



MACET
MARTHANDAM COLLEGE OF
ENGINEERING AND TECHNOLOGY

DEPARTMENT OF ELECTONICS & COMMUNICATION ENGINEERING

COURSE OUTCOMES



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S.No	Sem	Course Code	Course Name
1.	I	MA5152	Applied Mathematics for Electronics Engineers
2	I	AP5151	Advanced Digital System Design
3	I	VL5191	DSP Integrated Circuits
4	I	VL5101	CMOS Digital VLSI Design
5	I	VL5102	CAD for VLSI Circuits
6	I	VL5103	Analog IC Design
7	I	VL5111	VLSI Design Laboratory I
8	II	VL5202	Low Power VLSI Design
9	II	VL5002	RF IC DESIGN
10	II	VL5291	VLSI Signal Processing
11	II	DS5191	DSP Processor Architecture and Programming
12	II	VL5201	Testing of VLSI Circuits
13	II	AP5191	Embedded System
14	II	VL5211	VLSI Design Laboratory II
15	III	VL 5301	Analog To Digital Interfaces
16	III	AP5292	Digital Image Processing
17	III	EE8351	Digital Logic Circuits



PROGRAM OUTCOMES (POs)

List of Program Outcomes

PO1	Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
PO2	Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences
PO3	Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
PO4	Conduct investigations of complex problems: Use research-based Knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
PO5	Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
PO6	The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
PO7	Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
PO8	Ethics: Apply ethical principles and commit to professional ethics and Responsibilities and norms of the engineering practice.
PO9	Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
PO10	Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
PO11	Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.



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PO12	Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change
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Program Specific Outcomes (PSOs)

List of Program Specific Outcomes

PSO1	To analyze, design and develop solutions by applying foundational concepts of electronics and communication engineering.
PSO2	To apply design principles and best practices for developing quality products for scientific and business applications.
PSO3	To adapt to emerging information and communication technologies (ICT) to innovate ideas and solutions to existing/novel problems



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Course Code & Course Name : MA5152 Applied Mathematics for Electronics Engineers

COURSE OUTCOMES (COs)

List of Course Outcomes

CO1	Concepts of fuzzy sets, knowledge representation using fuzzy rules, fuzzy logic, fuzzy prepositions and fuzzy quantifiers and applications of fuzzy logic.
CO2	Apply various methods in matrix theory to solve system of linear equations.
CO3	Computation of probability and moments, standard distributions of discrete and continuous random variables and functions of a random variable.
CO4	Conceptualize the principle of optimality and sub-optimization, formulation and computational procedure of dynamic programming
CO5	Exposing the basic characteristic features of a queuing system and acquire skills in analyzing queuing models.
CO6	Using discrete time Markov chains to model computer systems.

Course Code & Course Name : AP5151 Advanced Digital System Design

COURSE OUTCOMES (COs)

List of Course Outcomes

CO1	Analyze and design sequential digital circuits
CO2	Design various combinational digital circuits using logic gates.
CO3	Do the analysis and design procedures for synchronous and asynchronous sequential circuits
CO4	Identify the requirements and specifications of the system required for a given application
CO5	Design and use programming tools for implementing digital circuits of industry standards.

Course Code & Course Name :VL5191 DSP Integrated Circuits

COURSE OUTCOMES (COs)

List of Course Outcomes

CO1	Get to know about the Digital Signal Processing concepts and its algorithms
CO2	Get an idea about finite word length effects in digital filters
CO3	Concept behind multi rate systems is understood.
CO4	Get familiar with the DSP processor architectures and how to perform synthesis of processing elements



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CO5	Implement different type of applications for digital techniques
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Course Code & Course Name: VL5101 CMOS Digital VLSI Design

COURSE OUTCOMES (COs)

List of Course Outcomes

CO1	Carry out transistor level design of the most important building blocks used in digital CMOSVLSI circuits.
CO2	Carry out analysis on combinational logic circuits
CO3	Carry out analysis on sequential logic circuits
CO4	Discuss design methodology of arithmetic building block
CO5	Analyze tradeoffs of the various circuit choices for each of the building block

Course Code & Course Name: VL5102 CAD for VLSI Circuits

COURSE OUTCOMES (COs)

List of Course Outcomes

CO1	Outline floor planning and routing
CO2	Explain Simulation and Logic Synthesis
CO3	Discuss the hardware models for high level synthesis
CO4	Discuss design methodology of arithmetic building block
CO5	Analyze tradeoffs of the various circuit choices for each of the building block

Course Code & Course Name: VL5103 Analog IC Design

COURSE OUTCOMES (COs)

List of Course Outcomes

CO1	Design amplifiers to meet user specifications
CO2	Analyse the frequency and noise performance of amplifiers
CO3	Design and analyse feedback amplifiers and one stage op amps
CO4	Design and analyse two stage op amps
CO5	Design and analyse current mirrors and current sinks with mos devices



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Course Code & Course Name : VL5111 VLSI Design Laboratory I

COURSE OUTCOMES (COs)

List of Course Outcomes

CO1	To map it onto FPGA platform and carry out a series of validations design starting from design entry to hardware testing
CO2	To design and carry out time domain
CO3	To design frequency domain simulations of simple analog building blocks
CO4	To study the pole zero behaviors of feedback based circuits
CO5	To compute the input/output impedances



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II SEMESTER



Course Code & Course Name: VL5202 Low Power VLSI Design

COURSE OUTCOMES (COs)

List of Course Outcomes

CO1	The student will get to know the basics and advanced techniques in low power design which is a hot topic in today's market where the power plays major role.
CO2	The reduction in power dissipation by an IC earns a lot including reduction in size, cost and etc.
CO3	Will come to know the design of low power CMOS circuits.
CO4	Will come to know types of power estimation techniques.
CO5	Will come to know synthesis and software design for low power

Course Code & Course Name: VL5002 RF IC DESIGN

COURSE OUTCOMES (COs)

List of Course Outcomes

CO1	To be able to design and implement various impedance matching techniques.
CO2	To be able to design CMOS Low noise amplifier.
CO3	To be able to design and know the operation of various mixer circuits.
CO4	To be able to design various oscillators.
CO5	To be able to understand the principles of operation and to design and apply constraints for PLL and Frequency synthesizers.

Course Code & Course Name: VL5291 VLSI Signal Processing

COURSE OUTCOMES (COs)

List of Course Outcomes

CO1	Ability to determine the parameters influencing the efficiency of DSP architectures and apply pipelining and parallel processing techniques to alter FIR structures for efficiency
CO2	Ability to analyse and modify the design equations leading to efficient DSP architectures for transforms apply low power techniques for low power dissipation
CO3	Ability to speed up convolution process and develop fast and area efficient IIR structures
CO4	Ability to develop fast and area efficient multiplier architectures
CO5	Ability to reduce multiplications and build fast hardware for synchronous digital system



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Course Code & Course Name: DS5191 DSP Processor Architecture and Programming

COURSE OUTCOMES (COs)

List of Course Outcomes

CO1	Digital Signal Processor basics.
CO2	TMS 320C5Xprocessor Architecture and programming skills.
CO3	TMS 320C5Xprocessor Architecture and programming skills.
CO4	ADSP processor Architecture and programming skills
CO5	Advanced DSP architectures and application.

Course Code & Course Name: VL5201 Testing of VLSI Circuits

COURSE OUTCOMES (COs)

List of Course Outcomes

CO1	Understand VLSI Testing Process
CO2	Develop Logic Simulation and Fault Simulation
CO3	Develop Test for Understand the
CO4	Design for Testability Combinational and Sequential Circuits
CO5	Perform Fault Diagnosis

Course Code & Course Name : AP5191 Embedded System

COURSE OUTCOMES (COs)

List of Course Outcomes

CO1	Explain different protocols
CO2	Discuss state machines
CO3	Design process models
CO4	Outline embedded software development tools
CO5	RTOS



Course Code & Course Name : VL5211 VLSI Design Laboratory II

COURSE OUTCOMES (COs)

List of Course Outcomes

CO1	To map it onto FPGA paltform and carry out a series of validations design starting from design entry to hardware testing
CO2	To design and carry out time domain
CO3	To design frequency domain simulations of simple analog building blocks
CO4	To study the pole zero behaviors of feedback based circuits
CO5	To compute the input/output impedances



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III SEMESTER



Course Code & Course Name: VL 5301 Analog To Digital Interfaces

COURSE OUTCOMES (COs)

List of Course Outcomes

CO1	To understand the importance of sampling the input analog signal for digitization and enabling circuit architectures
CO2	To understand the importance of switched capacitor circuits and comparators
CO3	To understand the principles of Digital to Analog conversion of signals.
CO4	To understand the principles of Analog to Digital conversion of signals.
CO5	To understand the importance of calibration techniques for achieving precision during data conversion

Course Code & Course Name : AP5292 Digital Image Processing

COURSE OUTCOMES (COs)

List of Course Outcomes

CO1	Discuss Fundamentals of digital images
CO2	Explain different image transforms
CO3	Discuss image enhancement techniques
CO4	Explain color image processing
CO5	Compare image compression schemes

Course Code & Course Name : EE8351 Digital Logic Circuits

COURSE OUTCOMES (COs)

List of Course Outcomes

CO1	Design supply reference circuits.
CO2	Explain Low drop out regulators
CO3	Explain oscillator fundamentals
CO4	Explain phase lock loops
CO5	Design Clock Generation circuits



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