-	1	1	-
C41A.4	2	1	1	1	-	1	-	-	-	-	-	1	1	-
C41A.5	2	1	1	1	-	1	-	-	-	-	-	1	1	-
C41A.6	2	1	1	1	-	1	-	-	-	-	-	1	1	-

CO No.	Course Outcomes
C41B- Professional Practice, Law & Ethics EC702PC	
C41B.1	Understand the Professional Practice and Ethics needed for Engineering Professionals.
C41B.2	Familiarize the various concepts in Law of Contract.
C41B.3	Analyse the challenges of Law and its judicial interventions.
C41B.4	Able to resolve disputes pertaining to arbitration and reconciliation.
C41B.5	Evaluate the Law relating to different types of Intellectual Property.
C41B.6	Apply the various issues relating to the professional practice, law and ethics aimed for overall development.

C41B- Professional Practice, Law & Ethics EC702PC													
CO	**Program Outcomes (PO) and Program Specific Outcomes (PSO)**												
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO 2**
C41B.1	1	-	-	-	-	-	-	-	-	1	-	1	1	-
C41B.2	-	-	1	-	1	-	-	-	-	1	-	-	-	-
C41B.3	-	-	-	-	-	1	-	-	2	-	-	-	-	-
C41B.4	-	-	1	-	-	-	-	-	-	1	-	1	-	-
C41B.5	-	-	-	-	-	-	1	-	-	-	1	-	-	-
C41B.6	-	-	-	1	1	-	-	-	-	-	-	-	-	-

CO No.	Course Outcomes
C41C- Microwave and Optical Communications Laboratory EC703PC	
C41C.1	Analyse the characterises of microwave sources
C41C.2	Measure the parameters of the various microwave components
C41C.3	Analyse the characterises of optical sources
C41C.4	Measure the various parameters of the optical communication system

C41C- Microwave and Optical Communications Laboratory EC703PC													
CO	**Program Outcomes (PO) and Program Specific Outcomes (PSO)**												
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO 2**
C41C.1	3	3	1	1	-	1	-	-	-	-	-	1	1	-
C41C.2	3	3	2	2	-	1	-	-	-	-	-	2	2	-
C41C.3	3	3	1	1	-	1	-	-	-	-	-	1	1	-
C41C.4	3	3	2	2	-	1	-	-	-	-	-	1	1	-

CO No.	Course Outcomes
C41D- Project Stage-I EC704PC	
C41D.1	Identify the problem, conduct literature survey and formalize it.
C41D.2	Analyze the problem & propose cost-effective and eco-friendly solution using relevant tools
C41D.3	Prepare the design plan with appropriate time lines.
C41D.4	Demonstrate effective communication and report writing Skills.
C41D.5	Recognise the need for team work and demonstrate professional ethics.

C41D- Project Stage-I EC704PC														
CO	Program Outcomes (PO) and Program Specific Outcomes (PSO)													
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO 2
C41D.1	3	3	1	3	1	1	-	-	1	3	3	1	3	3
C41D.2	3	3	3	3	3	1	-	-	1	1	3	3	3	3
C41D.3	3	3	3	3	3	1	-	-	2	1	3	3	3	3
C41D.4	3	3	1	2	1	-	-	2	3	3	2	2	2	1
C41D.5	3	3	1	1	1	-	-	2	3	3	2	3	1	1

IV YEAR II SEMESTER

IV-II Professional Electives

CO No.	Course Outcomes
C421- Artificial Intelligence EC851PE	
C421.1	Possess the ability to formulate an efficient problem space for a problem expressed in English
C421.2	Possess the ability to select a search algorithm for a problem and characterize its time and space complexities
C421.3	Possess the skill for representing knowledge using the appropriate technique for a given problem
C421.4	Apply and evaluate AI techniques to solve problems of Machine learning and Natural Language Processing
C421.5	Choose and implement appropriate learning algorithms for a given problem.
C421.6	Create an expert system to simulate behaviour of a person

C421- Artificial Intelligence EC851PE														
CO	Program Outcomes (PO) and Program Specific Outcomes (PSO)													
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO 2
C421.1	3	3	1	2	1	2	2	2	2	2	2	2	2	2
C421.2	3	3	2	2	2	2	2	2	2	2	2	2	2	2
C421.3	3	3	2	2	2	2	2	2	2	2	2	3	2	2
C421.4	2	2	3	2	2	2	2	2	2	2	2	3	3	3
C421.5	3	2	3	3	3	2	2	2	2	2	3	3	3	3
C421.6	2	1	3	3	3	3	3	2	3	2	3	3	3	3

CO No.	Course Outcomes
C422- 5G and beyond CommunicationsEC852PE	
C422.1	Outline the concept of MIMO communication system related to 5G technology.
C422.2	Illustrate the Concepts, Challenges and Standards of 5G
C422.3	Analyze the SMNAT architecture and Implementation
C422.4	Explain the radio wave propagation of mm waves,channel effects and Channel models
C422.5	Understand the higher layer design considerations for mmWave
C422.6	Explore Security issues and challenges of future mobile technologies

C422- 5G and beyond Communications EC852PE														
CO	Program Outcomes (PO) and Program Specific Outcomes (PSO)													
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO 2
C422.1	3	2	1	1	-	1	-	-	-	-	-	2	2	-
C422.2	3	2	1	1	-	1	-	-	-	-	-	2	2	-
C422.3	3	2	1	1	-	1	-	-	-	-	-	2	2	-
C422.4	3	2	1	1	-	1	-	-	-	-	-	2	2	-
C422.5	3	2	1	1	-	1	-	-	-	-	-	2	2	-
C422.6	3	2	1	1	-	1	-	-	-	-	-	2	2	-

CO No.	Course Outcomes
C425- System on Chip Architecture EC862PE	
C425.1	understand basic building blocks of SoC like processor architecture and memory interface
C425.2	explore design aspects of processor's working and selection criteria for SoC architectures
C425.3	Comprehend variations in advanced processor architectures
C425.4	Gain the knowledge on various memory subsystem designs employed in an SoC scenario
C425.5	Perceive the optimal interconnection strategies and their customization on SoC platform
C425.6	Identify the issues related to reconfigurable processor designs

C425- System on Chip Architecture EC862PE														
CO	Program Outcomes (PO) and Program Specific Outcomes (PSO)													
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO 2
C425.1	3	3	2	1	-	-	-	-	-	-	-	2	1	1
C425.2	3	3	2	2	-	-	-	-	-	-	-	2	1	1
C425.3	3	3	2	2	-	-	-	-	-	-	-	2	1	1
C425.4	3	3	2	2	-	-	-	-	-	-	-	2	1	1
C425.5	3	3	2	2	-	-	-	-	-	-	-	2	1	1
C425.6	3	3	2	1	-	-	-	-	-	-	-	2	1	1

CO No.	Course Outcomes
C426- Wireless Sensor Network EC863PE	
C426.1	Illustrate various types, advantages and applications of wireless sensor networks.
C426.2	Understand technologies and challenges in designing MANETs and WSN
C426.3	Analyze various routing and MAC protocols developed for sensor networks.
C426.4	Analyze various data integration techniques for large sensor networks
C426.5	Understand the design principles of WSNs
C426.6	Classify various operating systems in WSN

C426- Wireless Sensor Network EC863PE														
CO	Program Outcomes (PO) and Program Specific Outcomes (PSO)													
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C426.1	3	2	1	1	-	-	-	-	-	-	-	1	1	-
C426.2	3	2	1	1	-	-	-	-	-	-	-	1	1	-
C426.3	3	2	2	1	-	-	-	-	-	-	-	1	1	-
C426.4	3	2	2	1	-	-	-	-	-	-	-	1	1	-
C426.5	3	2	2	1	-	-	-	-	-	-	-	1	1	-
C426.6	3	2	2	1	-	-	-	-	-	-	-	1	1	-

IV-II Open Electives

CO No.	Course Outcomes
C427- Measuring Instruments	
C427.1	Identify various methods for measurements and errors.
C427.2	Illustrate the different Standards following in measurements.
C427.3	Summarize the types of Resistive, Capacitive and Inductive Sensors.
C427.4	Make use of measuring devices to measure different physical parameters for Metrology.
C427.5	Utilize transducers to compute various Force and Pressure Measurement.
C427.6	Apply various methods for measuring Flow, Density and Viscosity

C427- Measuring Instruments														
CO	Program Outcomes (PO) and Program Specific Outcomes (PSO)													
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C427.1	3	1	1		-	-		-	-	-	-	1	1	
C427.2	3	2	2		-	-		-	-	-	-	1	1	
C427.3	3	2	2	1	-	-	2	-	-	-	-	1	1	
C427.4	3	3	3	1	-	2	2	-	-	-	-	1	1	1
C427.5	3	3	3	1	-	2	2	-	-	-	-	1	1	1
C427.6	3	3	3	1	-	2	2	-	-	-	-	1	1	1

CO No.	Course Outcomes
C428- Communication Technologies	
C428.1	Apply Channel and Source coding Techniques along with the concepts of Information Theory.
C428.2	Analyze various Wireless Communication Technologies and their features
C428.3	Understand the Concepts of Satellite Communications and broadcasting services
C428.4	Summarize various Mobile Generation Systems and Mobile Networks
C428.5	Describe the Principles of Free Space Optical Communications and related there of
C428.6	Explain Network Security Encryption mechanisms and Management

C428- Communication Technologies														
CO	Program Outcomes (PO) and Program Specific Outcomes (PSO)													
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C428.1	3	2	1	1	-	-	-	-	1	-	-	1	1	
C428.2	3	1		1	-	-	-	-	1	-	-	2	1	1
C428.3	3	1	1		-	-	-	-	1	-	-	2	1	
C428.4	3	1		1	-	-	-	-	1	-	-	2	1	
C428.5	3	1	1		-	-	-	-	1	-	-	1	1	
C428.6	3	1	1	1	-	-	-	-	1	-	-	2	1	

CO No.	Course Outcomes
C42A- Project Stage – II including Seminar EC801PC	
C42A.1	Implement the project plan complying with deadlines
C42A.2	Validate the design to meet the specifications
C42A.3	Evaluate the results to derive the conclusion and provide scope for future enhancement.
C42A.4	Integrate Information from multiple sources and write a comprehensive report
C42A.5	Demonstrate technical, interpersonal and leadership skills in a team

C42A- Project Stage – II including Seminar EC801PC														
CO	Program Outcomes (PO) and Program Specific Outcomes (PSO)													
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO 2
C42A.1	3	3	3	3	3	1	-	-	1	3	-	3	3	3
C42A.2	3	3	3	3	3	1	-	-	1	1	1	3	3	3
C42A.3	3	3	3	3	3	1	-	-	2	1	1	3	3	3
C42A.4	3	3	3	2	2	-	-	2	3	3	-	2	2	2
C42A.5	3	3	2	1	2	-	-	2	3	3	3	2	1	1