MANAV RACHNA UNIVERSITY

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

BTech Electronics and Computer Engineering Mapping of COs with POs and PSOs

B.Tech. ECE SEMESTER 1

Courses Code	Courses	Course Outcomes	CO Statement	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
ECH101B-T/P	BASIC ELECTRICAL ENGINEERING	CO1	Evaluate electrical parameters of circuits using various theorems.	3	3	3	1	1	1	1	1	1	1	2	2	1	1
		CO2	Excite the electrical circuits and calculate various powers.	3	3	2	3	1	1	1	1	1	1	2	2	3	2
		CO3	Demonstrate the up/ down conversion of transformers.	2	2	2	3	1	1	1	1	1	1	2	2	1	3
		CO4	Explain the types of electrical equipment, machines and its applications.	3	3	3	2	1	1	1	1	1	1	2	2	2	3
		CO5	Explain the various power converters and their applications	2	2	3	1	1	1	1	1	1	1	2	2	3	2
MAH103B-T/P	MATHEMATICS – I (CALCULUS AND LINEAR ALGEBRA)	CO1	CO1 Calculate radius of curvature and Evolutes. Write the Taylor series & Maclaurin series expansion of function of single variable and apply in solving other mathematical problems. Find the maximum/minimum values of a function.	2	2	--	--	--	--	--	--	1	1	--	--	--	2
		CO2	Test the convergence of an infinite series using comparison tests, D'Alembert's ratio test, Cauchy's root test, Raabe's test, Logarithmic test, Cauchy's Integral test, convergence of an alternating series using Leibnitz test, test absolute convergence of an infinite series.	2	2	--	--	--	--	--	--	1	1	--	--	--	2
		CO3	Apply the tool Fourier series for learning advanced Engineering Mathematics.	2	2	--	--	--	--	--	--	1	1	--	--	--	2
		CO4	Determine gradient vector fields and find potential functions and evaluate line integrals directly and by the fundamental theorem, and	2	2	--	--	--	--	--	--	1	1	--	--	--	2
		CO5	Calculate rank and inverse of a matrix and solve system of linear equations using Cramer's Rule, Gauss elimination and Gauss Jordan method.	2	2	--	--	--	--	--	--	1	1	--	--	--	2
CHH144B-T/P	CHEMISTRY	CO1	Learn basics of Atomic structure, periodicity and van der Waal's forces.	2	2	--	--	--	--	2	--	--	1	--	--	--	2
		CO2	Understand the importance of thermodynamic properties of Gibbs free energy and entropy functions	2	2	--	--	--	--	2	--	--	1	--	--	--	2
		CO3	Understand the water chemistry, theories of corrosion and concepts of metallurgy through Ellingham diagram	2	2	2	--	--	2	2	--	--	1	--	--	--	2
		CO4	Understand the basics of stereochemistry and the importance of green synthesis with emphasis on its twelve principles	2	2	--	--	--	2	2	--	--	1	--	--	--	2
		CO5	Analyze the importance of spectroscopic techniques and its applications in various fields to deduce structures	2	2	--	--	--	--	2	--	--	1	--	2	--	2
CSH101B-T/P	PROGRAMMING FOR PROBLEM SOLVING USING C	CO1	Analyse and apply Test Driven Development approach to design programs.	2	2	2	--	--	--	--	--	3	2	2	2	2	2
		CO2	Understand and apply programming language constructs as per given problems	2	2	2	--	--	--	--	--	3	2	2	2	2	2
		CO3	Understand and apply C programming language constructs on opensource platform	2	2	2	--	--	--	--	--	3	2	2	2	2	2
		CO4	learn to work in a team using different online platform for program development	2	2	2	--	--	--	--	--	3	2	2	2	2	2
MEW102B	ENGINEERING GRAPHICS & DRAWING	CO1	Use the drawing instruments effectively and able to dimension the given figures	3	3	3	1	1	1	1	1	3	3	1	1	1	1
		CO2	Appreciate the usage of engineering curves in tracing the paths of simple machine components	3	3	3	1	1	1	1	1	3	3	1	1	1	1
		CO3	Understand the concept of projection and acquire visualization skills, projection of points	3	3	3	1	1	1	1	1	3	3	1	1	1	1
		CO4	Able to draw the basic views related to projections of Lines, Planes	3	3	3	1	1	1	1	1	3	3	1	1	1	1
LWS324B	INDIAN CONSTITUTION	CO1	demonstrate the knowledge and ability to analyze the basic principles of the Constitution of India;						2			2					
		CO2	understand various fundamental rights and duties given to the persons/ citizens and appreciate the basis of welfare state under the Constitution of India;						3			3					
		CO3	Evaluate the Parliamentary system, center-state relationship and local self-Government in India;						1			2					
		CO4	Analyze the prerequisites for proclamation of national emergency & amendment in Constitution of India.						1			1					
Total				53	53	35	14	9	20	19	9	42	35	22	24	22	43

B.Tech. ECE SEMESTER 2

Courses Code	Courses	Course Outcomes	CO Statement	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
PHH102B-T/P	PHYSICS FOR ENGINEERS	CO1	Students would be able to understand, explain and demonstrate about semiconductors, fermi level, various types of diodes and its applications in elctronics with problems and circuit diagram.	3	1	2				2	2	1	1	2	1	3	2
		CO2	Construction and working of cathode ray oscilloscope	3	1	2				2	2	1	1	2	1	3	2
		CO3	Construction and working of DVM, Transducers and Q meter	3	1	2				2	2	1	1	2	1	2	2
		CO4	Electromagnetic wave equation	3	1	2				2	2	1	1	2	1	2	2
MAH106B-T/P	MATHEMATICS – II (DIFFERENTIAL EQUATIONS)	CO1	Solve ordinary differential equations(ODE)	3	3	2	1	1	1	1	1	1	1	1	1	3	2
		CO2	Apply the tool of power series for learning advanced Engineering Mathematics.	3	3	2	1	1	1	1	1	1	1	1	1	3	2
		CO3	Find roots of polynomial and transcendental equations by using numerical techniques.	3	3	2	1	1	1	1	1	1	1	1	1	3	2
		CO4	Identify and compute the interpolating polynomial for equispaced and unequi spaced intervals	3	3	2	1	1	1	1	1	1	1	1	1	3	2
		C05	differentiate and integrate numerical data or function using Trapezoidal method, Simpson's 1/3rd and 3/8 rule	3	3	2	1	1	1	1	1	1	1	1	1	3	2
		C06	solve linear and non-linear partial differential equations(PDE)	3	3	2	1	1	1	1	1	1	1	1	1	3	2
		C07	solve homogenous and non-homogenous linear partial differential equations(second and higher order)	3	3	2	1	1	1	1	1	1	1	1	1	3	2
		C08	apply methods of partial differential equations for solving initial & boundary value problems	3	3	2	1	1	1	1	1	1	1	1	1	3	2
ECH102B-T/P	BASIC ELECTRONICS	CO1	CO1.Demonstrate the working principle, operation and applications of various types of diodes and special diodes.	3	3	2	1	1	1	1	1	1	1	1	2	3	2
		CO2	CO2.Differentiate and analyze the working of various transistors	3	3	2	1	1	1	1	1	1	1	1	2	3	2
		CO3	CO3. List, analyze and design various feedback amplifiers.	3	3	3	2	1	1	1	1	1	1	1	2	3	2
CSW101B	USER INTERFACE-I (HTML5,CSS,JAVASCRIPT,J QUERY)	CO1	Outline and describe the basic text style, text formatting, layout tags in HTML 5 and design web pages including text, image, embedded media, SVG Graphics and form using HTML 5	1	--	2	--	--	--	1	2	2	3	1	2	1	2
		CO2	Design websites using CSS3 and demonstrate the application of CSS3 on various parts of HTML web page document.	1	--	2	--	1	--	2	2	2	3	1	2	1	2
		CO3	Create dynamic web pages by applying JavaScript concepts to model real-world problems.	1	--	2	--	1	--	2	2	2	3	1	2	1	2
		CO4	Apply grid system and design responsive websites using BootStrap4	1	--	2	--	1	--	2	2	2	3	1	2	1	2
		CO5	Understand and use JQuery to manipulate HTML and CSS and design web pages that work without page reload using ajax.	1	--	2	--	1	--	1	2	2	3	1	2	1	2
		CO6	Apply a structured approach to identify, analyze and evaluate the needs, interests, and functionality of websites.	1	--	2	--	1	1	2	2	2	2	2	2	1	2

EDS288	APP. PHILOSOPHY	CO1	Examine the philosophical problems implicit in the experience of self, others and the society	-	-	-	-	-	-	-	2	2	-	-	2	-	-
		CO2	Explore the philosophy of influential philosophers with respect to society, Science and success in life	-	-	-	-	-	-	-	3	2	-	-	2	-	-
		CO3	Demonstrate the understnding of the concepts and theories of moral philosophy.	-	-	-	-	-	-	-	3	2	-	-	2	-	-
			Reflect philosophically and ethically on one's own personal, professional and civic lives.	-	-	-	-	-	-	-	3	2	2	-	2	-	-
		CO4	Formulate a philosophy of life or world-view consistent with the objectives of liberal society.	-	-	-	-	-	-	-	3	2	2	-	2	-	-
EDS289	APP. PSYCHOLOGY	CO1	develop critical thinking to understand the application of psychology														
		CO2	identify the impact of Stereotyping, prejudice and discrimination in formation of attitude														
		CO3	identify major attributes of Personality.							2	2	2	2	2	2	2	2
		CO4	understand social psychology and able to solve the conflicts among the group							2	3	3	2	2	2	2	2
		CO5	conceptualize group dynamics							2	2	3	3	3	2	2	2
		CO6	analyze organization psychology and able to blend in work environment.							2	2	2	2	2	3	3	3
EDS290	APP. SOCIOLOGY	CO1	analyze the social cultural dynamics that contribute to transformation of Indian Society							2	2	2	2	2	2		
		CO2	develop the necessary skills of social processes which affect our everyday lives.							2	2	2	2	2	2		
		CO3	study and analyse various contemporary issues of society and able to provide solutions of social barrier and benefiting the masses.				3			2	2	2	2	2	2		
		CO4	develop basic research skills in the area of sociology and help to find possible solution of specific social barriers of the society				3			2	2	2	2	2	2		
HLS103-B	PROFESSIONAL ENGLISH-ADVANCE	CO1	To communicate articulately.	-	-	-	-	-	-	-	2	2	2	-	-	-	2
		CO2	To show basics of presentation skills.	-	-	-	-	-	-	-	2	2	2	-	-	-	2
		CO3	To exhibit the substantive writing skills.	-	-	-	-	-	-	-	2	2	2	-	-	-	2
		CO4	To demonstrate the procedure of debating skills.	-	-	-	-	-	-	-	2	2	2	-	-	-	2
		CO5	To display the developed critical aptitude.	-	-	-	-	-	-	-	2	2	2	-	-	-	2
HLS104-B	PROFESSIONAL ENGLISH-BASIC	CO1	To demonstrate the basic skills of effective communication	-	-	-	-	-	-	-	2	2	2	-	-	-	2
		CO2	To build an elementary understanding of form, meaning and use of words in varied discourses.	-	-	-	-	-	-	-	2	2	2	-	-	-	2
		CO3	To equip with fundamental writing skills.	-	-	-	-	-	-	-	2	2	2	-	-	-	2
		CO4	To show the essentials of debating skills.	-	-	-	-	-	-	-	2	2	2	-	-	-	2
		CO5	To exhibit creative thinking.	-	-	-	-	-	-	-	2	2	2	-	-	-	2
CHH137B	ENVIRONMENTAL SCIENCE	CO1	Explain the multidisciplinary dimensions of environmental issues and suggest potential solutions							2	1	3	2	-	3	-	-
		CO2	Discuss about the various types of organisms and draw inferences about their interactions in different ecosystems							2	1	3	2	-	3	-	-
		CO3	Defend the principles governing the interactions between social and environmental factors							2	1	3	2	-	3	-	-
Total				51	37	43	18	16	12	51	85	84	79	43	66	58	71

B.Tech. ECE SEMESTER 3

Courses Code	Courses	Course Outcomes	CO Statement	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
ECH202B-T/P	NETWORK THEORY	CO1	A thorough understanding of the fundamental concepts and techniques used in the two-port network terminology.	3	2	2	1	1	1	2	2	2	2	1	2	2	1
		CO2	Analyze the transient behavior of electrical networks for various excitations.	3	2	3	2	1	1	1	2	2	3	1	2	3	2
		CO3	Analyze different types of filter configuration and Synthesize any filter configuration within a reasonable percentage error.	3	3	2	2	1	1	1	2	1	3	1	2	2	2
		CO4	Design the synthesized circuit with practical parts	2	3	3	2	1	1	2	1	1	2	1	2	2	2
ECH203B-T/P	ANALOG ELECTRONICS	CO1	CO1: Understand the working of transistor as an amplifier at low and high frequency and do the analysis of single and multistage amplifiers	3	3	2	1	1	1	1	1	1	1	1	2	3	2
		CO2	CO2:Comprehend the applications of Field effect transistor amplifier.	3	3	2	1	1	1	1	1	1	1	1	2	3	2
		CO3	CO3: Appreciate the working of power amplifier circuits and Oscillators and implement various designs	3	3	3	2	1	1	1	1	1	1	1	2	3	2
		CO4	CO4: Visualize the working of operational amplifiers and will be able to demonstrate the same on various applications	3	3	3	2	1	1	1	1	1	1	1	2	3	2
ECH204B-T/P	SIGNALS AND SYSTEMS	CO1	Differentiate between signal types and determine various properties of practical systems	3	3	2	2	1	1	1	1	1	1	1	1	2	1
		CO2	determine the behavior and shape of a signal in frequency domain	3	3	2	2	2	1	2	1	1	1	1	1	2	1
		CO3	characterize and analyze the response of the LTI system to test signals	2	3	2	2	1	1	1	1	1	1	1	1	2	1
		CO4	classify continuous and discrete time signals and illustrate the convergence of discrete time signals	2	3	2	2	2	1	1	1	1	1	1	1	3	1
		CO5	transform signals (both in continuous and discrete time) into more recognizable form of frequency domain for analysis of communication.	3	3	2	3	2	1	1	1	1	1	1	1	3	2
CSH103B-T & P	DATA STRUCTURE & ALGORITHMS	CO1	TO understand the concept of Dynamic memory management, algorithms and their complexity ; demonstrate the abstract properties and operations of Linear data structures (using Static Memory Allocation) : Array ; To apply different Searching and Sorting algorithms.	3	3	2	2	1	2	1	1	1	1	1	1	2	1
		CO2	Demonstrate the abstract properties and operations of Linear data structures (using Dynamic Memory Allocation) : Link List and variations of Linked List.	3	3	2	2	1	2	1	1	1	1	1	1	2	1
		CO3	Demonstrate the abstract properties and operations of Linear data structures (using Static & Dynamic Memory Allocation) : Stacks, Queues	3	3	2	2	1	2	1	1	1	1	1	1	3	2
		CO4	Demonstrate the abstract properties and operations of Non Linear data structures (using Static & Dynamic Memory Allocation) : Trees, Graphs	3	3	2	2	1	2	1	1	1	1	1	1	3	2
CSW208B	PROGRAMMING FOR PROBLEM SOLVING USING PYTHON	CO1	Explain how to get the Python environment set up and running and the basics of Python programming language	2	1	1	1	1	1	-	-	- -	1	-	-	-	-
		CO2	Demonstrate various concept of basic python programming by learning concepts like variables, flow controls, data types, type	3	2	2	2	2	1	-	-	-	-	-	-	2	2
		CO3	Demonstrate various Collections in python programming	3	2	2	2	3	1	-	-	-	-	-	-	2	2
		CO4	Apply the concepts of python in problems solving using functions, objects and classes and file handling	3	3	3	2	3	-	-	-	1	1	2	3	3	3
ECW205B	ELECTRONIC DESIGN WORKSHOP	CO1	Design the circuits in orcad.	3	3	3	1		1	1	1	1	1	1	2	1	1
		CO2	Simulate the circuits.	3	3	2	3		1	1	1	1	1		2	3	2
		CO3	Analyze the results.	2	2	2	3		1	1	1	1	1		2	1	3

		CO4	Implement the circuit & Test it.	3	3	3	2	1	1	1	1	1	1		2	2	3
CDO201	PROFESSIONAL COMPETANCY ENHANCEMENT-I	CO1	To ensure complete understanding of professsional world,														
		CO2	to improve and enhance business communication of different styles														
		CO3	To ensure proper usage of writing/listening and speaking skills														
		CO4	360 deg development of personality														
RDO501	ITR	CO1	CO1:The student shall be able to describe research and its impact.	3	3	2	2	2	3	3	3	3	3	3	3	3	2
		CO2	CO2:The student shall be able to identify broad area of research, analyze, the processes and procedures to Carryout research	3	3	2	2	2	3	3	3	3	3	3	3	3	2
		CO3	CO3: The student shall be able to use different tools for literature survey	3	3	2	2	2	3	3	3	3	3	3	3	3	2
		CO4	CO4: The student is able choose specific area of research and supervisor/mentor is finalized	3	3	2	2	2	3	3	3	3	3	3	3	3	2
		CO5	CO5:To understand and adopt the ethical practice that are to be followed in the research activities	3	3	2	2	2	3	3	3	3	3	3	3	3	2
FLS101	FRENCH-I	CO1	Exchange greetings and do introductions using formal and informal expressions. Understand and use interrogative and answer simple questions.	√	√	-	√	-	-	√	-	-	√	√	-	-	√
		CO2	Learn Basic vocabulary that can be used to discuss everyday life and daily routines, using simple sentences and familiar vocabulary.	√	√	√	-	-	-	-	-	-	-	√	-	-	√
		CO3	Describe themselves, other people, familiar places and objects in short discourse using simple sentences and basic vocabulary.	√	√	√	-	√	-	-	-	√	√	-	-	-	√
		CO4	Students will be able to understand audio text and comprehend to the same. They will be able to form paragraph using auxilary verb and basic verbs.	√	√	√	√	√	-	-	-	√	√	-	-	-	√
		CO5	Students will be introduced to French culture and civilization. They will be able to describe various places and locations of Francophonic countries.	√	√	√	√	-	√	-	-	√	-	√	-	-	√
FLS102	SPANISH-I	CO1	Students will be able to greet each other.	√	√	-	√	-	-	√	-	-	√	√	-	-	√
		CO2	Students will be able to make sentences with the verb ser. They will be able to use verb ser with nationality and professions.	√	√	√	-	√	-	-	-	√	√	-	-	-	√
		CO3	Students will be able to learn cardinal and ordinal numbers.	√	√	√	√	√	-	-	-	-	-	-	√	-	-
		CO4	Students will be able to recognize masculine and feminine words in Spanish. They will be learning the articles and its usages with nouns.	√	√	-	-	√	-	-	-	-	-	-	-	-	-
		CO5	Student will learn the difference between ser and estar verb. They will be able to use the verb estar with prepositions.	-	-	-	√	-	-	-	-	-	√	-	√	-	-
FLS103	GERMAN-I	CO1	Students will be able to exchange greetings and introductions using formal and informal expressions. They will be able to ask and answer simple questions.	-	-	√	-	-	√	√	-	√	√	√	-	-	-
		CO2	Students will be able to discuss restaurant vocabulary, using simple sentences.	-	√	-	-	-	-	-	-	-	√	-	√	-	-
		CO3	Students will be able to discuss likes and dislikes, understand simple conversations (e.g., greetings, and daily activities).	-	-	3	-	√	√	√	-	√	√	√	-	-	-
		CO4	Students will be able to differentiate certain patterns of behavior in the cultures of the German- speaking world and the student's native culture.	-	-	√	-	-	√	√	-	√	√	√	-	-	-
Total				85	83	69	58	40	43	39	39	39	44	35	51	72	53

B.Tech. ECE SEMESTER 4

Courses Code	Courses	Course Outcomes	CO Statement	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
ECH206B-T/P	ELECTROMAGNETIC FIELD AND WAVES	CO1	Analyze the transmission lines and their parameters using the Smith Chart	3	2	3	1	2	1	2	1	1	1	1	1	3	1
		CO2	Understand the depth of static and time-varying electromagnetic field as governed by Maxwell's equations.	3	2	3	2	2	1	2	1	2	1	1	2	3	1
		CO3	Formulate and analyze problems involving lossy media with planar boundaries using uniform plane waves.	3	2	3	2	2	1	2	1	2	1	1	2	3	2
		CO4	Apply concepts of this subject in Antenna Engineering and its applications.	3	3	3	3	2	1	2	1	2	2	1	2	3	2
ECH207B-T/P	ANALOG AND DIGITAL COMMUNICATION	CO1	Apply the knowledge of signals and tranformation to study different modulation techniques.	3	2	3	2	1	1	1	1	1	1	1	1	2	1
		CO2	Identify and implement the modulation techniques required for analog and digital communication.	2	3	2	1	2	1	1	1	1	2	1	1	3	2
		CO3	Implement analog to digital conversion and examine the techniques for reducing the error produced in this process.	2	2	3	2	1	1	1	2	1	1	1	1	2	1
		CO4	Analyze the effect of distortion and noise on a communication system .	3	2	3	3	1	1	1	1	1	1	2	1	2	1
ECH208B-T/P	DIGITAL ELECTRONICS	CO1	Understand of the fundamental concepts and techniques used in digital electronics.	3	3	3	1	1	1	1	1	1	1	2	2	1	1
		CO2	Examine the structure of various number systems and its application in digital design	3	3	2	3	1	1	1	1	1	1	2	2	3	2
		CO3	Analyse and design various combinational and sequential circuits.	2	2	2	3	1	1	1	1	1	1	2	2	1	3
		CO4	Identify basic requirements for a design application and propose a cost effective solution.	3	3	3	2	1	1	1	1	1	1	2	2	2	3
		CO5	Develop skill to troubleshoot the digital circuit.	2	2	3	1	1	1	1	1	1	1	2	2	3	2
ECH209B-T/P	VLSI DESIGN	CO1	Understand different steps involved in the fabrication of ICs using MOS transistor, CMOS/BiCMOS transistors and passive comp	3	1	2	2	2	1	1	1	1	1	2	3	2	2
		CO2	Analyse and formulate the circuit characterization and performance estimation for an integrated circuit.	3	3	2	2	1	1	1	1	1	1	2	3	3	2
		CO3	Formulate and analyse the performance of various inverter structure through pull-up to pull-down ratios.	2	3	3	3	2	1	1	1	1	1	2	3	2	3
		CO4	Apply the concept of this subject for designing combinational logic circuits using CMOS.	3	2	2	3	2	1	1	1	1	1	1	3	2	3
CSH201B-T/P	OOPS USING JAVA	CO1	To impart understanding of basic programing concepts in Java language	2	2	1	1	3	-	-	1	-	-	-	2	1	1
		CO2	To enable the student to comprehend given program scenario and apply different programming constructs	2	2	1	2	3	-	-	1	2	-	-	2	2	2
		CO3	To analyze the semantics of the given problem statement and apply programming techniques to distinguish static and dynamic polymorphism, inheritance and file handling to solve real life programming problems.	2	2	1	2	3	2	1	2	2	2	2	2	2	3
		CO4	To integrate the learned and applied concepts into given java projects to produce real life solutions	2	2	1	2	3	2	1	2	2	2	3	3	2	3
ECW210B	PROGRAMMING WITH MATLAB	CO1	Able to use Matlab for interactive computations.	3	3	3	3	2	1	2	2	2	1	1	2	3	1
		CO2	Articulate importance of software's in research by simulation work.	3	3	3	3	3	1	2	2	2	1	1	2	3	1
		CO3	Interpret and visualize simple mathematical functions and operations thereon using plots/display	3	3	3	3	3	1	2	2	2	1	1	2	3	2
		CO4	Analyze the program for correctness and determine/estimate/predict the output and verify it under simulation environment using MATLAB/SCILAB tools.	3	3	3	3	3	1	2	2	2	1	1	2	3	2
CDO202	PROFESSIONAL COMPETANCY	CO1	To ensure complete understanding of professsional world, to improve and enhance business communication of different styles	1	1	1	2	1	1	2	2	2	3	2	2	1	2
		CO2	To ensure proper usage of writing/listening and speaking skills	1	1	1	2	1	1	2	2	2	3	2	2	1	2

CDO202	ENHANCEMENT-II	CO3	360 deg development of personality	1	1	1	2	1	1	2	2	2	3	2	2	1	2
		CO4	students will be able to present themselves in a more acceptable way professionally by self branding	1	1	1	2	1	1	2	2	2	3	2	2	1	2
RDO502	RESEARCH & INNOVATION-I	CO1	CO1. The students will be able to critically evaluate the work done by various researchers relevant to the research topic	3	3	3	3	3	3	3	3	3	3	3	3	3	2
		CO2	CO2. To integrate the relevant theory and practices followed in a logical way and draw appropriate conclusions	3	3	3	3	3	3	3	3	3	3	3	3	3	2
		CO3	CO3. To understand the research methodologies/approaches/techniques used in the literature	3	3	3	3	3	3	3	3	3	3	3	3	3	2
FLS105	FRENCH-II	CO1	Identify colors, professions and adjectives in French and describing different people and objects using these three.	√	√	-	√	-	-	√	-	-	√	√	-	-	√
		CO2	Learn to describe daily routine by using reflexive verbs in simple sentences.	√	√	√	-	-	-	-	-	-	-	√	-	-	√
		C03	Express their likes and dislikes. Also will have understanding of simple conversations in restaurants and how to order food and drinks.	√	√	√	-	√	-	-	-	√	√	-	-	-	√
		CO4	Learn Basic vocabulary that can be used to discuss the weather and seasons	√	√	√	√	√	-	-	-	√	√	-	-	-	√
FLS106	SPANISH-II	CO1	Students will learn colors. They will learn the vocabulary of clothes.	-	-	-	-	-	-	-	-	-	-	-	√	-	-
		CO2	Students will be able to know the difference between ser, haber and estar.	√	√	-	-	√	√	-	√	-	√	√	-	-	-
		CO3	Students will be able to point out things using demonstratives.	-	√	-	√	-	-	√	-	-	√	√	-	-	-
		CO4	Students will be able to speak ordinal and cardinal numbers	√	√	√	√	√	-	-	-	-	-	-	-	-	-
		CO5	Students will learn the verb tener and its usage with relationships.	√	-	-	-	√	-	-	-	-	√	-	√	-	-
FLS107	GERMAN-II	CO1	Students will be able to speak ordinal and cardinal numbers and they will also learn months, days in German.	√	√	√	√	√	-	-	-	-	-	-	-	-	-
		CO2	Students will be able to conjugate the helping verbs and the past tense of to have.	-	√	-	-	√	-	-	-	-	√	-	√	-	-
		CO3	Students will be able to frame simple sentences.	-	√	-	-	√	-	-	-	-	√	-	√	-	-
		CO4	Students will be able to identify classroom vocabulary in the German language.	-	√	-	-	-	-	-	-	-	√	-	-	-	-
		CO5	They will be able to describe their family members and their friends.	-	-	-	-	-	-	√	-	√	√	√	-	-	-
		CO6	They will be learning the articles –definite and in definite.	-	√	-	-	-	-	-	-	-	-	-	√	-	-
		CO7	They will be learning the countries, their languages.	-	√	√	-	-	√	-	-	√	√	-	√	-	-
		CO8	They will be able to describe the routes or directions.	-	√	-	-	√	-	√	-	-	√	√	-	-	-
ECO105B	SUMMER TRAINING POST 2nd SEMESTER	CO1	Acquire and apply fundamental principles of engineering.	3	3	2	2	2	2	1	1	1	1	1	1	1	2
		CO2	Recognize and distingush between all the latest innovations in the technological world.	3	3	2	2	2	2	2	2	2	2	2	2	2	2
		CO3	Acquire Knack to be a multi-skilled engineer with good technical knowledge, management, leadership and entrepreneurship skills and develop good communication skills	3	3	3	3	3	3	3	3	3	3	3	3	3	2
		CO4	Able to identify, formulate and model problems and find engineering solution based on a systems approach.	3	3	3	3	3	3	3	3	3	3	3	3	3	2
		CO5	Develop skills for self-improvement through continuous professional development and life-long learning	3	3	3	3	3	3	3	3	3	3	3	3	3	2
		CO6	Aware of the social, cultural, global and environmental responsibility as an engineer.	3	3	3	3	3	3	3	3	3	3	3	3	3	2
Total				97	91	90	88	77	54	63	64	66	63	67	82	87	73

B.Tech. ECE SEMESTER 5

Courses Code	Courses	Course Outcomes	CO Statement	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
ECH301B-T/P	MICROPROCESSORS & MICROCONTROLLERS	CO1	Assess and solve basic binary math operations using the microprocessor and explain the microprocessor's and Microcontroller's internal architecture and its operation within the area of manufacturing and performance.	3	3	2	2	1	1	1	2	2	1	1	2	3	2
		CO2	Apply knowledge and demonstrate programming proficiency using the various addressing modes and instructions of the target microprocessor and microcontroller.	3	3	3	1	1	1	1	2	2	1	1	2	3	2
		CO3	Evaluate the Intel 8085 real mode memory addressing.	2	1	2	1	1	1	1	2	1	1	1	1	1	1
		CO4	Understand the Timing and control of microprocessors.	2	1	1	1	1	1	1	2	1	1	1	1	1	1
		CO5	Design real world applications using microprocessors and microcontrollers	3	3	1	2	1	2	1	2	2	2	1	2	3	2
ECH302B-T/P	DIGITAL SIGNAL PROCESSING	CO1	Construct time, frequency and Z -transform analysis on signals and systems.	3	3	1	3	3	1	1	1	1	1	1	2	2	2
		CO2	Compare the inter-relationship between DFT and various transforms	3	3	1	3	3	1	1	1	1	1	1	2	1	3
		CO3	Describe the significance of various filter structures	3	3	1	3	1	1	1	1	1	1	1	1	2	1
		CO4	Design a digital filter for a given specification	3	3	1	3	1	1	1	1	1	1	1	1	2	3
ECH303B-T/P	COMPUTER ARCHITECTURE	CO1	Learn the theory and architecture of central processing unit & Define different number systems, binary addition and subtraction, 2's complement representation and operations with this representation	3	3	3	1		1	1	1	1	1		2	1	1
		CO2	Characterize some of the design issues in terms of speed, technology, cost, performance & a simple CPU with applying the theory concepts.	3	3	2	3		1	1	1	1	1		2	3	2
		CO3	Learn the concepts of parallel processing, pipelining and interprocessor communication.	2	2	2	3		1	1	1	1	1	1	2	1	3
		CO4	. Express in a better way the I/O and memory organization	3	3	3	2		1	1	1	1	1		2	2	3
ECH304B-T/P	CONTROL SYSTEMS	CO1	represent and demonstrate the electrical modelling of mechanical system and various reduction techniques.	3	3	2	2	2	1	1	1	1	1	1	2	2	1
		CO2	Analyses the time and frequency-domain responses of first and second-order systems to various inputs.	3	3	2	2	1	1	1	1	1	1	1	1	2	1
		CO3	apply root locus and frequency domain techniques to design a feedback control system to meet specific performance requirements.	3	2	3	2	2	2	1	1	1	1	1	1	3	1
		CO4	Synthesize control system models on state space models and express state transition matrix for the calculation of variables.	2	2	3	2	1	1	1	1	1	1	1	3	2	1
ECH305B-T/P	INTERNET OF THINGS	CO1	Interpret the vision of IoT from a global context.	3	1	1	1	2	1	1	2	2	2	1	2	2	1
		CO2	Compare and Contrast the use of Devices, Gateways and Data Management in IoT	3	3	3	2	1	1	1	2	1	3	1	2	2	1
		CO3	Implement state of the art architecture in IoT.	2	3	2	2	1	1	2	1	1	2	1	2	2	2
		CO4	Illustrate the application of IoT in Industrial Automation and identify Real World Design Constraints.	2	3	3	2	1	1	2	1	1	2	1	2	2	2
	PROFESSIONAL	CO1	to improve and enhance business communication of different styles	1	1	1	2	1	1	2	2	2	3	2	2	1	2

CDO301	PROFESSIONAL COMPETANCY RNHANCEMENT-III	CO2	To ensure proper usage of writing/listening and speaking skills	1	1	1	2	1	1	2	2	2	3	2	2	1	2
		CO3	360 deg development of personality	1	1	1	2	1	1	2	2	2	3	2	2	1	2
		CO4	students will be able to present themselves in a more acceptable way professionally by self branding	1	1	1	2	1	1	2	2	2	3	2	2	1	2
RDO601	RESEARCH &INNOVATION-II	CO1	The students will be able to apply the contextual knowledge in designing and conducting the experiments	3	3	3	3	3	3	3	3	3	3	3	3	3	2
		CO2	To analyze and interpret the research outcomes.	3	3	3	3	3	3	3	3	3	3	3	3	3	2
		CO3	To gain hands on experience in techniques/technologies	3	3	3	3	3	3	3	3	3	3	3	3	3	2
		CO4	To get an insight on the follow-up research	3	3	3	3	3	3	3	3	3	3	3	3	3	2
Total				73	70	58	63	40	39	43	48	45	51	38	57	58	52

Program Outcomes (POs)

PO1: Apply the knowledge of mathematics, science, engineering fundamentals, and Engineering specialization to the solution of complex engineering problems.

PO2: Identify, formulate, research literature, and analyze engineering problems to arrive at substantiated conclusions using first principles of mathematics, natural, and engineering sciences.

PO3: Design solutions for complex engineering problems and design system components, processes to meet the specifications with consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO4: Use research-based knowledge including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO5: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

PO6: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO7: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO8: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO9: Function effectively as an individual, and as a member or leader in teams, and in multidisciplinary settings.

PO10: Communicate effectively with the engineering community and with society at large. Be able to comprehend and write effective reports documentation. Make effective presentations, and give and receive clear instructions.

PO11: Demonstrate knowledge and understanding of engineering and management principles and apply these to one's own work, as a member and leader in a team. Manage projects in multidisciplinary environments.

PO12: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Program Specific Outcomes (PSOs)

PSO1: Ensure integration of Electronics and Computer technology thereby enabling in designing and developing integrated solutions.

PSO2: Develop skills and tools for bridging the gap between research and Industrial needs by increasing industry interface

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