

Course Outcome and Programme Outcome Mapping

Programme Outcomes:

POs	Statement
PO1	An ability to independently carry out research /investigation and development work to solve practical problems.
PO2	An ability to write and present a substantial technical report/document.
PO3	Students should be able to demonstrate a degree of mastery over the area as per the specialization of the program. The mastery should be at a level higher than the requirements in the appropriate bachelor program.
PO4	An ability to integrate the modern tools and techniques for project execution and management.
PO5	Demonstrate professional ethics, work culture and lifelong learning for successful career in teaching, research and industry.

Course Articulation Matrix Table:

CO and PO mapping:

Course Code	Title	Course Outcomes (COs)	CO-PO mapping				
			PO1	PO2	PO3	PO4	PO5
<i>Core Courses</i>		After Learning this course, the students shall be able to	PO				
			PO1	PO2	PO3	PO4	PO5
ECE-1101	Advanced Digital Signal Processing	CO-1 Describe the principles involved in the design of different transforms and filters.			√		
		CO-2 Design digital filters, analyze and present the observations	√		√		
		CO-3 Explain concepts of multi-rate signal processing, linear prediction and adaptive filters.			√		
		CO-4 Implement various signal processing techniques through MATLAB for the development of industrial electronic instruments.	√		√	√	
<i>Core Courses</i>		After Learning this course, the students shall be able to	PO				
			PO1	PO2	PO3	PO4	PO5
ECE-1102	Fiber-Optic Communication Systems	CO-1 Describe need and significance of Optical Communication system.			√		
		CO-2 Describe characteristics of optical fibers, optical sources & detectors.			√		
		CO-3 Explain different light wave systems, system components and applications.			√		

		CO-4 Design and implement optical amplifiers and systems	√		√	√		
ECE-1103	Advanced Digital Communication	After Learning this course, the students shall be able to	PO					
			PO1	PO2	PO3	PO4	PO5	
		CO-1 Describe digital communication systems and various modulation schemes.			√			
		CO-2 Analyze optimum receivers for AWGN channels.	√		√			
		CO-3 Explain carrier and synchronization processes, and multicarrier and multichannel systems.			√			
		CO-4 Describe various spread spectrum techniques used in digital communication systems.			√			
		CO-5 Implement various digital modulation techniques using MATLAB.	√		√	√		
ECE-1104	Digital System Design	After Learning this course, the students shall be able to	PO					
			PO1	PO2	PO3	PO4	PO5	
		CO-1 Describe design constraints of digital systems for designing combinational and sequential circuits.			√			
		CO-2 Design digital circuits using different modelling VHDL codes.	√		√	√		
		CO-3 Classify, analyze and design FSMs.	√		√	√		
		CO-4 Describe various designs for testability and their circuit considerations.			√			
ECE-1105	Information Theory & Coding	After Learning this course, the students shall be able to	PO					
			PO1	PO2	PO3	PO4	PO5	
		CO-1 Explain the elements of communication process and information sources.			√			
		CO-2 Apply various source coding techniques to design efficient codes.	√		√			
		CO-3 Analyze the implications of channel coding and capacity theorems.			√			
		CO-4 Construct and decode error control codes using appropriate techniques.	√		√			

		CO-5 Describe working of various cryptography algorithms.			√		
ECE-1107	Advanced Mathematics	After Learning this course, the students shall be able to	PO				
			PO1	PO2	PO3	PO4	PO5
		CO-1 Explain series solutions of differential equations, Power series methods.			√		
		CO-2 Derive Series solution of Bessel's differential equations.	√		√		
		CO-3 Apply various functions and Matrices for engineering problem solutions.	√		√		
		CO-4 Describe different system simulation techniques.			√		
ECE-1108	Research Seminar-I	After Learning this course, the students shall be able to	PO				
			PO1	PO2	PO3	PO4	PO5
		CO-1 Use different information sources for research review and analysis of a given topic.	√		√		√
		CO-2 Demonstrate oral and written communication skills.		√	√		
		CO-3 Use different software tools for preparing presentation.		√		√	
		CO-4 Analyze the ethical and social issues related to the advancements in selected topic.			√		√
ECE 1201	Embedded System Design	After Learning this course, the students shall be able to	PO				
			PO1	PO2	PO3	PO4	PO5
		CO-1 Explain Embedded systems and their classifications with examples.			√		
		CO-2 Comprehend PIC 16F8XX Flash Microcontroller architecture and its I/O interfacing.			√		
		CO-3 Do program modelling for single and multiprocessor event controlled systems.	√		√		
		CO-4 Describe embedded core-based design and real-time operating systems.			√	√	

		CO-5 Use embedded networking in wireless sensor networks applications	√		√		
ECE-1202	Digital Image Processing	After Learning this course, the students shall be able to	PO				
			PO1	PO2	PO3	PO4	PO5
		CO-1 Describe the fundamentals related to images and techniques of image processing.			√		
		CO-2 Explain concepts of image enhancement, restoration, denoising, compression, segmentation, description, etc.			√		
		CO-3 Apply techniques to process various colour and morphological images	√		√	√	
		CO-4 Write MATLAB program for various image processing applications	√		√	√	
ECE-1203	Wireless and Mobile Communication	After Learning this course, the students shall be able to	PO				
			PO1	PO2	PO3	PO4	PO5
		CO-1 Comprehend cellular design concepts and various multiple access systems.			√		
		CO-2 Describe GSM architecture and protocols.			√		
		CO-3 Explain with CDMA mobile standards and Wireless networks.			√		
		CO-4 Calculate path loss using outdoor and indoor propagation models.			√		
		CO-5 Simulate modulation techniques & channel characteristics and Analyze GSM system Working	√		√	√	
ECE-1205	VLSI Design	After Learning this course, the students shall be able to	PO				
			PO1	PO2	PO3	PO4	PO5
		CO-1 Describe design and fabrication of semiconductor devices.			√		
		CO-2 Design VLSI logics and circuits using MOSFET.	√		√		
		CO-3 Explain working of CMOS combinational and sequential circuits.			√		

		CO-4 Implement VLSI physical design techniques	√		√	√		
		CO-5 Simulate VLSI circuits using TCAD tool.	√		√	√		
ECE-1207	Advanced Computer Networks	After Learning this course, the students shall be able to	PO					
			PO1	PO2	PO3	PO4	PO5	
		CO-1 Explain network architectures and Transmission Media.			√			
		CO-2 Analyze the performance of different networking protocols.	√		√			
		CO-3 Outline operation of different types of Local/Personal/Wide Area networks (LANs/PANs/WANs).			√			
		CO-4 Select the appropriate algorithms and techniques for the efficient routing, addressing, congestion and quality control.			√			
		CO-5 Describe various network applications and network security algorithms.			√			
ECE-1210	RF and Microwaves	After Learning this course, the students shall be able to	PO					
			PO1	PO2	PO3	PO4	PO5	
		CO-1 Explain boundary conditions for various Passive circuits			√			
		CO-2 Describe working of different high frequency semiconductor devices			√			
		CO-3 Design different transmission lines, power divider and couplers	√		√			
		CO-4 Comprehend the concept of Microwave measurements and its computational techniques			√			
ECE-1213	Research Seminar - II	After Learning this course, the students shall be able to	PO					
			PO1	PO2	PO3	PO4	PO5	
		CO-1 Use different information sources for detailed explanation of a given topic.	√		√		√	

		CO-2 Demonstrate oral and written communication skills.		√	√		
		CO-3 Use different software tools for preparing presentation.		√		√	
		CO-4 Analyze the ethical and social issues related to the advancements in selected topic.			√		√
ECE-1301	Neural Network & Fuzzy Logic	After Learning this course, the students shall be able to	PO				
			PO1	PO2	PO3	PO4	PO5
		CO-1 Describe fundamentals of neural networks and fuzzy logic.			√		
		CO-2 Design supervised and unsupervised learning based ANN models	√		√	√	
		CO-3 Explain Neurodynamical models.			√		
		CO-4 Apply NNFL concepts to engineering problems			√	√	
ECE-1307	Research Methodology	After Learning this course, the students shall be able to	PO				
			PO1	PO2	PO3	PO4	PO5
		CO-1 Comprehend the concept of research and its different types.	√	√	√		
		CO-2 Identify and define research problem by conducting a literature review and devise a systematic plan to solve it.			√		
		CO-3 Apply suitable research Design and develop measuring instrument.			√		
		CO-4 Select sample for a given problem and analyze data using statistical tool.	√		√	√	
		CO-5 Write a research proposal, report and article.		√	√		
ECE-1309	Preliminary Thesis	After Learning this course, the students shall be able to	PO				
			PO1	PO2	PO3	PO4	PO5

		CO-1 Do literature survey and define the problem.	√		√		
		CO-2 Prepare the blueprint of research work to be carried out including objectives and methodology to be adopted.	√	√	√		
		CO-3 Demonstrate the oral and written communication skills and professional ethics for thesis work		√		√	√
ECE-1401	Thesis	After Learning this course, the students shall be able to	PO				
			PO1	PO2	PO3	PO4	PO5
		CO-1 Analyze various feasible methods of solving a problem to slot a suitable solution methodology.	√		√		
		CO-2 Use latest techniques and software tools for achieving the defined objectives.	√		√	√	
		CO-3 Demonstrate the oral and written communication skills and professional ethics for thesis work.		√	√		√
		CO-4 Describe the importance of possible future developments in the selected domain	√		√		√