

ACADEMIC CURRICULA

POST GRADUATE DEGREE PROGRAMMES

Master of Technology

(Choice Based Flexible Credit System)

Regulations 2021

Volume – 21 Curriculum



SRM

INSTITUTE OF SCIENCE & TECHNOLOGY
(Deemed to be University u/s 3 of UGC Act, 1956)

SRM INSTITUTE OF SCIENCE AND TECHNOLOGY

(Deemed to be University u/s 3 of UGC Act, 1956)

Kattankulathur, Chengalpattu District 603203,

Tamil Nadu, India

27 M.Tech in Embedded System Technology

27. (a) Department Vision Statement

Stmt - 1	<i>To establish itself as a leading benchmark in the field of electronics and communication engineering by providing high-quality educational and research opportunities that align with advancing technology, while nurturing the development of ethical and skilled professionals.</i>
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27. (b) Department Mission Statement

Stmt - 1	<i>To consistently uphold the highest standards of educational process aimed at imparting knowledge and skills related to electronic design and communication engineering fostering successful practicing engineers nationally and globally.</i>
Stmt - 2	<i>To stay at the forefront of technological advancements and adapt our programs to provide cutting-edge learning experiences through collaborative research and innovation in electronics, communication, and interdisciplinary fields through interaction with research institutes and industry to align with the evolving demands of society.</i>
Stmt - 3	<i>To attract qualified professionals in a rewarding way and enable them to foster the growth of individuals as good leaders, technocrats, and entrepreneurs who are technically skilled and committed to ethical principles in their professional endeavors.</i>

27. (c) Program Education Objectives (PEO)

PEO - 1	<i>To provide the graduates of Embedded System Technology a productive synergy between hardware and software design</i>
PEO - 2	<i>To possess technical and professional knowledge to design and develop Embedded and Real Time Systems</i>
PEO - 3	<i>To apply the skills acquired for success in higher studies/ research, technical careers in industry, academia, entrepreneurial and consultancy.</i>
PEO - 4	<i>To promote the development of Intellectual property through research in the specific area by means of high impact factor journal publication and patents.</i>
PEO - 5	<i>To prepare the graduate for Lifelong learning in order to adapt themselves for professional activities and to take the advantage of opportunities in their profession.</i>

27. (d) Consistency of PEO's with Mission of the Department

	Mission Stmt. - 1	Mission Stmt. - 2	Mission Stmt. - 3
PEO - 1	3	3	2
PEO - 2	3	3	2
PEO - 3	3	3	2
PEO - 4	3	3	2
PEO - 5	3	2	3

27. (e) PO – Program Outcomes

PO - 1	<i>An ability to independently carry out research /investigation and development work to solve practical problems.</i>
PO - 2	<i>An ability to write and present a substantial technical report/document.</i>
PO - 3	<i>Students should be able to demonstrate a degree of mastery over the area as per the specialization of the program. The mastery should be at a level higher than the requirements in the appropriate bachelor program.</i>

27. (f) Consistency of PEO's with Program Outcomes (PO)

	Program Outcomes (PO)		
	1	2	3
PEO - 1	3	3	3
PEO - 2	3	2	3
PEO - 3	3	3	3
PEO - 4	3	3	3
PEO - 5	3	3	3

3 – High Correlation, 2 – Medium Correlation, 1 – Low Correlation

27. (g) Programme Structure: M.Tech Embedded System Technology

Professional Core Courses (C)						
Course Code	Course Title	Hours/Week			C	
		L	T	P		
21ECC501J	Embedded System Architecture	3	0	2	4	
21ECC502J ²	Real Time Operating Systems	3	0	2	4	
21ECC503T	Embedded Control Systems	3	0	0	3	
21ECC504J	SoC Architecture and Programming	3	0	2	4	
21ECC505J ²	Artificial Intelligence for Embedded Systems	3	0	2	4	
21IPC501J ²	Research Methodology	2	1	2	4	
21ECC601T ¹	Case Studies	3	0	0	3	
Total Credits					26	
Project Work, Internship In Industry / Higher Technical Institutions (P)						
Course Code	Course Title	Hours/Week			C	
		L	T	P		
21ECP501L	Specialization Project	0	0	40	20	
(OR)						
21ECP502L	Specialization Project	0	0	30	15	
21ECP503L	Domain Internship	0	0	10	5	
Total Credits					20	
100% assessment by the Department (¹)						
Course Code	Course Title	Hours/Week			C	
		L	T	P		
21ECC601T ¹	Case Studies	3	0	0	3	
21ECE600T ¹	Journal Publication	0	0	0	3	
Assessment by Open Book Examination (²)						
Course Code	Course Title	Hours/Week			C	
		L	T	P		
21ECC502J ²	Real Time Operating Systems	3	0	2	4	
21ECC505J ²	Artificial Intelligence for Embedded Systems	3	0	2	4	
21IPC501J ²	Research Methodology	2	1	2	4	
All elective courses may be studied under MOOC platform						
¹ 100% assessment by the Department						
² Assessment by Open Book Examination						
³ Course Delivery through online mode						

Professional Elective Courses (E) (Any 7 Courses)						
Course Code	Course Title	Hours/Week			C	
		L	T	P		
21ECE501T ³	Embedded System Design and Standards	3	0	0	3	
21ECE502T ³	Communication Protocols for Embedded Systems	3	0	0		
21IPE502T	Vehicle Diagnostics Systems	3	0	0		
21IPE504T	Virtual Reality	2	1	0	3	
21ECE504J	MEMS Devices and Applications	2	0	2		
21ECE505T	Security for Embedded Systems	3	0	0		
21ECE503T ³	IoT Sensor Nodes with Artificial Intelligence	3	0	0	3	
21ECE506T	Multiprocessor Real Time Systems	3	0	0		
21ECE507J	Programming with FPGA	2	0	2		
21ECE508T	Embedded System for Power Drives	3	0	0	3	
21ECE602T ³	Automotive Embedded Systems	3	0	0		
21ECE606T ³	Cloud Technology	3	0	0		
21IPE503T	Embedded Systems for E-Mobility	2	1	0	3	
21ECE603J	Reconfigurable Computing	2	0	2		
21ECE604J ³	Embedded Robotics	2	0	2		
21ECE600T ¹	Journal Publication	0	0	0	3	
21ECE601J ³	Computer Vision for Embedded Systems	2	0	2		
21ECE605T	Sensors of Medical Things	3	0	0		
Total Credits					21	
Open Elective Courses (O)						
Course Code	Course Title	Hours/Week			C	
		L	T	P		
21ECO701T	Embedded System Integration for Engineering Applications	3	0	0	3	
Total Credits					3	
Course Delivery by online mode (³)						
Course Code	Course Title	Hours/Week			C	
		L	T	P		
21ECE501T ³	Embedded System Design and Standards	3	0	0	3	
21ECE502T ³	Communication Protocols for Embedded Systems	3	0	0	3	
21ECE503T ³	IoT Sensor Nodes with Artificial Intelligence	3	0	0	3	
21ECE601J ³	Computer Vision for Embedded Systems	2	0	2	3	
21ECE602T ³	Automotive Embedded Systems	3	0	0	3	
21ECE604J ³	Embedded Robotics	2	0	2	3	
21ECE606T ³	Cloud Technology	3	0	0	3	

Project Work, Internship In Industry / Higher Technical Institutions (P)						
Course Code	Course Title	Hours/Week			C	
		L	T	P		
21ECP501L	Specialization Project	0	0	40	20	
(OR)						
21ECP502L	Specialization Project	0	0	30	15	
21ECP503L	Domain Internship	0	0	10	5	
Total Credits						20

100% assessment by the Department (¹)						
Course Code	Course Title	Hours/Week			C	
		L	T	P		
21ECC601T ¹	Case Studies	3	0	0	3	
21ECE600T ¹	Journal Publication	0	0	0	3	

Assessment by Open Book Examination (²)						
Course Code	Course Title	Hours/Week			C	
		L	T	P		
21ECC502J ²	Real Time Operating Systems	3	0	2	4	
21ECC505J ²	Artificial Intelligence for Embedded Systems	3	0	2	4	
21IPC501J ²	Research Methodology	2	1	2	4	

All elective courses may be studied under MOOC platform

¹ 100% assessment by the Department

² Assessment by Open Book Examination

³ Course Delivery through online mode

27. (h) Implementation Plan: M.Tech Embedded System Technology

Semester - I							
Code	Course Title	Hours/Week					
		L	T	P	C		
21ECC501J	Embedded System Architecture	3	0	2	4		
21ECC502J ²	Real Time Operating Systems	3	0	2	4		
21ECC503T	Embedded Control Systems	3	0	0	3		
21IPC501J ²	Research Methodology	2	1	2	4		
21ECE501T ³	Embedded System Design and Standards	3	0	0			
21ECE502T ³	Communication Protocols for Embedded Systems	3	0	0		3	
21IPE502T	Vehicle Diagnostics Systems	3	0	0			
Total Credits						18	
Semester - II							
Code	Course Title	Hours/Week					
		L	T	P	C		
21ECC504J	SoC Architecture and Programming	3	0	2	4		
21ECC505J ²	Artificial Intelligence for Embedded Systems	3	0	2	4		
21IPE504T	Virtual Reality	2	1	0			
21ECE504J	MEMS Devices and Applications	2	0	2		3	
21ECE505T	Security for Embedded Systems	3	0	0			
21ECE503T ³	IoT Sensor Nodes with Artificial Intelligence	3	0	0			3
21ECE506T	Multiprocessor Real Time Systems	3	0	0			
21ECE507J	Programming with FPGA	2	0	2			3
21ECE508T	Embedded System for Power Drives	3	0	0			
Total Credits						17	
Semester - III							
Code	Course Title	Hours/Week					
		L	T	P	C		
	Open Elective	3	0	0	3		
21ECE602T ³	Automotive Embedded Systems	3	0	0			
21ECE606T ³	Cloud Technology	3	0	0		3	
21IPE503T	Embedded Systems for E-Mobility	2	1	0			
21ECE603J	Reconfigurable Computing	2	0	2			
21ECE604J ³	Embedded Robotics	2	0	2		3	
21ECE600T ¹	Journal Publication	0	0	0			
21ECE601J ³	Computer Vision for Embedded Systems	2	0	2			3
21ECE605T	Sensors of Medical Things	3	0	0			
21ECC601T ¹	Case Studies	3	0	0	3		
Total Credits						15	
Semester - IV							
Code	Course Title	Hours/Week					
		L	T	P	C		
21ECP501L	Specialization Project	0	0	40	20		
(OR)							
21ECP502L	Specialization Project	0	0	30	15		
21ECP503L	Domain Internship	0	0	10	5		
Total Credits						20	
# Students must register either 21ECP501L or 21ECP502L and 21ECP503L both in fourth semester							

27. (i) Program Articulation Matrix: M.Tech Embedded System Technology

Course Code	Course Name	Programme Outcomes		
		1	2	3
21ECC501J	Embedded System Architecture	2	2	3
21ECC502J	Real Time Operating Systems	2.25	1.67	2.5
21ECC503T	Embedded Control Systems	2	2.67	3
21ECC504J	SoC Architecture and Programming	3	2	3
21ECC505J	Artificial Intelligence for Embedded Systems	2	2	3
21ECC601T	Case Studies	3	2	3
21ECE501T	Embedded System Design and Standards	2.8	2	2.33
21ECE502T	Communication Protocols for Embedded Systems	2.25	1.5	2
21ECE503T	IoT Sensor Nodes with Artificial Intelligence	2.4	1	1.4
21ECE504J	MEMS Devices and Applications	1.8	2	3
21ECE505T	Security for Embedded Systems	2	1.67	2.5
21ECE506T	Multiprocessor Real Time Systems	2.8	3	2
21ECE507J	Programming with FPGA	2.75	2	2.67
21ECE508T	Embedded system for Power Drives	3	1	2
21ECE601J	Computer Vision for Embedded Systems	1.67	2.25	2.2
21ECE602T	Automotive Embedded Systems	1.8	1	2.2
21ECE603J	Reconfigurable Computing	2.25	2	2
21ECE604J	Embedded Robotics	2.4	1.75	3
21ECE605T	Sensors of Medical Things	2.5	2.5	2
21ECE606T	Cloud Technology	2.5	2.25	3
21ECE600T	Journal Publication			
21IPC501J	Research Methodology	3	2.6	
	Open Elective			
21ECP501L	Specialization Project			
21ECP502L	Specialization Project			
21ECP503L	Domain Internship			
Program Average				



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