

## **K L University**

### **Department of ECE**

### **Academic Year 2014**

#### **Mapping of ECE Department M.Tech (CR) Mission Statement with POs, 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:** Apply concepts of Statistics, Linear Algebra and Residue Calculus in Communication, Signal processing and Electromagnetic domain.
- **PEO2:** Solve issues in real world communication sectors, and develop feasible and viable communication systems.
- **PEO3:** Inculcate effective communication skills, practice effective team work, professional ethics and pursue research.

## **Programe Outcomes**

PO1	a	The courses expose students to a deep understanding of Channel Encoding and Decoding, Modulation and Demodulation, Radio Frequency Conversion, Channel Transmission, and performance extraction.
PO2	b	The course involves understanding of the physical issues in communications and its abstraction to mathematical models, followed by engineering approximation leading to a viable algorithm
PO3	c	The course involves mathematical modeling of communication events including noise, devices and systems that are different across various channels and hence is intensively problem oriented.
PO4	d	The approach in this course has been to provide a strong exposure to fundamentals with full mathematical rigor in Signal Processing, Communications and Electromagnetic followed by an exposure to specific courses in state of art in wireless, wire line and optical communications. This provides a strong background to engage in developments in these communication systems.
PO5	e	The student is exposed to Numerical and Algorithmic procedures in the theoretical courses with a strong lab component using Matlab environment, Embedded Environment and Electromagnetic Flow solver tools like HFSS and FEKO.
PO6	f	As a part of the mini project, major project or internship the student is exposed to interfacing for communications with real world sensors, transmission of speech and complex images from cameras all of which require multidisciplinary work.
PO7	g	Dev As a part of progress reports on mini and major projects the student is expected to develop his skills in written and oral presentation of the work that he has accomplished. Develop professional and ethical attitude and become socially responsible citizens.

PO8	h	Exposure to prerequisite math's and a mathematically rigorous approach to communication theory will provide him with all the necessary background to pursue a career in any field of communications going forward in his career.
PO9	i	In the individual lab assignments, mini project and major project tasks the student is exposed to thought provoking issues in communication system practice that need association of theoretical learning with real issues in a communication environment.

#### Mapping of Mission statements with program educational objectives

	M1	M2	M3
PEO1			✓
PEO2		✓	✓
PEO3	✓	✓	

#### Mapping of PEOs with Pos and PSOs

	PEO1	PEO2	PEO3
PO1	✓	✓	
PO2	✓	✓	
PO3	✓	✓	
PO4	✓		✓
PO5	✓		
PO6		✓	✓
PO7			✓
PO8	✓		
PO9	✓	✓	

## MTech COMMUNICATION & RADAR [A.Y - 2013 - 2014]

S. N O	COURSE CODE	COURSE NAME	CO No	CO	1	2	3	4	5	6	7	8	9		
1	13EC501	Modern Digital Communications	1	Understand different modern digital modulation techniques and probability of error statistics.	1										
			2	Analyze the performance of baseband and pass band data transmission in terms of signaling schemes.	2										
			3	Understand the concepts of block and convolution codes with respect to transfer functions and decoding operations.	1										
			4	Analyze the spread spectrum signals and signal analysis for different digital communication technologies.				2							
			5	Interpret different digital communication modules with respect to signal analysis in application orientation.						3					
2	13EC503	Microwave and Millimetric wave circuits	1	Classify different microwave circuits based on applications.		1									
			2	Estimate the importance of transformers and resonators in microwave circuit design.			2								
			3	Design of microwave filters and periodic structures.				3							
			4	Understand the feeding principles and excitation techniques in waveguide design.				1							
			5	Construct millimeter wave circuits using electromagnetic tools.						3					
3	13EC502	Radiating Systems	1	Understand the basic antenna parameters of different antennas to estimate the radiation characteristics of different current distributions.	1										
			2	Analyzing the different distributions of an antenna and Apply the concept of radiation to reflector antenna.		2									
			3	Analyze the characteristics of linear antennas, antenna synthesis techniques and micro strip antennas.	1										
			4	Understand the different types of strip antennas and analyzing the radiation parameters using antenna measurements.	1										
4	13 EC 550	MOS CIRCUIT DESIGN	1	Understand the basics concepts of digital system design, modeling techniques in Verilog HDL.					1						
			2	Design of various Combinational & Sequential Logic realizations using Verilog HDL and design flow	3				3						



			3	Understand the radio propagation and cellular engineering concepts	1									
			4	Identify digital modulation and demodulation principles and architectures, interference in wireless communication systems.	1									
1 0	13EC566	CMOS RF Circuit Design	1	Understand Fundamental Issues related to RF circuit design	1									
			2	Analyze different Analog and Digital Modulation Schemes	2									
			3	Examine Heterodyne Receivers, Direct IF and Subsampled Receivers	2									
			4	Analyze BJT and MOSFET behavior at RF Frequencies	2									
			5	Modeling and Design of RF circuits at different frequencies.			3							
1 1	13EC506	Estimation and Detection Theory	1	Classify different criteria associated to detection theory at receiver.	1									
			2	Understand the concepts of integration of optimum receiver and matched filter receiver.			1							
			3	Analyze the maximum likelihood estimation methods.	2									
			4	Understand the concepts of estimation in the presence of Gaussian noise and prediction with Kalman filters.			1							
1 2	13EC505	RF and Microwave System Design	1	Understand the importance of RF & Microwave System design with passive components.	1									
			2	Understand Smith chart concept for analyzing S, Y, Z parameters.	1									
			3	Analyze S-parameters with conversions and modeling.	2									
			4	Design of RF- filters, amplifiers and oscillators.			3							

Professor incharge

Head of the department