



GEETHANJALI INSTITUTE OF SCIENCE & TECHNOLOGY

Autonomous

An ISO 9001:2015 certified Institution: Recognized under Sec. 2(f)& 12(B) of UGC Act, 1956
3rd Mile, Bombay Highway, Gangavaram (V), Kovur(M), SPSR Nellore (Dt), Andhra Pradesh, India- 524137
E-Mail: geethanjali@gist.edu.in, Website: www.gist.edu.in



**GEETHANJALI INSTITUTE OF SCIENCE & TECHNOLOGY: NELLORE
(AUTONOMOUS)**

NELLORE-524317(A.P) INDIA

M.TECH

IN

EMBEDDED SYSTEM & VLSI DESIGN

COURSE STRUCTURE AND SYLLABI

K. Sharan Kumar
MEMBER SECRETARY


Head of the Department
Dept. of Electronics & Communication Engg.
GEETHANJALI INSTITUTE
OF SCIENCE & TECHNOLOGY
GANGAVARAM (V), KOVUR (M)
SPSR NELLORE (Dt), A.P. 524137

PRG 25 REGULATIONS



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VISION

Achieving academic excellence in Electronics and Communication Engineering by shaping next-generation technocrats keeping pace with socio-economic needs.

MISSION

M1: Adopting outcome oriented teaching -learning processes to provide comprehensive knowledge in the application of Electronics and Communication Engineering principles.

M2: Striving for implementation of advanced technology to cater to industrial demands and societal concerns.

M3: Producing highly skilled and responsible professionals with robust ethical values.

M4: Integrating technical capabilities, life skills and entrepreneurship abilities to produce dynamic contributors to social advancement.

Program Educational Objectives (PEOs)

After few years of graduation, the graduates of B.Tech. (ECE) will be:

PEO-1: Demonstrating a deep passion for continuous learning through technical expertise for a promising career.

PEO-2: Exhibiting a strong commitment to serving the society with adherence to professional ethics.

PEO-3: Managing resources efficiently as competent engineers through effective social interaction.

PEO-4: Engaging in advanced learning and contributing to technological innovations.

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Program Outcomes

On successful completion of the Program, the graduates of B.Tech. (ECE) Program will be able to:

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 modelling 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.
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.

Program Specific Outcomes

- PSO1** Design and develop electronic circuits and communication systems, applying the principles of signal, image processing, VLSI, Embedded and wireless applications relevant to industry and society.
- PSO2** Adopting software tools like Matlab, Xilinx, Microwind, NS-2 to develop intelligent systems to offer customized solutions.



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M. Tech I Year I Semester (Theory-4, Lab-2, MC-1, AC-1)

Sl. No.	Category	Course Code	Course Title	Hours per week			Credits
				L	T	P	
1.	PC	25MEV01T	CMOS Digital IC Design	3	0	0	3
2.	PC	25MEV02T	Microcontrollers and Programmable Digital Signal Processors	3	0	0	3
3.	PE		Program Elective-I	3	0	0	3
4.	PE		Program Elective-II	3	0	0	3
5.	PC	25MEV01P	CMOS Digital IC Design Lab	0	0	4	2
6.	PC	25MEV02P	Microcontrollers and Programmable Digital Signal Processors Lab	0	0	4	2
7.	MC	25MMC01	Research Methodology and IPR	2	0	0	2
8.	SE	25MSE01	RTL Synthesis, Simulation and Verification	0	1	2	2
		25MSE02	IoT and RTOS for Embedded Applications				
9.	AC		Audit Course – I	2	0	0	0
		25MAC01	Technical Research paper writing				
		25MAC02 25MAC03	Disaster Management Sanskrit for Technical Knowledge				
Total				16	1	10	20

S. No.	Course Code	Name of the Program Elective
1	25MEV03T	Communication Buses and Interfaces
2	25MEV04T	Data Acquisition System Design
3	25MEV05T	FPGA Architectures and Applications
4	25MEV06T	Low Power VLSI Design
5	25MEV07T	Scripting Languages for VLSI
6	25MEV08T	Network Security and Cryptography
7	25MEV09T	Testing and Verification
8	25MEV010T	CAD for VLSI
9	25MEV011T	Nano-materials and Nanotechnology

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M. Tech I Year II Semester (Theory-4, Lab-2, MC-1, AC-1)

Sl. No.	Category	Course Code	Course Title	Hours per week			Credits
				L	T	P	
1.	PC	25MEV012T	CMOS Analog IC Design	3	0	0	3
2.	PC	25MEV013T	Embedded System Design	3	0	0	3
3.	PE		Program Elective-III	3	0	0	3
4.	PE		Program Elective-IV	3	0	0	3
5.	PC	25MEV012P	CMOS Analog IC Design Lab	0	0	4	2
6.	PC	25MEV013P	Embedded System Design Lab	0	0	4	2
	MC	25MMC02	Quantum Technologies and Applications	2	0	0	2
7.	PC	25MPC01	Comprehensive Viva Voce	0	0	0	2
8.	AC		Audit Course – II	2	0	0	0
		25MAC04	Pedagogy Studies				
		25MAC05	Stress Management for Yoga				
		25MAC06	Personality Development through Life Enlightenment Skills				
Total				16	0	8	20

S. No.	Course Code	Name of the Program Elective
1	25MEV014T	Pattern Recognition and Machine Learning
2	25MEV015T	Programming Languages for Embedded Software
3	25MEV016T	RF IC Design
4	25MEV017T	SoC Architecture
5	25MEV018T	System Design with Embedded Linux
6	25MEV019T	Physical Design Automation
7	25MEV020T	DSP Processors & Architectures
8	25MEV021T	Optimization Techniques in VLSI Design

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M. Tech II Year I Semester (Theory-2, PR-1)

Sl. No.	Category	Course Code	Course Title	Hours per week			Credits
				L	T	P	C
1.	PE		Program Elective-V	3	0	0	3
2.	OE		Open Elective	3	0	0	3
3.	PR	25MPR02	Project Work Phase – I	0	0	20	10
4.		25MPR03	Industry Internship	0	0	0	2
5.		25MPR04	Co-curricular Activities	0	0	0	1
Total				6	0	20	19


S. No.	Course Code	Name of the Program Elective
1	25MEV022T	Adhoc and Wireless Sensor Networks
2	25MEV023T	VLSI Signal Processing
3	25MEV024T	Industrial Internet of Things
4	25MEV025T	Semi Conductor Memory Design and Testing
5	25MEV026T	Hardware Software Co - Design

S. No.	Course Code	Name of the Open Elective
1	25MOE101a	Industrial Safety
2	25MOE101b	Business Analytics
3	25MOE101c	Waste to Energy
4	25MOE101d	Optimization Techniques
5	25MOE101e	IoT and its Applications

M. Tech II Year II Semester (PR-1)

Sl. No.	Category	Course Code	Course Title	Hours per week			Credits
				L	T	P	C
1.	PR	25MPR05	Project Work Phase – II	0	0	32	16
Total				0	0	32	16

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