



VIGNAN'S INSTITUTE OF MANAGEMENT AND TECHNOLOGY FOR WOMEN

[Sponsored by Lavu Educational Society]

(Approved by AICTE, New Delhi & Affiliated to JNTUH, Hyderabad.)

Kondapur (V), Ghatkesar (M), Medchal - Malkajgiri (D) - 501 301 Phone: +91 96529 10002/3



Department of Electronics and Communication Engineering

II B.Tech I Semester

SUBJECT: ELECTRONIC DEVICES AND CIRCUITS (C231)

After going through this course the student will

SNO	COURSE OUTCOMES	BT Level
C231.1	Understand and analyze the different types of diodes, operations and its characteristics	1
C231.2	Design and analyze the DC bias circuitry of BJT and FET	5
C231.3	Design biasing circuits using diodes and transistors	5
C231.4	Analyze and design diode application circuits amplifier circuits	4
C231.5	Analyze and design oscillators employing BJT, FET devices	4

MAPPING

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
C231.1	3	3	3	2	2	1	2	1	1	1	3	3	3	3	1
C231.2	3	3	3	2	1	1	1	1	1	1	2	3	2	3	1
C231.3	3	2	3	3	1	2	1	2	2	1	2	2	3	3	1
C231.4	3	2	3	3	1	1	1	1	1	2	3	3	2	3	1
C231.5	3	3	3	3	2	1	1	1	1	1	3	3	3	3	1
Average	3	2.6	3	2.6	1.4	1.2	1.2	1.2	1.2	1.2	2.6	2.8	2.6	3	1



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Department of Electronics and Communication Engineering

II B.Tech I Semester

SUBJECT: NETWORK ANALYSIS AND TRANSMISSION LINES (C232)

Upon successful completion of the course, students will be able to

S.NO	COURSE OUTCOMES	BT Level
C232.1	Gain the knowledge on basic RLC circuit behavior.	1
C232.2	Analyze the Steady state and transient analysis of RLC Circuits.	4
C232.3	Know the characteristics of two port network parameters.	1
C232.4	Understand the transmission line parameters and configurations.	2
C232.5	Analyze the transmission line parameters and configurations.	4

MAPPING

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
C232.1	3	3	2	1	-	-	-	-	-	-	-	1	3	1	-
C232.2	3	3	3	2	1	1	1	1	1	-	1	-	3	2	1
C232.3	3	2	2	1	-	-	-	-	1	1	-	-	3	1	-
C232.4	3	2	2	1	-	-	-	-	-	1	-	1	3	1	-
C232.5	3	3	3	2	1	1	1	1	1	1	1	-	3	2	1
Average	3	2.6	2.4	1.4	1	1	1	1	1	1	1	1	3	1.4	1



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Department of Electronics and Communication Engineering

II B.Tech I Semester

SUBJECT: DIGITAL SYSTEM DESIGN (C233)

Upon successful completion of the course, students will be able to

SNO	COURSE OUTCOMES	BT Level
C233.1	Understand the numerical information in different forms and Boolean Algebra theorems	2
C233.2	Postulates of Boolean algebra and to minimize combinational functions	2
C233.3	Design and analyze combinational circuits	5
C233.4	Design and analyze sequential circuits	5
C233.5	Known about the logic families and realization of logic gates.	1

MAPPING

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
C233.1	3	2	2	1	1	-	-	-	1	1	-	1	3	2	-
C233.2	3	3	2	1	1	-	-	-	1	1	-	1	3	2	-
C233.3	3	3	3	2	2	1	1	1	2	2	1	1	3	3	1
C233.4	3	3	3	2	2	1	1	1	2	2	1	1	3	3	1
C233.5	3	2	2	1	1	-	-	-	1	1	-	1	3	2	-
Average	3	2.6	2.4	1.4	1.4	1	1	1	1.4	1.4	1	1	3	2.4	1



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II B.Tech I Semester

SUBJECT: SIGNALS AND SYSTEMS (C234)

After going through this course the student will

SNO	COURSE OUTCOMES	BT Level
C234.1	Formulate a given arbitrary signal in terms of complete set of orthogonal functions.	5
C234.2	Express periodic signals in terms of Fourier series.	2
C234.3	Extrapolate the filter characteristics of a system.	4
C234.4	Evaluate a system response using Laplace transform properties.	6
C234.5	Establish the relation between Fourier and Laplace transforms.	5

MAPPING

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
C234.1	3	3	2	3	1	1	1	-	-	1	-	-	2	2	1
C234.2	3	1	2	3	1	1	-	-	-	1	1	1	2	2	1
C234.3	2	3	3	2	1	2	-	-	1	1	1	1	3	1	-
C234.4	2	2	3	2	2	1	-	1	-	2	-	-	2	1	-
C234.5	3	2	3	3	2	1	-	-	-	2	1	-	3	1	1
Average	2.6	2.2	2.6	2.6	1.4	1.2	1	1	1	1.4	1	1	2.4	1.4	1



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II B.Tech I Semester

SUBJECT: PROBABILITY THEORY AND STOCHASTIC PROCESSES (C235)

After going through this course the student will be able to

SNO	COURSE OUTCOMES	BT Level
C235.1	Understand the concepts of Random Process and its Characteristics.	2
C235.2	Understand the response of linear time Invariant system for a Random Processes.	2
C235.3	Determine the temporal characteristics of Random Signals.	3
C235.4	Determine the Spectral characteristics of Random Signals.	3
C235.5	Understand the concepts of Noise in Communication systems.	2

MAPPING

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
C235.1	3	2	2	1	-	-	-	-	-	-	-	-	2	1	-
C235.2	3	2	2	1	-	-	-	-	-	-	-	-	2	1	-
C235.3	3	2	2	2	2	1	1	1	1	1	1	-	3	2	1
C235.4	3	2	2	2	2	1	1	1	1	1	1	-	3	2	1
C235.5	3	2	2	1	-	1	-	-	-	1	-	1	2	2	-
Average	3	2	2	1.4	2	1	2.4	1.6	1						



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II B.Tech I Semester

SUBJECT: ELECTRONIC DEVICES & CIRCUITS LABORATORY (C236)

After going through this course the student will

SNO	Course Outcomes	BT Level
C236.1	Apply the concepts and analytical principles to analyze electronic (diodes, transistors, op-amps) circuits.	1
C236.2	Understand the operation of op-amps, diodes and transistors in order to build circuits.	1
C236.3	Conduct experiments involving electric and electronic components and to analyze and interpret the measurements results.	1
C236.4	Design, construct and characterize electric and electronic circuits according to specification.	5
C236.5	Quantify their ability to communicate effectively through weekly written reports and lab notebooks.	4

MAPPING

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
C236.1	3	2	3	3	2	1	1	1	1	2	2	3	3	3	1
C236.2	3	2	3	2	1	2	1	1	1	1	2	2	3	2	1
C236.3	2	3	3	3	1	1	2	1	1	1	3	3	2	2	1
C236.4	2	3	3	3	2	1	1	1	1	1	3	3	2	3	1
C236.5	3	3	3	2	2	1	1	1	2	1	3	2	3	3	1
Average	2.6	2.6	3	2.6	1.6	1.2	1.2	1	1.2	1.2	2.6	2.6	2.6	2.6	1



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SUBJECT: DIGITAL SYSTEM DESIGN LABORATORY (C237)

After going through this course the student will

SNO	Course Outcomes	BT Level
C237.1	Understand the pin description of digital IC's	1
C237.2	Implement Arithmetic logic circuits using digital IC's.	3
C237.3	Implement combinational circuits using digital IC's.	3
C237.4	Apply concept of universal logic gates for digital circuit designing.	3
C237.5	Examine the behavior of sequential circuits using digital IC's.	4

MAPPING

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
C237.1	2	2	-	2	-	2	-	-	3	3	-	1	2	2	-
C237.2	2	2	2	2	1	2	1	-	3	3	-	1	2	2	1
C237.3	2	2	2	2	-	2	1	-	3	3	-	1	2	2	1
C237.4	2	2	2	2	-	2	-	1	3	3	-	1	2	2	-
C237.5	2	2	2	2	1	2	-	-	3	3	1	1	2	2	-
Average	2	2	2	2	1	2	1	1	3	3	1	1	2	2	1



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SUBJECT: BASIC SIMULATION LABORATORY (C238)

After going through this course the student will

SNO	COURSE OUTCOMES	BT Level
C238.1	Understand the basic operation on Matrices.	1
C238.2	Analyze the generation of various signals and sequences such as unit impulse, unit step, square, saw tooth, Triangular, sinusoidal, Ramp, Sinc.	4
C238.3	Understand convolution between signals and sequences.	1
C238.4	Calculate the Even and Odd parts of signal/sequences and Real and Imaginary parts of signal	4
C238.5	Understand autocorrelation and cross correlation between signals and sequences .	1

MAPPING

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
C238.1	3	1	3	3	1	1	-	-	1	2	2	3	1	2	1
C238.2	3	3	3	3	2	1	-	1	-	2	2	3	2	1	1
C238.3	2	2	3	2	2	1	1	-	-	2	2	2	2	1	1
C238.4	2	2	3	2	2	1	-	-	-	2	1	2	2	2	-
C238.5	3	2	3	3	2	1	-	-	-	1	2	3	2	2	1
Average	2.6	2	3	2.6	1.8	1	1	1	1	1.8	1.8	2.6	1.8	1.6	1



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II B.Tech I Semester

SUBJECT: CONSTITUTION OF INDIA (C239)

After going through this course the student will

SNO	COURSE OUTCOMES	BT Level
C239.1	Understand the emergence and evolution of Indian Constitution	2
C239.2	Understand the structure and composition of Indian Constitution	2
C239.3	Analyze Panchayathi Raj institutions as a medium of decentralization	4
C239.4	Understand and Evaluate the Indian Political scenario amidst the emerging challenges.	2
C239.5	Evaluate Indian foreign relations under cold war and post cold war era.	5

MAPPING

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
C239.1	-	-	-	-	-	1	1	1	-	-	-	1	-	-	1
C239.2	-	-	-	-	-	1	1	1	-	-	-	1	-	-	1
C239.3	-	-	-	-	-	1	1	2	1	1	-	1	-	-	2
C239.4	-	-	-	-	-	1	1	1	-	-	-	1	-	-	1
C239.5	-	-	-	-	-	1	1	2	-	1	-	1	-	-	2
Average	-	-	-	-	-	1	1	1.4	1	1	-	1	-	-	1.4



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Department of Electronics and Communication Engineering

II B.Tech II Semester

SUBJECT: LAPLACE TRANSFORMS NUMERICAL METHODS & COMPLEX VARIABLES (C240)

After learning the contents of this paper the student must be able to

SNO	COURSE OUTCOMES	BT Level
C240.1	Use the Laplace transforms techniques for solving ODE's	3
C240.2	Find the root of a given equation.	4
C240.3	Estimate the value for the given data using interpolation	2
C240.4	Analyze the complex function with reference to their analyticity, integration using Cauchy's integral and residue theorems.	4
C240.5	Understand Taylor's and Laurent's series expansions of complex Function	2

MAPPING

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
C240.1	3	3	2	2	1	-	-	-	1	-	-	1	3	1	-
C240.2	3	3	2	2	1	-	-	-	1	-	-	-	3	1	-
C240.3	3	3	2	2	1	-	-	-	1	-	-	-	3	1	-
C240.4	3	3	2	2	2	1	1	1	2	1	1	-	3	2	1
C240.5	3	3	2	2	1	-	-	-	1	-	-	-	3	1	-
Average	3	3	2	2	1.2	1	1	1	1.2	1	1	1	3	1.2	1



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II B.Tech II Semester

SUBJECT: ELECTROMAGNETIC FIELDS AND WAVES (C241)

After learning the contents of this paper the student must be able to

SNO	COURSE OUTCOMES	BT Level
C241.1	Get the knowledge of Basic Laws, Concepts and proofs related to Electrostatic Fields.	1
C241.2	Get the knowledge of Basic Laws, Concepts and proofs related to Magnetostatic Fields.	1
C241.3	Distinguish between the static and time-varying fields, establish the corresponding sets of Maxwell's Equations and Boundary Conditions.	2
C241.4	Analyze the Wave Equations for good conductors, good dielectrics and evaluate the UPW Characteristics for several practical media of interest.	4
C241.5	Analyze completely the rectangular waveguides, their mode characteristics, and design waveguides for solving practical problems.	4

MAPPING

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
C241.1	3	3	2	1	1	-	1	-	-	1	-	-	3	1	-
C241.2	3	3	2	1	1	-	2	-	-	1	-	-	3	1	-
C241.3	3	3	2	1	1	-	1	-	-	1	-	-	3	1	-
C241.4	3	3	3	2	2	1	2	1	1	2	1	1	3	2	1
C241.5	3	3	3	2	2	1	2	1	1	2	1	-	3	2	1
Average	3	3	2.4	1.4	1.4	1	1.6	1	1	1.4	1	1	3	1.4	1



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II B.Tech II Semester

SUBJECT: ANALOG AND DIGITAL COMMUNICATIONS (C242)

After going through this course the student will be able to

SNO	COURSE OUTCOMES	BT Level
C242.1	Analyze and design of various continuous wave and amplitude modulation and demodulation techniques	4
C242.2	Understand the effect of noise present in continuous wave and angle modulation techniques.	2
C242.3	Attain the knowledge about AM , FM Transmitters and Receivers	1
C242.4	Analyze and design the various Pulse Modulation Techniques.	4
C242.5	Understand the concepts of Digital Modulation Techniques and Baseband transmission.	2

MAPPING

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
C242.1	3	3	3	2	1	1	1	1	1	1	1	1	3	2	1
C242.2	3	3	2	1	-	-	1	-	-	-	-	-	3	1	-
C242.3	3	3	2	1	-	-	1	-	-	-	-	-	3	1	-
C242.4	3	3	3	2	1	1	1	1	1	1	1	1	3	2	1
C242.5	3	3	2	1	-	-	-	-	-	-	-	-	3	1	-
Average	3	3	2.4	1.4	1	3	1.4	1							



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SUBJECT: LINEAR IC APPLICATIONS (C243)

After going through this course the student will

SNO	COURSE OUTCOMES	BT Level
C243.1	Understand and analyze the IC 741 operational amplifier and its characteristics.	2
C243.2	Design the solution for linear & non-linear applications using IC741	5
C243.3	Elucidate and design the active filters and oscillators.	5
C243.4	Attain the knowledge of functional diagrams and applications of IC 555 and IC 565	1
C243.5	Acquire the knowledge about the Data converters.	1

MAPPING

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
C243.1	2	3	3	2	-	-	-	-	-	-	-	-	3	2	-
C243.2	3	3	3	3	1	1	1	1	1	1	1	1	3	3	1
C243.3	3	3	3	3	1	1	1	1	1	1	1	1	3	3	1
C243.4	2	3	3	3	-	-	-	-	-	-	-	-	3	2	-
C243.5	2	3	1	1	-	-	-	-	-	1	-	-	3	2	-
Average	2.4	3	2.6	2.4	1	3	2.4	1							



Department of Electronics and Communication Engineering

II B.Tech II Semester

SUBJECT: ELECTRONIC CIRCUIT ANALYSIS (C244)

After going through this course the student will be able to

SNO	COURSE OUTCOMES	BT Level
C244.1	Design and analysis of the DC bias circuitry of BJT	5
C244.2	Design and analysis of the DC bias circuitry of FET	5
C244.3	Analyze the different types of the amplifiers, operation and its characteristics	4
C244.4	Design circuit like amplifiers.	5
C244.5	Design circuit like oscillators using the transistors, diodes	5

MAPPING

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
C244.1	3	2	3	3	2	1	-	-	2	1	3	3	2	3	1
C244.2	3	2	3	3	1	1	-	-	1	1	2	3	2	3	-
C244.3	2	3	3	3	1	1	-	-	2	1	3	3	3	2	1
C244.4	2	3	3	2	1	1	1	-	2	1	3	3	3	2	1
C244.5	3	3	3	3	2	1	-	1	2	1	3	3	3	3	1
Average	2.6	2.6	3	2.8	1.4	1	1	1	1.8	1	2.8	3	2.6	2.6	1



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II B.Tech II Semester

SUBJECT: ANALOG AND DIGITAL COMMUNICATIONS LAB (C245)

After going through this course the student will

SNO	COURSE OUTCOMES	BT Level
C245.1	Demonstrate generation and detection of analog and digital modulation techniques.	1
C245.2	Explain sampling, PCM, delta modulation, adaptive delta modulation and superheterodyne receiver.	2
C245.3	Compare the different analog and digital modulation techniques.	4
C245.4	Distinguish various line coding schemes used for digital data transmission.	4
C245.5	Apply time division multiplexing concepts in different pulse modulation techniques.	3

MAPPING

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
C245.1	3	3	1	3	1	-	-	-	2	3	1	3	3	3	-
C245.2	3	3	1	3	1	-	-	-	2	3	1	3	3	3	-
C245.3	3	3	1	3	-	1	-	-	2	3	-	3	3	3	-
C245.4	3	3	1	3	-	-	1	-	2	3	-	3	3	3	-
C245.5	3	3	1	3	-	-	-	1	2	3	1	3	3	3	1
Average	3	3	1	3	1	1	1	1	2	3	1	3	3	3	1



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Department of Electronics and Communication Engineering

II B.Tech II Semester

SUBJECT: IC APPLICATIONS LAB (C246)

After going through this course the student will be able to

SNO	COURSE OUTCOMES	BT Level
C246.1	Understand the basics of Op-Amp and implement the linear applications of 741 IC	1
C246.2	Design the first order filters and generate different types of input signals using 741 IC	5
C246.3	Design the multivibrator circuits using IC555 and determine the frequency of oscillation	5
C246.4	Determine the Hysteresis voltage of Schmitt trigger using 741 Op-Amp	4
C246.5	Construct and analyze voltage regulator circuits	5

MAPPING

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
C246.1	3	2	3	3	3	3	1	-	3	3	2	3	3	3	1
C246.2	3	3	2	3	2	1	1	-	2	1	2	3	2	3	1
C246.3	3	3	3	3	2	1	1	-	2	1	2	3	3	3	1
C246.4	2	3	3	3	2	1	2	1	2	1	2	2	2	2	2
C246.5	3	3	3	3	2	1	1	-	2	1	2	3	3	3	1
Average	2.8	2.8	2.8	3	2.2	1.4	1.2	1	2.2	1.4	2	2.8	2.6	2.8	1.2



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Department of Electronics and Communication Engineering

II B.Tech II Semester

SUBJECT: ELECTRONIC CIRCUIT ANALYSIS LAB (C247)

After going through this course the student will

SNO	COURSE OUTCOMES	BT Level
C247.1	Design common emitter amplifier, two stage RC coupled amplifier and simulate in simulation laboratory using Multi-Sim software	5
C247.2	Design feedback amplifiers and simulate in simulation laboratory using Multi-Sim software	5
C247.3	Design phase shift oscillators and simulate it in simulation laboratory using Multi-Sim software	5
C247.4	Design class A, class B complimentary symmetry amplifier and simulate in simulation laboratory using Multi-Sim software	5
C247.5	Quantify their ability to communicate effectively through weekly written reports and lab notebooks.	4

MAPPING

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
C247.1	2	3	3	3	2	1	1	1	2	1	1	1	3	2	1
C247.2	3	3	3	2	2	1	-	1	1	1	1	-	2	3	1
C247.3	3	3	2	3	2	-	1	-	1	2	-	1	3	2	-
C247.4	3	3	3	3	2	1	1	1	1	1	1	-	2	3	1
C247.5	3	2	3	3	2	2	1	1	1	1	1	-	3	3	1
Average	2.8	2.8	2.8	2.8	2	1.25	1	1	1.2	1.2	1	1	2.6	2.6	1



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Department of Electronics and Communication Engineering

II B.Tech II Semester

SUBJECT: GENDER SENSITIZATION LAB (C230)

After going through this course students will

SNO	COURSE OUTCOMES	BT Level
C230.1	Develop a better understanding of important issues related to gender in contemporary India.	5
C230.2	Sensitized to basic dimensions of the biological, sociological, psychological and legal aspects of gender. This will be achieved through discussion of materials derived from research, facts, everyday life, literature and film.	5
C230.3	Acquire insight into the gendered division of labor and its relation to politics and economics.	3
C230.4	Men and women students and professionals will be better equipped to work and live together as equals.	3
C230.5	Develop a sense of appreciation of women in all walks of life.	5

MAPPING

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
C230.1	-	-	-	-	-	1	1	2	1	-	-	1	-	-	2
C230.2	-	-	-	-	-	2	1	2	-	1	-	1	-	1	2
C230.3	-	-	-	-	-	2	-	1	1	1	-	-	-	-	1
C230.4	-	-	-	-	-	2	1	1	1	1	-	1	-	-	2
C230.5	-	-	-	-	-	2	1	1	1	-	-	1	-	-	2
Average	-	-	-	-	-	1.8	1	1.4	1	1	-	1	-	1	1.8



Department of Electronics and Communication Engineering

III B.Tech I Semester

SUBJECT: MICROPROCESSORS AND MICROCONTROLLERS (C313)

After going through this course the student will

SNO	COURSE OUTCOMES	BT Level
C313.1	Understand the principle of operation of Intel 8086 microprocessor	1
C313.2	Execute assembly language programs on Intel 8086 including ascending order and descending order of data, string operations	3
C313.3	Integrate Intel 8086 processor with 8255, DMA controller, Intel 8259, USART to develop the microprocessor based system	5
C313.4	Develop and run program of Intel 8051 microcontroller	5
C313.5	Analyze architecture and interrupt structure of RISC microcontrollers	4

MAPPING

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
C313.1	3	3	2	2	2	1	1	-	2	1	1	1	3	2	1
C313.2	3	3	2	1	2	1	-	1	2	1	1	2	2	3	2
C313.3	2	3	2	2	1	2	1	-	1	2	-	1	3	3	1
C313.4	3	3	3	1	2	1	-	-	1	1	2	2	2	2	-
C313.5	3	2	2	2	2	1	1	-	2	2	1	-	3	1	1
Average	2.8	2.8	2.2	1.6	1.8	1.2	1	1	1.6	1.4	1.2	1.5	2.6	2.2	1.2



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Department of Electronics and Communication Engineering

III B.Tech I Semester

SUBJECT: DATA COMMUNICATIONS AND NETWORKS (C326)

After going through this course the student will

SNO	COURSE OUTCOMES	BT Level
C326.1	Understand network communication using the layered concept, Open System Interconnect (OSI) and the Internet Model.	2
C326.2	Understand various types of transmission media, network devices; and parameters of evaluation of performance for each media and device.	2
C326.3	Understand the concept of flow control, error control and LAN protocols; to explain the design of, and algorithms used in, the physical, data link layers.	2
C326.4	Understand the functions performed by a Network Management System and to analyze connection establishment and congestion control with respect to TCP Protocol.	2
C326.5	Understand the principles and operations behind various application layer protocols like HTTP, SMTP, FTP.	2

MAPPING

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
C326.1	3	2	2	2	2	3	3	2	3	3	1	3	3	3	2
C326.2	3	2	2	3	2	3	3	3	3	3	3	3	3	3	2
C326.3	3	2	3	2	2	3	3	2	3	3	2	3	3	2	2
C326.4	2	2	2	2	2	3	3	3	3	3	3	3	2	3	2
C326.5	2	2	2	2	2	3	3	3	3	3	2	3	3	2	2
Average	2.6	2	2.2	2.2	2	3	3	2.6	3	3	2.2	3	2.8	2.6	2



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Department of Electronics and Communication Engineering

III B.Tech I Semester

SUBJECT: CONTROL SYSTEMS (C301)

After going through this course students will be able to

SNO	COURSE OUTCOMES	BT Level
C301.1	Describe the feedback control	2
C301.2	Describe basic components of control systems	2
C301.3	Analyze various time domain methodologies for the design of linear control systems	4
C301.4	Analyze frequency domain methodologies for the design of linear control systems	4
C301.5	Analyze methods of stability analysis of systems from transfer function forms and able to develop the state space models for various systems	4

MAPPING

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
C301.1	3	3	3	3	3	1	1	-	2	-	2	1	2	2	1
C301.2	2	3	3	2	3	1	1	-	2	1	2	-	2	2	1
C301.3	3	2	3	2	3	1	1	-	2	1	2	1	3	2	1
C301.4	3	3	2	1	3	1	2	1	2	2	1	1	1	1	2
C301.5	3	3	3	2	3	1	1	-	2	1	2	-	2	2	1
Average	2.8	2.8	2.8	2	3	1	1.2	1	2	1.25	1.8	1	2	1.8	1.2



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Department of Electronics and Communication Engineering

III B.Tech I Semester

SUBJECT: BUSINESS ECONOMICS AND FINANCIAL ECONOMICS (C327)

After going through this course the student will be able to

SNO	COURSE OUTCOMES	BT Level
C327.1	Understand the various Forms of Business and the impact of economic variables on the Business.	2
C327.2	Analyse the Demand and Supply requirements of the firm,	4
C327.3	Understand Production, Cost, Market Structure, Pricing aspects.	2
C327.4	Interpret the firm's financial position of a Company.	3
C327.5	Analyze the Financial Statements of a Company.	4

MAPPING

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PS O1	PS O2	PS O3
C327.1	-	-	-	-	2	1	1	2	2	-	2	-	-	-	3
C327.2	1	-	1	1	2	1	1	2	2	1	2	1	1	1	3
C327.3	1	1	1	1	2	2	1	2	2	-	2	1	-	-	3
C327.4	-	1	1	1	2	1	1	2	2	1	2	1	1	1	3
C327.5	1	1	1	1	2	1	1	2	2	1	2	1	1	1	3
Average	1	1	1	1	2	1.2	1	2	2	1	2	1	1	1	3



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Department of Electronics and Communication Engineering

III B.Tech I Semester

SUBJECT: COMPUTER ORGANISATION AND OPERATING SYSTEMS (C302)

After going through this course students will

SNO	COURSE OUTCOMES	BT Level
C302.1	Understand the basic structure of a digital computer	1
C302.2	Perform arithmetic operations of binary number systems	3
C302.3	Understand organization of the control unit, ALU, memory unit and I/O unit.	1
C302.4	Discuss operating system functions, types, system calls and its interface.	2
C302.5	Discuss about memory management techniques and deadlock avoidance.	2

MAPPING

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
C302.1	3	3	2	2	2	1	2	1	3	3	1	1	1	2	1
C302.2	2	2	2	2	2	1	1	1	2	2	2	2	1	2	1
C302.3	2	3	2	2	2	1	1	1	2	2	1	2	1	2	-
C302.4	1	3	1	2	1	2	-	1	2	1	-	-	3	1	1
C302.5	2	3	2	2	2	1	1	1	2	2	2	-	1	2	1
Average	2	2.8	1.8	2	1.8	1.2	1.25	1	2.2	2	1.5	1.67	1.4	1.8	1



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Department of Electronics and Communication Engineering

III B.Tech II Semester

SUBJECT: MICROPROCESSORS AND MICROCONTROLLERS LAB (C315)

After going through this course the student will

SNO	COURSE OUTCOMES	BT Level
C315.1	Demonstrate MASM assembler programming.	3
C315.2	Develop an ALP in 8086 and its interfacing circuits.	5
C315.3	Develop an ALP in 8051 for parallel ports and timers	5
C315.4	Develop an ability in designing a microprocessor and microcontroller systems	5
C315.5	Apply standard test and measurement equipment to evaluate digital interfaces.	3

MAPPING

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
C315.1	3	3	2	2	2	1	1	-	2	2	-	-	3	2	1
C315.2	3	3	2	2	2	1	-	-	2	1	1	-	2	3	2
C315.3	2	3	2	2	2	2	1	-	1	2	1	1	3	3	2
C315.4	3	3	3	2	2	1	-	-	1	1	-	1	2	2	2
C315.5	3	2	2	2	2	1	1	1	2	2	-	-	3	1	1
Average	2.8	2.8	2.2	2	2	1.2	1	1	1.6	1.6	1	1	2.6	2.2	1.6



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Department of Electronics and Communication Engineering

III B.Tech I Semester

SUBJECT: DATA COMMUNICATIONS AND NETWORKS LAB (C328)

After going through this course the student will

SNO	COURSE OUTCOMES	BT Level
C328.1	Understand fundamental underlying principles of computer networking	2
C328.2	Apply mathematical foundations to solve computational problems in computer networking	3
C328.3	Analyze performance of various communication protocols.	4
C328.4	Compare routing algorithms	4
C328.5	Practice packet /file transmission between nodes.	3

MAPPING

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
C328.1	2	1	1	-	-	-	-	-	-	-	-	1	2	2	-
C328.2	2	2	2	3	1	-	-	1	1	-	2	-	2	2	-
C328.3	1	2	3	3	1	-	1	-	1	2	2	1	2	2	1
C328.4	2	1	2	1	1	1	-	-	-	-	1	-	2	1	-
C328.5	1	1	2	2	1	1	-	-	1	2	2	1	2	2	1
Average	1.6	1.4	2	2.2	1	1	1	1	1	2	1.75	1	2	1.8	1



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Department of Electronics and Communication Engineering

III B.Tech I Semester

SUBJECT: ADVANCED COMMUNICATIONS SKILLS LABORATORY (C325)

After going through this course the student

S.NO	COURSE OUTCOMES	BT Level
C325.1	Develop their LSRW skills	5
C325.2	Overcome their Mother tongue influence	2
C325.3	Express/interpret their views without hesitation	2
C325.4	Lose their stage fear and develop self-confidence	2
C325.5	Be able to reach corporate expectations	2

MAPPING

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
C325.1	1	1	1	-	2	3	3	2	2	2	1	3	-	1	1
C325.2	1	-	1	1	2	1	3	1	2	3	1	3	-	-	1
C325.3	-	-	1	-	2	3	3	2	2	3	1	3	1	-	1
C325.4	1	-	2	-	1	3	3	2	2	3	1	2	-	-	1
C325.5	1	-	1	-	2	3	2	2	2	3	1	3	-	-	2
Average	1	1	1.2	1	1.8	2.6	2.8	1.8	2	2.8	1	2.8	1	1	1.2



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Department of Electronics and Communication Engineering

III B.Tech I Semester

SUBJECT: INTELLECTUAL PROPERTY RIGHTS (C329)

After going through this course the student will

SNO	COURSE OUTCOMES	BT Level
C329.1	Discuss the fundamental aspects of Intellectual property Rights which play a major role in development and management of innovative projects in industries.	2
C329.2	Examine Trademarks, Acquisition of Trade Mark Rights and its registration processes.	4
C329.3	Evaluate various aspects relating to copyrights and its procedure for registration processes.	6
C329.4	Evaluate with the Trade Secret Law, protection for submission, Unfair Competition	6
C329.5	Interpret about current trends in IPR and the steps taken by the Government of India in fostering IPR	3

MAPPING

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
C329.1	-	-	-	-	-	-	-	3	1	-	-	1	-	-	2
C329.2	-	-	-	-	-	-	-	3	1	1	1	-	-	-	2
C329.3	-	-	-	-	1	-	-	3	1	1	1	-	-	-	2
C329.4	-	-	-	-	1	-	-	3	1	1	1	-	-	-	2
C329.5	-	-	-	-	-	-	-	3	1	-	-	1	-	-	2
Average	-	-	-	-	1	-	-	3	1	1	1	1	-	-	2



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Department of Electronics and Communication Engineering

III B.Tech I Semester

SUBJECT: CYBER SECURITY (C334)

After going through this course the student will

SNO	COURSE OUTCOMES	BT Level
C334.1	Demonstrate on vulnerability scanning	
C334.2	Recognize various network defence tools	
C334.3	Interpret on web application tools	
C334.4	Inspect on various cyber crimes and its associated cyber laws	
C334.5	Examine various cyber crime investigation methods	

MAPPING

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
C334.1	3	2	3	2	3	-	3	3	-	-	-	2	3	2	3
C334.2	3	2	3	2	3	-	3	3	-	-	-	2	3	2	3
C334.3	3	2	3	2	3	-	3	3	-	-	-	2	3	2	3
C334.4	-	-	3	2	2	3	3	3	-	-	-	2	-	2	3
C334.5	-	-	3	2	3	3	3	3	-	-	-	2	-	2	3
Average	3	2	3	2	2.8	3	3	3	-	-	-	2	3	2	3



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Department of Electronics and Communication Engineering

III B.Tech II Semester

SUBJECT: ANTENNAS & PROPAGATION (C303)

After going through this course student will be able

SNO	COURSE OUTCOMES	BT Level
C303.1	Understand the parameter consideration viz antenna efficiency, beam efficiency etc.	1
C303.2	Design antenna and field evaluation under various conditions	5
C303.3	Understand the array system of the different antennas , will gain knowledge of about means of propagation of EM WAVES i.e., free space propagation	1
C303.4	Understand the design issues, operations of fundamental antennas like yagi-uda, horn antenna etc..	1
C303.5	Design a lens structure and also the bench setup for antenna parameter measurements	5

MAPPING

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
C303.1	3	2	3	3	3	3	3	1	2	3	2	3	3	3	2
C303.2	2	2	3	3	2	2	2	1	2	3	2	2	2	2	1
C303.3	3	3	3	3	2	1	2	1	2	1	2	2	3	2	1
C303.4	3	3	3	3	2	2	1	1	2	3	2	1	3	2	1
C303.5	3	3	3	3	2	2	2	1	2	3	2	2	3	2	1
Average	2.8	2.6	3	3	2.2	2	2	1	2	2.6	2	2	2.8	2.2	1.2



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Department of Electronics and Communication Engineering

III B.Tech II Semester

SUBJECT: DIGITAL SIGNAL PROCESSING (C314)

After going through this course the

SNO	COURSE OUTCOMES	BT Level
C314.1	Students will be able to understand LTI system characteristics and Multirate signal processing.	2
C314.2	Students will be able to represent inter-relationship between DFT and various transforms.	2
C314.3	Students will be able to design a digital IIR filter for a given specification.	5
C314.4	Students will be able to design a digital FIR filter for a given specification.	5
C314.5	Students will be able to acknowledge the significance of various filter structures and effects of round off errors.	3

MAPPING

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
C314.1	3	2	3	3	2	1	-	-	-	2	2	3	3	3	1
C314.2	3	2	3	3	2	1	-	-	-	2	2	3	2	3	1
C314.3	1	3	3	2	2	1	1	-	-	3	2	3	3	1	1
C314.4	3	2	3	3	2	1	-	-	1	2	2	3	3	3	1
C314.5	3	2	3	3	2	1	-	1	-	2	2	3	3	3	1
Average	3	2	3	3	2	1	1	1	1	2	2	3	3	3	1



Department of Electronics and Communication Engineering

III B.Tech II Semester

SUBJECT: VLSI DESIGN (C312)

After going through this course students will be able to

SNO	COURSE OUTCOMES	BT Level
C312.1	Understand operation of a MOS transistor	1
C312.2	Understand down to physical level and relate the knowledge to the development of its operational equations	1
C312.3	Analyze and implement various logic gates and circuits, using MOS Transistors	4
C312.4	Design circuit components and verify their performance using simulation tools	5
C312.5	Design static CMOS Combinational circuits	5

MAPPING

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
C312.1	3	2	3	2	2	1	1	-	1	2	2	1	1	1	1
C312.2	3	3	3	2	2	1	1	-	1	1	-	1	1	1	1
C312.3	1	2	2	3	2	3	2	1	-	1	1	-	-	2	3
C312.4	3	3	3	2	2	1	1	-	1	1	-	-	1	1	1
C312.5	3	3	3	2	2	1	1	-	1	1	2	1	1	1	1
Average	2.6	2.6	2.8	2.2	2	1.4	1.2	1	1	1.2	1.67	1	1	1.2	1.4



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Department of Electronics and Communication Engineering

III B.Tech II Semester

SUBJECT: EMBEDDED SYSTEM DESIGN (C330)

After going through this course the student will

SNO	COURSE OUTCOMES	BT Level
C330.1	Identify the hardware and software components of an embedded system	2
C330.2	Choose appropriate embedded system architecture for the given application	6
C330.3	Modify programs for optimized performance of an embedded system and validate	5
C330.4	Describe the basics of OS and RTOS	2
C330.5	Understand embedded firmware design approach	1

MAPPING

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
C330.1	1	2	-	-	1	-	-	-	-	-	-	-	2	1	1
C330.2	-	3	-	-	-	-	-	-	1	-	-	2	1	2	-
C330.3	1	3	3	2	1	-	1	1	1	1	1	1	2	1	1
C330.4	1	3	3	2	-	-	-	-	-	-	-	1	1	1	-
C330.5	1	2	-	-	-	1	-	-	-	-	-	-	1	1	-
Average	1	2.6	3	2	1	1	1	1	1	1	1	1.33	1.4	1.2	1



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Department of Electronics and Communication Engineering

III B.Tech II Semester

SUBJECT: NON-CONVENTIONAL ENERGY SOURCES (C331)

After going through this course the student will

SNO	COURSE OUTCOMES	BT Level
C331.1	Identify renewable energy sources and their utilization.	2
C331.2	Understand the basic concepts of solar radiation and analyze the working of solar and thermal systems.	2
C331.3	Understand principles of energy conversion from alternate sources including wind, geothermal, ocean, biomass, biogas and hydrogen.	2
C331.4	Understand the concepts and applications of fuel cells, thermoelectric convertor and MHD generator.	2
C331.5	Identify methods of energy storage for specific applications	2

MAPPING

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
C331.1	1	1	1	1	-	-	2	1	1	1	-	1	2	2	1
C331.2	2	1	1	-	1	1	2	-	-	-	-	-	2	1	-
C331.3	2	1	1	-	1	1	2	-	-	-	-	-	2	1	-
C331.4	2	1	1	-	1	1	2	-	-	-	-	-	2	1	-
C331.5	1	1	1	1	-	-	2	-	1	1	1	1	2	2	1
Average	1.6	1	1	1	1	1	2	1	1	1	1	1	2	1.4	1



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Department of Electronics and Communication Engineering

III B.Tech I Semester

SUBJECT: FUNDAMENTALS OF MANAGEMENT FOR ENGINEERS (C318)

After going through this course the student will

SNO	COURSE OUTCOMES	BT Level
C318.1	Describe the fundamentals of management and the various theories of management	2
C318.2	Apply the functions of management and practice in real world.	3
C318.3	Understand the functional areas of management-Marketing, Finance, HRM and Operations Management.	1
C318.4	Solve decision making problems and project management problems	3
C318.5	Resolve the budget issues.	4

MAPPING

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
C318.1	-	-	1	-	-	1	-	2	2	1	-	1	1	1	2
C318.2	-	1	1	1	-	1	1	2	2	-	-	1	1	1	2
C318.3	-	-	1	1	-	-	-	1	1	-	-	2	1	-	2
C318.4	-	1	-	1	-	1	-	1	-	-	-	2	-	1	1
C318.5	-	1	1	1	-	1	-	1	-	-	-	2	1	1	2
Average	-	1	1	1	-	1	1	1.4	1.67	1	-	1.6	1	1	1.8



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Department of Electronics and Communication Engineering

III B.Tech II Semester

SUBJECT: DIGITAL SIGNAL PROCESSING LAB (C316)

After going through this course the student will

SNO	COURSE OUTCOMES	BT Level
C316.1	Develop and Implement DSP algorithms in software using a computer language such as C with TMS320C6713 floating point Processor.	5
C316.2	Develop various DSP Algorithms using MATLAB Software package.	5
C316.3	Analyze and Observe Magnitude and phase characteristics (Frequency response Characteristics) of digital IIR-Butterworth, Chebyshev filters.	4
C316.4	Analyze and Observe Magnitude and phase characteristics (Frequency response Characteristics) of digital FIR filters using window techniques.	4
C316.5	Design and Analyze Digital Filters using FDA Tool.	5

MAPPING

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
C316.1	3	2	3	3	2	1	-	-	-	2	2	3	3	3	1
C316.2	3	2	3	3	2	1	-	-	-	2	2	3	2	3	1
C316.3	1	3	2	2	1	-	1	-	-	3	1	3	3	1	-
C316.4	3	2	3	3	2	1	-	-	1	2	2	3	3	3	1
C316.5	3	2	3	3	2	1	-	1	-	2	2	3	3	3	1
Average	2.6	2.2	2.8	2.8	1.8	1	1	1	1	2.2	1.8	3	2.8	2.6	1



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Department of Electronics and Communication Engineering

III B.Tech II Semester

SUBJECT: E – CAD LAB (C335)

After going through this course the student will

SNO	COURSE OUTCOMES	BT Level
C335.1	Understand the physical design process of Digital Integrated Circuits.	2
C335.2	Describe procedure for designing of programmable circuits.	2
C335.3	Demonstrate the ability to use various EDA tools for digital system design	3
C335.4	Implement various combinational and sequential circuits using VHDL on FPGA.	3
C335.5	Implement schematic and layout of various digital CMOS logic circuits using EDA tools.	3

MAPPING

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
C335.1	2	3	1	2	2	-	-	-	-	3	-	3	3	2	-
C335.2	2	3	2	2	2	-	-	-	-	3	-	3	3	2	-
C335.3	2	3	2	3	3	-	-	-	-	3	-	3	3	2	-
C335.4	2	3	2	3	3	1	1	1	1	3	2	3	3	2	1
C335.5	2	3	2	3	3	1	1	1	1	3	2	3	3	2	1
Average	2	3	2	3	3	1	1	1	1	3	2	3	3	2	1



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Department of Electronics and Communication Engineering

III B.Tech II Semester

SUBJECT: SCRIPTING LANGUAGES LAB (C332)

After going through this course the student will be able to

SNO	COURSE OUTCOMES	BT Level
C332.1	Outline Functional, Logic and Scripting Programming Language Concept	4
C332.2	Design and test programs to solve mathematical problems	5
C332.3	Develop programs Using Ruby Script	5
C332.4	Develop Programs Using TCL Script	5
C332.5	Develop Programs Using Perl Script	5

MAPPING

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
C332.1	2	2	3	2	1	2	1	-	1	-	2	1	2	2	1
C332.2	3	3	3	2	1	2	-	-	1	-	2	1	2	3	1
C332.3	2	3	3	2	2	1	-	1	2	1	3	1	2	3	2
C332.4	2	3	3	2	2	1	-	1	2	1	3	1	2	3	2
C332.5	2	3	3	2	2	1	-	1	2	1	3	1	2	3	2
Average	2.2	2.8	3	2	1.6	1.4	1	1	1.6	1	2.6	1	2	2.8	1.6



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Department of Electronics and Communication Engineering

III B.Tech II Semester

SUBJECT: ENVIRONMENTAL SCIENCE (C333)

After going through this course the engineering graduate will

SNO	COURSE OUTCOMES	BT Level
C333.1	Understand technologies on the basis of ecological principles and environmental regulations	1
C333.2	Evaluate technologies on the basis of ecological principles and environmental regulations	6
C333.3	Develop technologies on the basis of ecological principles and environmental regulations	5
C333.4	Understand the impacts of developmental activities and mitigation measures	1
C333.5	Understand the importance of ecological balance for sustainable development	1

MAPPING

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
C333.1	1	1	-	1	2	3	3	2	2	3	2	3	-	-	2
C333.2	-	1	1	1	1	3	3	2	1	3	2	3	-	-	1
C333.3	1	-	1	1	2	3	2	1	2	3	2	3	1	1	2
C333.4	1	1	1	1	2	2	3	2	2	2	1	2	-	-	2
C333.5	1	1	1	2	2	2	3	2	2	3	2	2	-	-	2
Average	1	1	1	1.2	1.8	2.6	2.8	1.8	1.8	2.8	1.8	2.6	1	1	1.8



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Department of Electronics and Communication Engineering

III B.Tech II Semester

SUBJECT: ARTIFICIAL INTELLIGENCE (C336)

Upon successful completion of this course, the student shall be able to

SNO	COURSE OUTCOMES	BT Level
C336.1	Demonstrate fundamental understanding of the history of artificial intelligence (AI) and its foundations.	2
C336.2	Apply basic principles of AI in solutions that require problem solving, inference, perception, knowledge representation, and learning.	2
C336.3	Demonstrate awareness and a fundamental understanding of various applications of AI techniques in intelligent agents, expert systems, artificial neural networks and other machine learning models.	2
C336.4	Demonstrate proficiency developing applications in an 'AI language', expert system shell, or data mining tool.	2
C336.5	Demonstrate an ability to share in discussions of AI, its current scope and limitations, and societal implications.	2

MAPPING

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
C336.1	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-
C336.2	2	1	1	1	3	1	-	1	1	1	1	1	2	1	1
C336.3	2	-	1	1	2	-	-	-	-	-	-	-	2	1	-
C336.4	2	-	-	-	2	-	-	-	-	-	-	-	2	1	-
C336.5	2	-	1	1	2	-	-	-	-	-	-	-	2	1	-
Average	2	1	1	1	2.2	1	-	1	1	1	1	1	2	1	1



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Department of Electronics and Communication Engineering

IV B.Tech I Semester

SUBJECT: MICROWAVE AND OPTICAL COMMUNICATIONS (C423)

Upon completing this course, the student will be able to

SNO	COURSE OUTCOMES	BT Level
C423.1	Understand power generation at microwave frequencies and derive the performance characteristics.	2
C423.2	Comprehend the need for solid state microwave sources and understand the principles of solid state devices.	2
C423.3	Distinguish between the different types of waveguide and ferrite components, and select proper components for engineering applications	4
C423.4	Understand the utility of S-parameters in microwave component design and learn the measurement procedure of various microwave parameters.	2
C423.5	Understand the mechanism of light propagation through Optical Fibres.	2

MAPPING

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
C423.1	3	2	2	-	-	-	1	-	-	-	-	-	3	2	-
C423.2	3	3	3	1	1	1	1	1	1	1	1	-	3	3	2
C423.3	3	2	2	-	-	-	1	-	-	-	1	-	3	2	-
C423.4	3	2	2	-	-	-	1	-	-	-	-	-	3	2	-
C423.5	3	2	2	-	-	-	-	-	-	-	-	1	3	2	-
Average	3	2.2	2.2	1	3	2.2	2								



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Department of Electronics and Communication Engineering

IV B.Tech I Semester

SUBJECT: DATABASE MANAGEMENT SYSTEMS (C425)

After going through this course the student will

SNO	COURSE OUTCOMES	BT Level
C425.1	Describe data models and schemas in DBMS	2
C425.2	Understand the features of database management systems and Relational database.	1
C425.3	Use SQL- the standard language of relational databases.	3
C425.4	Understand the functional dependencies and design of the database.	1
C425.5	Understand the concept of Transaction and Query processing.	1

MAPPING

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
C425.1	2	2	2	2	1	1	-	-	2	2	1	1	1	2	1
C425.2	2	2	1	2	2	1	-	-	1	2	2	1	1	1	1
C425.3	1	1	2	2	2	-	1	-	2	2	2	1	1	2	1
C425.4	2	2	2	1	2	1	-	-	2	1	2	1	1	2	-
C425.5	2	2	2	2	2	1	-	1	2	2	2	-	-	1	1
Average	1.8	1.8	1.8	1.8	1.8	1	1	1	1.8	1.8	1.8	1	1	1.6	1



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Department of Electronics and Communication Engineering

IV B.Tech I Semester

SUBJECT: PYTHON PROGRAMMING (C426)

After going through this course the student will

SNO	COURSE OUTCOMES	BT Level
C426.1	Examine Python syntax and semantics and be fluent in the use of Python flow control and functions.	4
C426.2	Demonstrate proficiency in handling Strings and File Systems.	2
C426.3	Create, run and manipulate Python Programs using core data structures like Lists, Dictionaries and use Regular Expressions.	5
C426.4	Interpret the concepts of Object-Oriented Programming as used in Python.	3
C426.5	Implement exemplary applications related to Network Programming, Web Services and Databases in Python.	3

MAPPING

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
C426.1	-	1	2	1	1	-	-	-	-	-	-	-	-	1	-
C426.2	-	1	2	1	-	-	-	-	-	-	-	-	-	1	-
C426.3	1	1	2	1	2	1	1	1	2	1	1	1	1	2	1
C426.4	-	1	2	1	1	-	-	-	1	-	-	-	-	1	-
C426.5	-	1	2	1	2	1	1	1	2	-	1	1	1	1	1
Average	1	1	2	1	1.5	1	1	1	1.6	1	1	1	1	1.2	1



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Department of Electronics and Communication Engineering

IV B.Tech I Semester

SUBJECT: PROFESSIONAL PRACTICE, LAW & ETHICS (C427)

After going through this course the student will

SNO	COURSE OUTCOMES	BT Level
C427.1	Inculcate moral values and become and socially responsible citizens of the society	2
C427.2	Sense of right and wrong based on the moral philosophy and spirituality of our tradition	4
C427.3	Aware of the problems of modern society and to make them understand the need for them as engineers and responsible citizens	3
C427.4	Follow professional ethics and ethical practices in their profession	2
C427.5	Sense of responsibility for the mankind and the need to practice harmonious and synergetic way of life respecting nature, environment and values	4

MAPPING

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
C427.1	-	1	2	1	-	2	2	1	1	-	-	1	1	1	2
C427.2	-	1	2	1	-	1	2	2	1	-	-	1	1	-	2
C427.3	-	1	1	1	-	2	1	2	-	-	-	1	-	1	2
C427.4	-	-	2	1	-	2	2	1	1	-	-	-	1	1	1
C427.5	-	1	2	-	-	2	1	2	-	-	-	1	1	1	2
Average	-	1	1.8	1	-	1.8	1.6	1.6	1	-	-	1	1	1	1.8



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Department of Electronics and Communication Engineering

IV B.Tech I Semester

SUBJECT: MICROWAVE AND OPTICAL COMMUNICATIONS LAB (C428)

At the end of the course the student will be able to

SNO	COURSE OUTCOMES	BT Level
C428.1	Verify characteristics of Reflex Klystron.	5
C428.2	Analyze various parameters of Waveguide Components.	4
C428.3	Estimate the power measurements of RF Components such as directional Couplers.	5
C428.4	Demonstrate characteristics of various optical sources.	3
C428.5	Measure data Rate, Numerical Aperture and Losses in Optical Link.	5

MAPPING

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
C428.1	2	2	2	2	-	-	-	-	-	-	-	-	3	2	-
C428.2	3	2	3	2	2	1	1	-	1	1	-	-	3	3	-
C428.3	3	3	3	3	2	2	-	-	1	1	1	1	3	3	1
C428.4	3	2	2	2	-	-	-	-	-	-	-	-	3	2	-
C428.5	3	3	3	2	2	1	1	1	1	2	1	-	3	3	1
Average	2.8	2.4	2.6	2.2	2	1.3	1	1	1	1.33	1	1	3	2.6	1



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Department of Electronics and Communication Engineering

IV B.Tech I Semester

SUBJECT: INDUSTRY ORIENTED MINI PROJECT (C412)

After going through this course the student will be in the position to

SNO	COURSE OUTCOMES	BT Level
C412.1	Choose short research projects in a team under the direction of members of the faculty	6
C412.2	Prepare detailed report describing the project and results.	5
C412.3	Perform fabrication work of new experimental set up/devices or develop software packages	3
C412.4	Justify the project by making an oral presentation before an evaluation committee	6

MAPPING

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
C412.1	2	2	2	-	-	-	-	-	2	-	-	-	1	1	1
C412.2	-	-	-	-	-	-	-	-	-	2	-	-	1	-	1
C412.3	1	2	2	2	1	1	1	1	-	-	1	1	-	1	1
C412.4	-	-	-	-	-	-	-	-	-	2	-	-	1	1	-
Average	1.5	2	2	2	1	1	1	1	2	2	1	1	1	1	1



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Department of Electronics and Communication Engineering

IV B.Tech I Semester

SUBJECT: SEMINAR (C413)

After going through this course the student will be in the position to

SNO	COURSE OUTCOMES	BT Level
C413.1	Study research papers for understanding of a new field, in the absence of a textbook , to summarise and review them.	1
C413.2	Identify promising new directions of various cutting edge technologies	2
C413.3	Prepare detailed report describing the project and results	5
C413.4	Justify themselves by making an oral presentation before an evaluation committee	6

MAPPING

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
C413.1	2	2	2	2	2	1	-	-	-	-	-	-	1	1	1
C413.2	2	2	2	2	2	1	-	-	-	-	-	-	1	-	1
C413.3	-	-	-	-	-	-	-	-	-	2	-	-	-	1	-
C413.4	-	-	-	-	-	-	-	-	1	2	-	-	1	1	1
Average	2	2	2	2	2	1	-	-	1	2	-	-	1	1	1



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Department of Electronics and Communication Engineering

IV B.Tech I Semester

SUBJECT: PROJECT STAGE – I (C414A)

After going through this course the student will be in the position to

SNO	COURSE OUTCOMES	BT Level
C414A.1	Demonstrate a sound technical knowledge of their selected project topic.	2
C414A.2	Undertake problem identification, formulation and solution.	2
C414A.3	Design engineering solutions to complex problems utilising a systems approach.	5
C414A.4	Communicate with engineers and the community at large in written an oral forms.	5
C414A.5	Demonstrate the knowledge, skills and attitudes of a professional engineer.	2

MAPPING

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
C414A.1	1	-	-	-	1	-	-	-	1	-	-	1	1	1	1
C414A.2	1	2	1	1	1	-	-	1	1	-	1	1	1	-	-
C414A.3	2	2	2	3	2	1	1	1	2	1	1	-	2	1	1
C414A.4	-	-	-	-	-	1	-	1	-	3	2	1	1	1	1
C414A.5	-	-	-	-	1	-	-	-	1	-	-	1	1	1	1
Average	1.3	2	1.5	2	1.2	1	1	1	1.2	2	1.3	1	1.2	1	1



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Department of Electronics and Communication Engineering

IV B.Tech II Semester

SUBJECT: RADAR SYSTEMS (C410)

After going through this course the students will be able to

SNO	COURSE OUTCOMES	BT Level
C410.1	Demonstrate the CW and FMCW Radars, MTI	3
C410.2	Evaluate radar Signals in Noise.	6
C410.3	Design of radar system with the knowledge of Radar Equation.	5
C410.4	Understand the tracking of radar, its range, phase and scanning parameters.	1
C410.5	Design of Matched filter to extract radar signals in noise.	5

MAPPING

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
C410.1	3	2	3	3	3	2	2	1	2	3	3	2	3	2	-
C410.2	3	2	3	3	3	2	2	1	2	3	3	2	3	2	1
C410.3	3	2	2	2	2	1	-	-	1	2	2	1	3	1	1
C410.4	3	3	3	3	2	1	2	1	3	2	2	1	3	1	1
C410.5	3	3	3	2	2	1	1	-	2	2	2	1	3	1	1
Average	3	2.4	2.8	2.6	2.4	1.4	1.7	1	2	2.4	2.4	1.4	3	1.4	1



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Department of Electronics and Communication Engineering

IV B.Tech II Semester

SUBJECT: SYSTEM ON CHIP ARCHITECTURE (C429)

After going through this course the student will be in the position to

SNO	COURSE OUTCOMES	BT Level
C429.1	Understand SOC Architectural features.	2
C429.2	Illustrate processor selection criteria and limitations	3
C429.3	Demonstrate memory architectures on SOC.	3
C429.4	Understands the interconnection strategies and their customization on SOC.	2
C429.5	Examine Reconfiguration Technologies	4

MAPPING

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
C429.1	1	2	1	1	-	-	1	-	-	-	1	-	1	2	-
C429.2	2	2	1	-	-	-	-	-	-	-	1	-	1	2	-
C429.3	2	2	1	-	-	-	-	-	-	-	1	-	1	2	-
C429.4	2	2	1	1	-	-	1	-	-	-	1	-	1	2	-
C429.5	1	2	1	1	1	1	1	1	1	1	2	1	2	2	1
Average	1.6	2	1	1	1	1	1	1	1	1	1.2	1	1.2	2	1



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Department of Electronics and Communication Engineering

IV B.Tech II Semester

SUBJECT: MACHINE LEARNING (C430)

After going through this course the student will be in the position to

SNO	COURSE OUTCOMES	BT Level
C430.1	Describe about basic concepts of Learning system, Learning Problems, Learning Task and mathematics behind machine learning.	2
C430.2	Explain the machine learning models and basic concepts of artificial neural network.	2
C430.3	Apply regression, classification and clustering techniques of Machine learning.	3
C430.4	Explain the concepts of Genetic algorithm and Reinforcement Learning.	2
C430.5	Develop an appreciation for what is involved in learning from data.	5

MAPPING

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
C430.1	2	2	1	1	-	-	-	-	-	-	-	-	2	2	-
C430.2	2	2	1	1	-	-	-	-	-	-	-	-	2	2	-
C430.3	2	2	1	1	1	1	-	-	1	-	-	-	2	2	1
C430.4	2	2	1	1	-	-	-	-	-	-	-	-	2	2	-
C430.5	2	2	1	1	-	-	-	-	-	-	-	-	2	2	-
Average	2	2	1	1	1	1	-	-	1	-	-	-	2	2	1

