



## Koneru Lakshmaiah Education Foundation

(Category -1, Deemed to be University estd. u/s. 3 of the UGC Act, 1956)

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### Department of Electronics and Communication Engineering

Program: M.Tech -VLSI

Academic Year 2020-2021

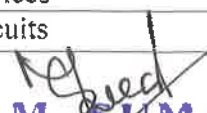
Course Code	Course Name	CO NO	CO Description
20EC5128	MOS Circuit Design	1	Understand basic concepts of VLSI design flow, Design styles, IC fabrication and layout design rules for CMOS circuits
		2	Understand and Analyze MOS device operation, second order effects, and concepts related to scaling.
		3	Analyze inverter circuits with different loads. Understand the effect of parasitic on circuit performance.
		4	Understand and design Combinational and Sequential MOS logic Circuits. Analyze different Dynamic logic circuits
		5	Design of Various CMOS Circuits using EDA tools
20EC5129	Analog IC Design & Design for Testability	1	Understand the basic working of MOS transistor and application of MOSFET for the realization of current mirrors and voltage reference.
		2	Analysis and design of single stage amplifiers using MOSFET's
		3	Analysis and realization of MOSFET operational amplifiers and their deviation from ideality.
		4	Analyzing negative feedback in analog circuit and the analysis of non- linear analog circuits for practical application.
		5	Design and analysis of analog circuits with the application of multiple circuit typologies and configurations using Mentor Graphics
20EC5130	ASIC & FPGA Design	1	Understand the different types of ASIC design methodologies and Understand the basic coding concepts of digital system design, their modeling techniques in Verilog HDL.
		2	Design and Analysis of various Combinational & Sequential Logic realizations using Verilog HDL.
		3	Understand the concepts of Floor Planning, Placement and Routing Algorithms
		4	Understand of different FPGA architectures.
		5	Design and Analysis of digital modules through project
20EC5131	IC Fabrication Technology	1	Ability to understand the Concepts of design methodologies in routing and layout
		2	Understand different levels of modelling of digital circuits and scheduling
		3	Ability to understand the FPGA Technologies for development

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			of physical design
		4	Analyze the routing and distribution of cells in ICs
20EC51Q2	VLSI Signal Processing	1	To understand the basic concepts and processes of VLSI and DSP with iteration bound : means the computation time for the system.
		2	To study pipelining and parallel processing for different filters
		3	To Analyse about different properties of retiming and unfolding techniques
		4	To Analyse about convolution and Filters and Transforms.
20EC51R3	Semiconductor Device Modeling	1	Understand the basic device physics and study of MOS capacitor
		2	Understand and study of MOSFET physics and characteristics.
		3	Understanding the energy band diagrams of BJT and time dependent analysis.
		4	Understanding the concepts of designing of emitter, base and collector and study of modern BJT.
20 IE5149	Seminar	1	Enhancing verbal delivery, body language, power point skills, structuring the presentation, engaging audience, tone of presentation for the overall improvement of individual presentation skills.
20 TS5101	Technical Skilling- I	1	Understand and recognize various VLSI design modules
		2	Interpret and demonstrate combinational circuits design using verilog
		3	Interpret and demonstrate Sequential circuits design using verilog
		4	Understanding the process of ASICs design fundamentals using verilog
20EC5232	RF IC Design & Introduction to mm RADAR	1	Understand the basics of RF system design and transmission media and reflection in passive components
		2	Study and understanding the distributed systems and noise effects
		3	Analysis and realization of voltage controlled oscillators
		4	Introduction to mm-wave RADAR and effect the of IC technology in the design of RADARs.
		5	Analysis and study of standard functional blocks of communication system at super-high frequencies.
20EC5233	Low Power VLSI Circuits	1	Understand the physics of power dissipation including short circuit power, dynamic power and leakage power, techniques that makes a low power circuit and introduction to simulation power analysis
		2	Analyses probabilistic power analysis and apply low power techniques at circuit level for CMOS circuits
		3	Apply low power techniques at gate level, architecture level and system levels
		4	Understand essential tasks in algorithm and architecture level low power design environments and Apply low power clock tree distribution techniques to create low power devices
		5	Design of Various Low Power Circuits

  
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20EC5234	Algorithm for VLSI Design Automation	1	Ability to understand the importance Programmable devices in VLSI
		2	Understand difference between Data path sub system and array subsystem
		3	Ability to understand the methodology of interconnects
		4	Analyze synchronization of clock and synthesis of different designs
20EC5235	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	Understanding, Test generation for various Combinational logic circuits and ability to design its Testable Combinational circuits.
		3	Design for Testability, Generic scan-based design and Classical scan-based design
		4	Analyze and ability to Testable various BIST- MBIST, LBIST. Fault Diagnosis of digital circuits and Diagnosis by UUT reduction.
20EC52S3	MEMS System Design	1	UNDERSTAND THE CONCEPTS OF MOS CIRCUIT DESIGN
		2	Analyze different types of buffers in mos circuits
		3	Analyze the layouts of MOS circuits
		4	Analyze total circuit design of MOS circuits
20EC52T1	Advanced Digital IC Design	1	Develop Program of different logic circuits using Verilog Programming and analyze different types of Faults in logic circuits.
		2	Analyze different types of ASIC design methodologies and Different CPLD
		3	Analyze ASIC design flow of customized ASICs
		4	Analyze Physical design flow of ASIC, Extraction the final circuit
20 IE5250	Term Paper	1	Enhancing the skill sets in research by recognize and identifying problems, exploring/defining the problem by gathering information, formulation of the research objectives, addressing the problem through scientific process and methods.
20 TS5102	Technical Skilling-II	1	Enhancing the system design and modeling capabilities through visualization of scientific theories and concepts while building and developing the capabilities of designing a new system by altering and implementing new algorithm and methods through visualization tools.

  
Academic Professor I/C

  
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