(iii) B. Tech. in Electronics and Communication Engineering (ECE) and M. Tech. in VLSI and Embedded Systems

Program Learning Objectives:	Program Learning Outcomes:
1. Develop a solid foundation in electronics and communication engineering principles, including circuit analysis, electronic devices, signal processing, microprocessor/microcontroller systems, analog communication systems, digital communication, and RF circuits etc. 2. Develop electronics and communication project management skills, including the ability to plan, execute, and complete within specified timelines and budgets. 3. Work collaboratively in multidisciplinary teams, demonstrating effective teamwork and communication to solve complex engineering problems. 4. Recognize the importance of ongoing professional development, engaging in activities such as certifications, workshops, and conferences to stay updated of industry trends.	The graduates of this program will have 1. a successful career in an Academia/Industry/Entrepreneur. 2. strong fundamentals in electronics and communications engineering. 3. ability to design prototypes for real world problems related to electronics, communications and interdisciplinary fields. 4. ability to develop soft skills such as effective communications in both verbal and written forms, body language, time management, problem-solving, leadership, work in both team as well as individual in a professional manner.
Program Goal 1: Academic excellence by providing a curriculum that aligns with industry standards and encourages critical thinking in the field of electronics and communication engineering.	**Program Learning Outcome 1a:** Highly skilled market ready man power to serve the emerging electronic sectors **Program Learning Outcome 1b:** Skilled Human resource to cater the needs of next generation communication sectors
Program Goal 2: A culture of research and innovation by promoting faculty and student involvement in cutting-edge projects in electronic and communication technologies.	**Program Learning Outcome 2a:** Trained researchers for implementing research projects in line with national priorities such as CPS, Semiconductors, Clean Energy, Green Technologies **Program Learning Outcome 2b:** Design and develop innovative smart electronics products as per the societal need
Program Goal 3: To design dynamic and flexible course structures for UG and PG programs as per the changing requirement of the industries	**Program Learning Outcome 3a:** Industry relevant UG, PG, and research programs **Program Learning Outcome 3b:** Trained manpower as per the industry requirement
Program Goal 4: To promote entrepreneurship among the students in the field of electronics and communication engineering	**Program Learning Outcome 4a:** Realization of working prototype towards product development

	Program Learning Outcome 4b: Promotion of in-house technology-based ventures catering societal needs
Program Goal 5: Equip students with strong communication skills, enabling them to articulate technical concepts clearly and effectively in both written and oral forms.	**Program Learning Outcome 5a:** Man power with enhanced soft skills to support the vision of developed India **Program Learning Outcome 5b:** Responsible citizen for the holistic growth of the country
Program Goal 6: Identify, formulate and solve engineering problems in the field of Embedded system and VLSI	**Program Learning Outcome 6a:** Graduates will be able to take up career in the field of design, testing and implementation of VLSI systems in any said domain in the real world. **Program Learning Outcome 6b:** Identify and apply appropriate Electronic Design Automation (EDA) tools to solve real world problems in VLSI and Embedded Systems domain to create innovative products and systems.
Program Goal 7: Apply knowledge, proper methodology and modern tools to analyze and solve the problems in the domain VLSI Design and Technology.	**Program Learning Outcome 7a:** Acquire in-depth knowledge of VLSI and Embedded systems in wider and global perspective, with an ability to discriminate, evaluate, analyze, synthesize and integrate for enhancement of knowledge. **Program Learning Outcome 7b:** Get exposure in domain from modern semiconductor devices to circuits and systems to address the issues and challenges in Chip Design and fabrication to meet the requirement of today's hardware systems for real time applications.
Program Goal 8: Acquire competency in areas of VLSI and Embedded Systems, IC Fabrication, Design, Testing, Verification and prototype development focusing on applications.	**Program Learning Outcome 8a:** Pursue career in research in VLSI Design and Embedded Systems domain through self-learning and self-directed on cutting edge technologies **Program Learning Outcome 8b:** Graduates will be able to achieve broad and in-depth knowledge of analysis and design of micro-electronic components which will support them to pursue research studies.
Program Goal 9: Acquire professional and intellectual integrity and ethics of research and recognize the need to engage in learning with a high level of enthusiasm and commitment to contribute to the community for sustainable development of society.	**Program Learning Outcome 9a:** Graduates will be able to asses, innovate, implement and serve the end users problems with cutting edge solutions to meet industry standards **Program Learning Outcome 9b:** Graduates will be able to work both as an individual and a team on multidisciplinary projects and excel in their career

		SEMESTER III				
Sl. No.	Subject Code	Subject Name	L	T	P	C
1.	EE2101	Measurements and Instrumentation	3	0	2	4
2.	EE2102	Network Analysis and Synthesis	3	0	0	3
3.	EC2101	Analog Circuits	3	0	2	4
4.	EC2102	Signals and Systems	3	1	0	4
5.	EC2103	Semiconductor Devices	3	0	2	4
6.	HS21PQ	HSS Elective I	3	0	0	3
		TOTAL	18	1	6	22

		SEMESTER IV				
Sl. No.	Subject Code	Subject Name	L	T	P	C
1.	EC2201	Digital Electronics	3	0	2	4
2.	EC2202	Microprocessor	2	0	2	3
3.	EE2201	Control Systems	3	0	2	4
4.	EC2203	Computer Organization and Architecture	3	0	0	3
5.	EC2204	Internet of Things	3	0	0	3
6.	XX22PQ	IDE I	3	0	0	3
		TOTAL	17	0	6	20
		SEMESTER V				
Sl. No.	Subject Code	Subject Name	L	T	P	C
1.	EC3101	Microcontroller and Embedded System	3	0	2	4
2.	EE3102	VLSI Design	3	0	2	4
3.	EC3103	Analog Communication	3	0	2	4
4.	EC3104	Engineering Electromagnetics	3	0	0	3
5.	EC3105	Random Signals and Stochastic Processes	3	0	0	3
6.	XX31PQ	IDE - II	3	0	0	3
		TOTAL	18	0	6	21

		SEMESTER VI				
Sl. No.	Subject Code	Subject Name	L	T	P	C
1.	EC3201	Digital Communication	3	0	2	4
2.	EC3202	Digital Signal Processing	3	0	2	4
3.	EC3203	Introduction to AI/ML	3	0	0	3
4.	EC3204	Low Power MOSFETs Design and Modelling	3	0	0	3
5.	EC3205	Introduction to Wireless Communications	3	0	0	3
6.	EC3206	RF Systems	3	0	0	3
		TOTAL	18	0	4	20

SEMESTER VII						
Sl. No.	Subject Code	Subject Name	L	T	P	C
1.	EC41PQ	B. Tech. Elective - I	3	0	0	3
2.	EC41PQ	B. Tech. Elective - II	3	0	0	3
3.	XX41PQ	IDE - III	3	0	0	3
4.	HS41PQ	HSS Elective - II	3	0	0	3
5.	EC4194	Summer Internship*	0	0	6	3
6.	EC4195	Project – I	0	0	12	6
7.	EC5151	Digital VLSI Systems	3	0	2	4
		TOTAL	15	0	20	25

SEMESTER VIII						
Sl. No.	Subject Code	Subject Name	L	T	P	C
1.	RM6201	Research Methodology	3	1	0	4
2.	EC5251	Analog and Mixed Signal Integrated Circuits	3	0	2	4
3.	EC5252	High Performance Embedded Computing system	3	0	2	4
4.	EC52PQ	M. Tech. Elective - I	3	0	0	3
5.	EC4295	Project – II	0	0	12	6
		TOTAL	12	1	16	21

SEMESTER IX						
Sl. No.	Subject Code	Subject Name	L	T	P	C
1.	EC51PQ/EC61PQ	M. Tech. Elective – II	3	0	0	3
2.	XX51PQ/XX61PQ	M. Tech. Elective – III	3	0	0	3
3.	EC51PQ/EC61PQ	M. Tech. Elective - IV	3	0	0	3
4.	EC5195	Project – III	0	0	16	8
		TOTAL	9	0	16	17
SEMESTER X						
Sl. No.	Subject Code	Subject Name	L	T	P	C
1.	EC5295	Project – IV	0	0	36	18
		TOTAL	0	0	36	18
GRAND TOTAL (Semester I to X)			210			

Semester-VII: List of department electives

B. Tech. Elective - I	B. Tech. Elective - II
EC4101 Introduction to Quantum Computing	EC4104 Introduction to Information Theory
EC4102 Deep Learning for Video Surveillance Systems	EC4105 Digital Image Processing
EC4103 FPGA based System Design	EC4106 Graph Signal Processing

Semester-VIII: List of department electives

M. Tech. Elective I	
EC5250	Patterns Recognition and Machine Learning
EC5204	Multimedia Communication
EC5216	Silicon Photonics
EC5211	VLSI Technology
EE5213	Recent Trends in Optimization Techniques
EC5254	Low Power VLSI
EC5256	CAD VLSI
EC5260	Embedded System Integration
EC5264	Sensors and Actuators
EC5266	Semiconductor Packaging Technology
EC5271	High Power Semiconductor Devices

Semester-IX: List of department electives

M. Tech. Elective II	M. Tech. Elective III	M. Tech. Elective IV
EC5113 Radio Frequency Integrated Circuits	EC6154: Computer Vision	EC5109 Internet of Things (IoT) Networks
EC5114 Advanced Digital Image Processing	EC5111 VLSI Architecture Design and Implementation	EC5158 VLSI Testing and Verification
EC5159 Bio Sensors and Circuits	EC5104 Quantum Computing	EC6157 VLSI Signal Processing
EC6150 CMOS Phase Locked Loops	EE5111 Control Techniques in Power Electronics	EC5112 Opto-Electronics Materials and Devices