K L University

Department of Electronics and Communication Engineering

Academic Year 2014-2015

Mapping of ECE Department Mission Statement with SOs, PSOs and PEOs

Program Outcomes

Mission statement of K L University:

Vision:

To be a globally renowned university.

Mission

To impart quality higher education and to undertake research and extension with emphasis on application and innovation that cater to the emerging societal needs through all-round development of students of all sections enabling them to be globally competitive and socially responsible citizens with intrinsic values.

Vision and Mission statement of ECE department

VISION

- To evolve into a globally recognized department in the frontier areas of Electronics & Communication Engineering (ECE).

MISSION

M1- To produce graduates having professional excellence.

M2- To carry out quality research having social & industrial relevance.

M3- To provide technical support to budding entrepreneurs and existing Industries**.**

PROGRAM EDUCATIONAL OBJECTIVES (PEOS)

- **PEO1:** Practice engineering in a broad range of industrial, societal and real world applications.
- **PEO2:** Pursue advanced education, research and development, and other creative and innovative efforts in science, engineering, and technology, as well as other professional careers.
- **PEO3:** Conduct themselves in a responsible, professional, and ethical manner.
- **PEO4:** Participate as leaders in their fields of expertise and in activities that support service and economic development throughout the world.

Student Outcomes

a	Ability to apply knowledge of mathematics, science, and engineering
b	Ability to design and conduct experiments, as well as to analyze and interpret data
c	Ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
d	Ability to function on multidisciplinary teams
e	Ability to identify, formulate, and solve engineering problems
f	Understanding of professional and ethical responsibility
g	Ability to communicate effectively
h	Broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
i	Recognition of the need for, and an ability to engage in life-long learning
j	Knowledge of contemporary issues
k	Ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

Mapping of Mission statements with program educational objectives

	M1	M2	M3
PEO1	✓	✓	✓
PEO2	✓	✓	✓
PEO3	✓		✓
PEO4	✓	✓	✓

Mapping of PEOs with SOs

	PEO1	PEO2	PEO3	PEO4
a	✓	✓		
b	✓	✓		
c	✓	✓		
d	✓	✓		✓
e	✓	✓		
f			✓	✓
g	✓	✓		✓
h		✓	✓	✓
i	✓		✓	✓
j	✓			✓
k	✓	✓		

CO Vs SO Attainment 2014

Department		Electronics and Communication Engineering	SO	a	b	c	d	e	f	g	h	i	j	k
Sl No	Course Code	Course Title	CO#											
1	11ES104	Engineering Graphics With CAD	Draft orthographic Projections, Isometric views, projection of planes, Manually and prepare Models in workshop by using drawings.	1										1
			Draft orthographic projections, isometric views, projection of planes using AutoCAD. Draft projection of solids Manually and by using AutoCAD and prepare Models in workshop by using different workshop trades	1										1
			Draft Development of surfaces of solid and sections of solid Manually	1										1
			Practicing house wiring through Auto Cad	1										2
			Develop 2D & 3D components using Auto Cad Software	1										2
2	13BS102	Differential Equations	Formulate physical laws and relations mathematically in the form of first order differential equations	1										
			Higher order differential equations and identify a method for solving and interpreting the results.	1										
			Provide solutions for Fourier series of periodic/non-periodic phenomenon in models involving differential equations.	1										
			Model the given phenomena as a partial differential equations of first and second orders	1										
			Solve the partial differential equations by analytical and finite difference methods											
3	13ES101	Problem Solving Through Programming	Understanding the basic scalar types, input/output functions operators, and expressions					2						
			Understanding statements and control flow charts	1				1						
			Understanding the functions, arrays, pointers.	1				1						
			Understanding and applying structures, characters, strings, and storage classes.	1				2						
4	13ES102	Measurements	Understand and apply the fundamentals of a measurement system, characteristics, and metrology using simulation and experimentation tools.					1						

			Understand various electrical & computer parameters, and apply different measuring techniques on various electrical parameters using simulation and experimentation tools.	1				1							
			Understand electronic & electro-physiological parameters, and apply measuring techniques on electronic parameters using simulation and experimentation tools.	1				1							
			Understand and apply different measuring techniques on civil and mechanical parameters using simulation and experimentation tools.	1				2							
5	**13ES103**	**Engineering Materials**	Understand the concepts of crystallography and crystalline imperfections in order to determine crystal structures and to identify defects in crystals	1											
			Understand electrical and optical properties of materials and apply them to know various mechanisms involved in electrical, electronic, optical, optoelectronic devices.	1											
			Understand mechanical and thermal properties of materials and apprehend their importance in identification of materials for specific engineering applications	1											
			Understand magnetic properties of materials and apply them to know various mechanisms involved in magnetic memory devices and transformers.	1											
			Understand various properties of materials and apply the knowledge to execute the related experiments to get hands on experience and also to develop some inter disciplinary projects.	1											
6	**13HS102**	**Language and Reasoning Skills**	Understand and analyze the depth of a topic and use the advanced levels in creative speaking and debating.							1					
			Understand and analyze various strategies involved in writing an essay and apply various styles in writing.							1					
			Understand and analyze the given text critically and answer questions on critical reasoning based on the given information.							1					
			Acquire knowledge on various employability skills & analyze a situation and develop adaptability.							1					
			Apply the Concepts of basic geometry and their importance while solving the problems.						1	2					

7	13HS104	Human Values	Understand and identify the basic aspiration of human beings						1						
			Envisage the roadmap to fulfill the basic aspiration of human beings.						1						
			Analyze the profession and his role in this existence.						1						
8	13BS103	Engineering Physics	Understand the concepts of crystallography and crystalline imperfections in order to determine crystal structures and to identify defects in crystals	1											
			Understand electrical and optical properties of materials and apply them to know various mechanisms involved in electrical, electronic, optical, optoelectronic devices.	1											
			Understand mechanical and thermal properties of materials and apprehend their importance in identification of materials for specific engineering applications	1											
			Understand magnetic properties of materials and apply them to know various mechanisms involved in magnetic memory devices and transformers.	1											
			Understand various properties of materials and apply the knowledge to execute the related experiments to get hands on experience and also to develop some inter disciplinary projects.	1	1										
9	11BS105	Ecology and Environment	Understand the importance of Environmental education and conservation of natural resources.								1		1		
			Understand the importance of ecosystems and biodiversity.								1		1		
			Apply the environmental science knowledge on solid waste management, disaster management and EIA process.								1		1		
10	13ES106	Mechanics	Apply the concept of forces, governing static equations and analyze planer system of forces. Apply different analytical methods on spatial system of forces and analyzing them	2				1							
			Understanding the concepts of planar and non-planar system of parallel forces and analyzing them. estimate moment of inertia of lamina and material bodies	1				1							
			Analyzing the rigid bodies under translation and rotation with and without considering forces.	1				1							
			Understanding the engineering mechanics physical systems prepare and demonstrate the models with the help of mechanics concepts to solve the	2				2							

			engineering problems												
			Apply the concepts of mechanics and carryout different experiments and analyze the results		3										
11	13ES105	**Workshop Practice**	Hands on experience on common tools in carpentry, fitting, tin smithy and soldering.												2
			Demonstration on work working, electrical and mechanical engineering practice.												2
			Understanding the peripherals of CPU, assemble and dissemble of PC.												2
12	11BS104	**Engineering Chemistry**	Predict potential complications from combining various chemicals or metals in an engineering setting.	1											
			Discuss fundamental aspects of electrochemistry and materials science relevant to corrosion phenomena.	1											
			Examine water quality and select appropriate purification technique for intended problem.	1											
			Apply phase rule, polymers, conducting polymers and nano chemistry to engineering processes.	1											
			An ability to analyze & generate experimental skills.		2										
13	13BS101	**Linear Algebra and Multivariate Calculus**	Understanding the linear algebra	1											
			Understanding the differential calculus	1											
			Determine the maximum and minimum values for the function involving two variables	1											
			Model the given phenomena as a partial differential equations of first and second orders	1											
			Solve the partial differential equations by analytical and finite difference methods	1											1
14	13HS101	**English**	Understand the method of identifying the meaning of words from the context and form sentences using words.							1					
			Understand and analyze seven types of reading techniques and improve reading speed.							1					
			Understand and apply writing strategies for office/ formal communication.							1					
			Understand and analyze different cultures and the importance of empathy in cross-cultural communication.							1					

15	13ES205	Signal Processing	Understand the representation, manipulation and processing operations of DT signals and systems	1	1		1							
			Interpret the analysis of DT systems using Z.T.		2		2							2
			Apply the Fourier Transformation techniques for DT sequences and their applications.		2			2						
			Ability to design, Implementation and realization of digital filters.											2
16	13EC201	Design of electronics systems	**Design** Basic Electronics Systems and circuits	1				1						
			Design Basic amplifiers	2	2			2						
			Design linear amplifiers using op-amps.	2	2			2						
			Design basic applications of diode, BJT and JFET.	2	2			2						
17	13ES204	Data Structures	Understanding the algorithm analysis and stacks and queues	1				1						
			understanding trees and hashing	1				1						
			Understanding priority queues and sorting.	1				1						
			Understanding the graph algorithms	1				1						
18	13ES203	Network Theory	Understand the VI characteristics of electrical elements, solution of complex problems of DC circuits using transformations, nodal, mesh analysis and theorems.	1										1
			Understand the fundamentals and interconnection relations of 3 – phase circuits.	1										1
			Analyze the series and parallel resonance and magnetic circuits.	2										2
			Analyze the transient analysis of DC / AC circuits, two port networks and solve complex networks using topology.	3										2
19	13BS201	MATHEMATICAL METHODS	Understanding numerical methods	1								1		
			Understanding Fourier series and transforms	1								1		
			Understanding Z transforms	1								1		
			Understanding probability and distributions	1								1		
20	13ES202	OBJECT ORIENTED PROGRAMMING	The student will be able to understand basic Concepts of OOP, fundamentals of java and apply the concepts of classes and objects through Java Language.	2				2						
			The student will be able to apply constructors, Overloading, parameter passing, and access control in Java programming.	2				2						
			The student will be able to apply Inheritance, Packages, Interfaces.	2				2						
21	13EC203	Basics of Digital Systems	Understand the representation of data using different codes and the principles of Boolean algebra to manipulate and minimize logic expressions	1				1						
			Analyze the functioning of different combinational logic circuits built with logic gates and the design procedure for developing circuits like adders, decoders, code converters, etc.					2						

			Analyze the behavior of flip-flops and the operation of sequential circuits using flip-flops					2							
			Apply the design approach for creating sequential circuits like counters, shift registers, etc., and the concept of ASM charts in describing the digital systems					2							
22	**13EC207**	**Analog Communications**	**Understand the basic principles of linear modulation and demodulation techniques**					1							
			Explore analog and pulse modulation and demodulation techniques.					2							
			Elucidate the basic principles of angle modulation and demodulation techniques					2							
			Analyze the basic analog transmitters and receivers in the presence of noise					2							
23	**13EC205**	**Analog Electronic Circuits**	Design different types of feed-back amplifiers and provide general solution for real time problems					3							
			Design different types of Oscillators and provide general solution for real time problems, and Design active filters using OPAMPs					3							
			Design other non-linear applications of OPAMPs such as precision rectifier, zero crossing detector, etc…, Design the applications of 555timer					3							
			Analyze different types of Power amplifiers					2							
24	**13EC202**	**Electromagnetic Fields and Transmission Lines**	Apply the principles of vector calculus to estimate the static Electri**c** field due to different sources.					1							
			Obtain the boundary conditions on **E** field and understand the conecpts of magnetic field to calculate the static **H** field due to different sources.					2							
			Develop the boundary conditions on **H** field and extend the concepts of static fields to obtain the governing laws of electromagnetic field.					2							
			Perceive the propagation of uniform plane wave and its characteristics in different media, and interpret the characteristics of the guided waves to understand the modes of propagation in rectangular Wave-guide.					2							
25	**13BS202**	**Complex Variables & Discrete Mathematics**	Understanding complex variables	1									1		
			Understanding special functions	1									1		
			Understanding differential equations	1									1		
			Understanding graph theory	1									1		
26	**13ES201**	**Thermodynamics**	Understand the fundamentals of thermodynamic systems and processes	2				2							
			Apply laws of the thermodynamics and principle of entropy to engineering devices.	2				2							
			Analyze various air standard cycles and their performance.	2				2							
			Evaluate the performance of fuels and combustion to various engines.	2				2							
27	**13EC313**	**Antenna & Wave Propagation**	Understand basic radiating process and their parameters.	1				1							
			Understand and analyze the characteristics of different wire aperture and array antennas	2	2			2							

			and the comparison between different state-of the-art antenna technologies and processes.											
			Describe the wave propagation mechanisms at various levels of free space, deciding a suitable antenna for such a scenario.	2	2		2	2						
			Analyze antenna design and performance measures.		2									2
28	13EC308	Digital Communication	Understand the fundamentals of digital communications and analyze the pulse digital communications, Matched filter performance, Inter Symbol Interference.	1				1						
			Demonstrate about Nyquist channel, Signaling Schemes and Signal Space Analysis.	2	2			2						
			Analyze pass band data transmission and Comparison of different M-ary schemes.	2	2			2						
			Analyze different digital modulation schemes using single carrier.	2	2			2						
29	13CS205	Computer Networks	Discuss different networks namely LAN, WAN, Internet and OSI, TCP/IP Models and basics of physical layer and data link layer issues					1						1
			Demonstrate Data Link layer design issues , medium access control sub layers and network layer design issues concepts					2						2
			Analyze and implement the algorithms of Network Layer and related services					2						2
			Examine the concepts of Transport Layer and the Application Layer functionality					2						2
30	13EC206	CMOS VLSI Design	Understand semiconductor device fabrication process	1										
			Analyze the characteristics of CMOS circuits Construction and the comparison between different state-of-the-art CMOS technologies and processes					2						2
			Implement the a complete design verification process using computer- automated tools for scaling, layout, extraction, simulation, and timing analysis					2						2
			Understand and analyze the design testing principle, time-delay concepts					2						2
31	13EM201	Computer Organization	Understand the logical gates to construct combinational & sequential circuits to perform arithmetic µ-operations.	2	2			2						2
			Develop micro Programs for design of Control Unit, CPU	2	2			2						2
			Analyze and realize operations like Multiplication, Floating Point algorithms using supporting modern engineering tools.	2	2			2						2
			Understand the Peripherals, I/O interface and Direct Memory Access.	2	2			2						2
32	13AC202	Employbility Skills	Understand the campus selection process with special focus on Effective Communication and Attitude.											1
			Analyze himself/herself for the campus Interviews.							2				
			Understand the professional behaviors' for entry into the professional world.										1	
			Analyze logically and solve problems in professional life.									2		
33	13EC312	Design with PLD	Understand the basics of Full custom, Semicustom and PLD design methodologies		1									

		and FPGA	Design various combinational & sequential logic realizations using PLEs & PLDs.		2									
			Analyze the architectures of different FPGAs.		2									
			Design various sequential logic realizations using new generation PLDs.		2									
34	**13EC314**	**Microwave Engineering**	Understand the essential features and principles of microwave devices and various mathematical models which are relevant to microwave systems and asses the limitations of devices					1						
			Understand various types of High gain and wide band Microwave tubes					1						
			Understand the microwave passive devices, Tee junctions and various ferrite devices.					1						
			Understand the operation of solid state devices (Various Diodes operate at high frequency), ferrite devices and analyze the measurement of parameters at high frequency level.					2						2
35	**11EC311**	**Microprocessors & Microcontrollers**	Understand the working of Microcontroller 8051 and apply the knowledge of Architecture and Instruction Set		2									
			Understand the working of Internal Peripherals of 8051 and Apply Interfacing concepts of few I/O Peripherals to 8051 through programming.		2									
			Understand the functional model of Microprocessor 8086 (term)		2									
			Understand the working model of ARM Processor		2									
36	**13EC340**	**Information Theory Coding**	Understand the technique of measuring information and average of information for the independent and dependent sources.					1						1
			Apply the procedure for Huffman, Shannon-fano Encoding methods and getting rate of information transmission.					2						2
			Apply the procedure to calculate channel capacity and to detect/correct errors using linear block codes.					2						2
			Apply the concept of the encoding for binary cyclic and the convolution codes.					2						2
37	**13EC364**	**Design for Testability**	Understand the basic concept of reliability and modeling of faults as a requisite for achieving manufacturing quality of semiconductor devices and then testing techniques, fault detection in combinational circuits are described.		1									
			Describe the testing & fault detection in sequential circuits, and then minimization and folding techniques to achieve area-efficient design of VLSI chips.					1						
			Illustrate the fault detection & recovery methods to achieve fault tolerant design of VLSI chips.					2						
			Examine The test pattern generation for BIST and specific BIST architectures.		2									
38	**13EC371**	**Modern Digital Signal Processing**	Acquire the fundamental concepts of decimation and interpolation for multirate signal processing	1										1
			Estimation of power spectrum using parametric and non-parametric method. Matlab implementation to demonstrate relative merits and demerits					2						2

			Realization of DFT filter banks and trans multiplexers analysis. Demonstration and implementation for two channel perfect reconstruction in time and frequency domain.					2						
			Demonstration of DFT filter banks in Sampling rate converter, Phase shifter, Sub band coding and Sensor systems					2						
39	**13CS 334**	**TCP / IP**	Analyze the components of TCP suite					2						2
			Analyze the concepts of IP protocol ,mobile IP,P Addressing mechanisms & attacks on IP					2						2
			Apply socket API to write programs related to client server communication					2						2
			Applying various application layer paradigms .					2						2
40	**13EC345**	**EMI/EMC**	Understand the EMI, EMC Concept , EMI Control technique such as shielding	1	1			1						1
			Analyze EMI Control technique such as bonding, transient suppressors, Design Guidelines	2	2			2						2
			Understand EMC Design guidelines	2			2	2						2
			Understand Passive Components for EMC, testing setups	1	1			1						1
41	**13EC362**	**Low Power VLSI Design**	**understand the physics of power dissipation, dynamic and leakage power and what makes a circuit or device a low power device**	1	1			1						1
			Learn power estimation CMOS circuits for by using Simulation techniques and probabilistic analysis	1	1			1						1
			Understand and apply low power techniques at circuit level and gate level	2			2	2						2
			apply architectural techniques e.g. flow graph transformations , usage of low power data path components, low power clock structures to create low power devices	2	2			2						2
42	**13EC373**	**Multi Rate Signal Processing**	Demonstrate various multirate operations and associated filter bank models.	2										2
			Analyze maximally decimated filter bank structures and their poly phase representation.					2						2
			Understand para-unitary systems and linear phase perfect reconstruction filter banks					1						
			Analyze cosine modulated filter banks and their poly phase structures					2						
43	**13CS 335**	**Network Programming**	**Analyze** Socket API from Network Programming perspective					1						1
			Apply socket API for TCP and UDP to write programs related to Client/Server communication					1						1
			Analyze various Advanced Sockets & Networking Applications through Unix domain protocols and Routing Sockets					2						2
			Construct multiple threads that communicate with each other using Sun RPC					2						2
44	**13EM332**	**PCB Design**	Understand the active and passive components, characteristics and the materials used along with their properties, mounting components on PCB , classification of PCB boards					1						

			Understand different copper clad laminates and their properties, Soldering techniques.					1							
			Apply the knowledge of schematic and layout design a PCB					1							
			Understand the basics of PCB Fabrication and generate foot print for library, etc					1							
45	**11EE304**	**Control Systems**	Students can be able to understand control system concepts such as open, closed loop systems, transfer function approach, mathematical modeling of physical systems and can understand analyze the similarities between Synchronous and ac generators					1							
			Students can be able to Analyze the time domain and frequency response of physical systems					2							
			Students can be able to understand and analyze stability of given transfer functions in time and Frequency domain and can be able to analyze the process of Converting state space equations into transfer function for the given model.					2							2
			Students can be able to design and analyze controllers and lead, lag, lead-lag compensators					2							2
46	**13EC415**	**DSP Processors and Architecture**	Acquire the fundamental concepts of Digital Signal Processing	1											
			Learn the architecture details of Digital signal processors Architecture					2							
			Learn the TMS320C54XX architecture details of Digital signal processors Architecture					2							
			Analyze and learn to implement the signal processing algorithms in DSPs.					2							
47	**13EC342**	**Optical Communications**	Understand the basics of Light signals and different items of Optical communication link , advantages and applications .					1							
			Understand the concepts of transmission characteristics of optical fibers and Dispersion					1							
			Understand the concepts of sources, Detectors, Electro optic modulation and optical Amplifiers for optical communications					2							
			Understand the optical communications methodologies in communication networks					1							
48	**13EC461**	**Analog VLSI Design**	Understand the functionality and Electrical Properties of MOS Devices		1										
			Analyze different passive & active current mirrors					2							
			Analyze different amplifiers and their frequency Responses					2							
			Understand the concept of differential amplifiers and operational amplifiers & feedback topologies					2							
49	**13EC364**	**RF System Design**	Understand the Importance of RF and Microwave Circuit Design, Analyze RF behavior of passive components, their properties and its various applications, Compare Types of Transmission Lines and represent Equivalent Circuits					1							
			Analyze Smith Chart as Graphical AID/Tool for RF Design; Derive and Describe types of Smith Chart; Propose a Smith Chart for design of Active RF systems					2							
			Analyze Scattering parameters for Single And Multiport Networks; Model Signal Flow Chart					2							

			Analyze Unit Element and Kuroda's Identities Transformations; Stability Considerations and stabilization methods, RF Amplifiers Using Small Signal Analysis					2							
50	**11EM334**	**Micro Controllers Interfacing & System Design**	Understand and remember the fundamentals of the microcontrollers like architecture, memory organization.					1							
			Apply the instructions in writing basic assembly language programming.					2							
			Apply the concepts of interrupts, timers in applications where required.					2							
			Analyze the differences in architectures of 8051 and PIC µc's and Analyze Different I/O devices and their interfacing to 8051 µc					2							
51	**13EC372**	**Digital Image Processing**	Understand the fundamental concepts of a digital image processing system	1											
			Apply different image transformation techniques for digital image processing					2							
			Develop algorithms for digital image processing operations such as histogram equalization, enhancement, restoration, apply these techniques to real world problems.					2							
			Develop algorithms for digital image processing operations such as, image compression and color image processing and image segmentation and be able to apply these techniques to real world problems					2							
52	**13EC443**	**Satellite Communications**	Understand the fundamentals of satellite communications and characteristics of communication satellites.1					1							
			Design general satellite orbital terms and elements.	2											
			Understand satellite subsystems which comprise space, earth segments and link budget parameters					1							
			Understand the basic concepts of multiple access techniques, satellite navigation and GPS					1							
53	**13EC363**	**ASIC Design**	Analyze different types of ASIC design methodologies and Different CPLD Architectures		2										
			Develop Program of different logic circuits using HDL and Verilog Programming and analyze different types of Faults in logic circuits.					2							
			Analyze ASIC design flow					2							
			Analyze Physical design flow of ASIC, Extraction the final circuit					2							
54	**13EC474**	**Speech Processing**	Understanding the fundamentals of speech production and its modeling					1							
			Analyzing various speech coding methods					2							
			Understanding of speech synthesis models and their applications					1							
			Demonstrate automatic speech recognition systems and analysis for their development					1							

55	**13CS433**	**High Speed Optical Communication Networks**	Understand the basics of light signals and different types of optical communication link methodologies					1						
			Understand the concepts of transmission characteristics of optical fibers and dispersion					1						
			Analyze the concepts of optical transmission and detectors, electro optic modulation and optical amplifier					2						
			Analyze the concept of basic networks					2						
56	**13EC447**	**Radar and Navigational Aids**	Understand the essential principles of operation and design of simple radar systems and the associated signal processing, at block diagram level.					1						
			Apply appropriate mathematical and computer models relevant to radar systems to calculate system performance, and assess the limitations of particular cases.		2									
			Apply the principles of Electronic Warfare, stealth and counter stealth, and bi-static radar, and apply the appropriate design equations to calculate performance.					2						
			Apply the principles of tracking radars and radio navigation systems (including secondary radar and GPS).					1						
57	**13EC444**	**Cellular Communications**	Understand the basic principles of wireless communication systems					1						
			Explore propagation mechanisms and channel interferences.					2						
			Elucidate the basic principles equalizers, receiver techniques.					2						
			Analyze wireless systems & OFDM standards.					2						
58	**13EC465**	**Mixed Signal Circuits & Systems**	Analyze the data converter fundamental principle by ADC and DAC		2									
			Performance evaluation of different ADC and DAC circuits.					2						
			Analyze Data converter Architectures and SNR by using different types of ADC and DAC					2						
			Analyze the Wireless Communication Systems by using mixed-signal.					2						
59	**13EC470**	**Array Signal Processing**	Understand concepts of signals in various domains and sensor arrays					1						
			Analyze signal arrays by using different methods in far field region					2						
			Analyze Beam foaming techniques by using various signals In spatial spectrum					2						
			Understand different algorithms used in Array signal processing					2						
60	**13EC349**	**Radiating Systems**	Understand the basic antenna parameters of different antennas to estimate the radiation characteristics of different current distributions		2									
			Analyzing the different distributions of an antenna and Apply the concept of radiation to reflector antenna.		2									
			Analyze the characteristics of linear antennas, antenna synthesis techniques and micro strip antennas.		2									

			Understand the different types of strip antennas and analyzing the radiation parameters using antenna measurements.		2									
61	**13CS434**	**Wireless Communications and Networking**	Describe various CDMA, cellular mechanism wireless network models.	2										
			Discuss OFDM and multiple radio access	2										
			Explain wireless system WANS, LANS, services	2										
			Explain ADHOC Sensor network					2						

Professor incharge

Head of the department