K L University

Department of ECE

Academic Year 2014

M. Tech Program VLSI

Mapping of ECE Department M.Tech (VLSI) 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

PROGRAM EDUCATIONAL OBJECTIVES (PEOS):

➢ **PEO1:** Employability in the diversified sectors of core industry, public sector or multinational corporations, in the domain of Semiconductor Technology, ASIC Design and Verification, Embedded Systems - Hardware and Software Development.

➢ **PEO2:** Ability to pursue higher education in technologies related to VLSI and Embedded Systems at institutes of repute and high standard leading to contributions to technology.

➢ **PEO3:** Attitude of lifelong learning and skills of effective inter-person communication resulting in leading diverse teams, with ethical and social behavior.

Programe Outcomes

PO1	a	Apply the knowledge of science, mathematics, and engineering principles for developing problem solving attitude.
PO2	b	Identify, formulate and solve engineering problems in the broad areas like System Design using VLSI and Embedded Platforms and tools, Semiconductor Technologies, Applications in Signal Processing, Machine Vision and Communication Networks.
PO3	c	Use different software tools in the domain of VLSI and Embedded Systems Design, Analysis and Verification such as Design entry, Synthesis, Functional and Timing Simulation, Floor-planning, Place and route, Layout editors, RTL schematic, Platform specific EDA sets, MATLAB.
PO4	d	Design and conduct experiments, analyze and interpret data, imbibe programming skills for development of simulation experiments.
PO5	e	Function as a member of a multidisciplinary team with sense of ethics, integrity and social responsibility.

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			✓

S.NO	COURSE CODE	COURSE NAME	Cos	COURSE OUTCOME	P01	PO2	PO3	PO4	PO5
				2014-15 (Semester I)					
1	13 EC 553	IC Fabrication	1	Ability to understand the Concepts of fabrication and steps following for fabrication	1				
			2	Understand different modelling technologies and materials used for fabrication		2			
			3	Ability to understand the concepts of lithography and deposition		3			
			4	Analyze the various etching technologies for preparation of ICs		3			
2	13EC552	HDL & PLD Architectures	1	Understand the basics concepts of digital system design, their modeling techniques in Verilog HDL.			1		
			2	Design of various Combinational & Sequential Logic realizations using Verilog HDL.			2		
			3	Compare and analysis of different PLD's and CPLD's architectures.			2		
			4	Memorize and analysis of different FPGA architectures.			2		
			5	Create and Analysis of digital modules through project oriented approach					3
3	13EC550	MOS CIRCUIT DESIGN	1	Understand the basics concepts of digital system design, their modeling techniques in Verilog HDL.		1			
			2	Design of various Combinational &Sequential Logic realizations using Verilog HDL and design flow		2			
			3	Characteristics of inverter and calculation of different delays		2			
			4	Design of different combinational and sequential circuits		2			
			5	Create and Analysis of digital modules through project oriented approach					3
4	13EC551	ALGORITHMS FOR VLSI DESIGN	1	Ability to understand the Concepts of design methodologies in routing and layout	2				
			2	Understand different levels of modelling of digital circuits and scheduling	2				
			3	Ability to understand the FPGA Technologies for development of physical design				2	
			4	Analyze the routing and distribution of cells in ICs				2	

5	13EC591	Nano Electronics	1	Ability to understand the Concepts nano Electronics	2				
			2	Understand different Architectures and equipment for nano electronics	2				
			3	Ability to understand the spintronics		2			
			4	Analyze the various memory devices and sensors in nano electronics		2			
6	13EC592	Semiconductor Device Modeling	1	Understand the basics concepts of MOS transistors			2		
			2	Calculation of threshold voltage, delay, sensitivity			2		
			3	Characteristics Bipolar devices		2			
			4	Design of different combinational circuits		2			
2014-15 (Semester II)									
1	13EC570	Advanced Analog IC Design	1	Understand the operation of different current mirrors	2				
			2	Analyze the frequency response of different Amplifiers.				2	
			3	Design of two stage Op-Amp using single stage Op-Amp				2	
			4	Describe the various Feedback topologies.	2				
			5	Understand and apply the concepts of Non Linear Analog circuits.	2				
2	13EC555	Low Power VLSI Circuits	1	Understand power dissipations concepts related to VLSI circuits		2			
			2	Evaluate the performance of different circuits using simulation & probabilistic power analysis.		2			
			3	Analyze low power techniques at logical, circuit, architectural and systems level		2			
			4	Analyze Clock Distribution techniques, Special techniques		2			
			5	Project based lab					2
3	13EC556	VLSI System Design	1	Ability to understand the importance Programmable devices in VLSI			2		
			2	Understand difference between Data path sub system and array subsystem			2		
			3	Ability to understand the methodology of interconnects				2	
			4	Analyze synchronization of clock and synthesis of different disigns				2	
4	13EC571	Testing of VLSI Circuits	1	Understanding and application user-defined primitives in Fault dominance, understanding various simulation and Gate level event-driven simulation for digital circuits.		2			

#	Code	Subject	No	Outcome					
			2	Understanding, Test generation for various Combinational logic circuits and ability to design its Testable Combinational circuits.		2			
			3	Design for Testability, Generic scan based design and Classical scan based design			2		
			4	Analyze and ability to Testable various BIST– MBIST, LBIST. Fault Diagnosis of digital circuits and Diagnosis by UUT reduction.			2		
5	13EC562	System On Chip Design	1	To understand the basic concepts of SOC design.	2				
			2	To summarize and explain the performance evaluation methods	2				
			3	To classify and understand the power management process and modeling design tools			2		
			4	To understand and study the micro-architecture design and modeling, software and hardware design verifications			2		
6	13EC593	Nano Sensors &Its Applications	1	Understanding working principles of nano sensors and its characteristics	2				
			2	Understanding working of inorganic sensors	2				
			3	Understanding working of organic sensors				2	
			4	Application of nano sensors and detectors				2	

Professor incharge   Head of the department