

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

3. M.Tech in Automotive Technology

3. (a) Department Vision Statement

Stmnt - 1	<i>The Department of Automobile Engineering is committed to offering students a transformative educational journey.</i>
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3. (b) Department Mission Statement

Stmnt - 1	<i>To impart students with quality education centered on altering global requirements and add values to their career desires.</i>
Stmnt - 2	<i>To enhance the knowledge and skill of students in collaboration with public and private sectors.</i>
Stmnt - 3	<i>To identify and acknowledge economic, social and environmental issues that influences the quality of life in the vicinity and the globe.</i>
Stmnt - 4	<i>To inculcate leadership qualities needed for automotive industries through robust curriculum with international outlook for sustainable future.</i>
Stmnt - 5	<i>To build trust and co-operation at the workplace through effective inter-personal and communication skills.</i>

3. (c) Program Education Objectives (PEO)

PEO - 1	<i>To promote knowledge on state-of-the-art technologies pertaining to electric vehicle systems, design and modeling</i>
PEO - 2	<i>To provide practical oriented training in line to emerging automobile industrial needs for potential job prospects.</i>
PEO - 3	<i>To facilitate students with various higher education and research opportunities.</i>
PEO - 4	<i>To promote entrepreneurship skills and related strategies.</i>

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

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

3. (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>

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

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

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

3. (g) Programme Structure: M.Tech Automotive Technology

Professional Core Courses (C)						
Course Code	Course Title	Hours/Week			C	
		L	T	P		
21MAC501T	Computational Methods	3	1	0	4	
21AUC521J	Automotive Mechanical Systems	2	0	2	3	
21AUC522J	Automotive Electrical and Power Electronics	3	0	2	4	
21AUC523J ²	Energy Storage and Management	3	0	2	4	
21AUC524J	Embedded Systems and Communication for Automotive Applications	3	0	2	4	
21IPC501J ²	Research Methodology	2	1	2	4	
21AUC601T ¹	Case Studies	3	0	0	3	
Total Credits					26	

Professional Elective Courses (E) (Any 7 Courses)						
Course Code	Course Title	Hours/Week			C	
		L	T	P		
21AUE511T	Thermal Management for Electric Vehicle Systems	2	1	0	3	
21AUE512T	Instrumentation and Control Systems	2	1	0	3	
21AUE514J	Design and Simulation of Motors for Electric Vehicle Application	2	0	2	3	
21AUE521J	Automotive Transducers and Signal Conditioners	2	0	2	3	
21AUE522J	Intelligent Algorithms and Control	2	0	2	3	
21AUE523J	Control Systems Algorithm	2	0	2	3	
21AUE524J	Advanced Communication Protocols	2	0	2	3	
21AUE621J	Vehicle Design and Dynamics	2	0	2	3	
21AUE622J	Automotive Testing and Certification	2	0	2	3	
21AUE623T	Autonomous and Connected Vehicles	2	1	0	3	
21AUE600T ¹	Journal Publication	0	0	0	3	
Total Credits					21	

Project Work, Internship In Industry / Higher Technical Institutions (P)						
Course Code	Course Title	Hours/Week			C	
		L	T	P		
21AUP501L	Specialization Project (OR)	0	0	40	20	
21AUP502L	Specialization Project	0	0	30	15	
21AUP503L	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		
21AUC601T ¹	Case Studies	3	0	0	3	
21AUE600T ¹	Journal Publication	0	0	0	3	

Open Elective Courses (O)						
Course Code	Course Title	Hours/Week			C	
		L	T	P		
		3	0	0	3	
Total Credits					3	

Assessment by Open Book Examination (2)						
Course Code	Course Title	Hours/Week			C	
		L	T	P		
21AUC523J ²	Energy Storage and Management	3	0	2	4	
21IPC501J ²	Research Methodology	2	1	2	4	

3. (h) Implementation Plan: M.Tech Automotive Technology

Semester - I							Semester - II						
Code	Course Title	Hours/Week					Code	Course Title	Hours/Week				
		L	T	P	C				L	T	P	C	
21MAC501T	Computational Methods	3	1	0	4		21AUC523J ²	Energy Storage and Management	3	0	2	4	
21AUC521J	Automotive Mechanical Systems	2	0	2	3		21AUC524J	Embedded Systems and Communication for Automotive Applications	3	0	2	4	
21AUC522J	Automotive Electrical and Power Electronics	3	0	2	4			Professional Elective-2				3	
21IPC501J ²	Research Methodology	2	1	2	4			Professional Elective-3				3	
	Professional Elective-1				3			Professional Elective-4				3	
Total Credits						18	Total Credits						17
Semester - III							Semester - IV						
Code	Course Title	Hours/Week					Code	Course Title	Hours/Week				
		L	T	P	C				L	T	P	C	
	Open Elective	3	0	0	3		21AUP501L	Specialization Project	0	0	40	20	
	Professional Elective-5				3		(OR)						
	Professional Elective-6				3		21AUP502L	Specialization Project	0	0	30	15	
21AUE600T ¹	Journal Publication	0	0	0			21AUP503L	Domain Internship	0	0	10	5	
	Professional Elective-7				3		Total Credits						20
21AUC601T ¹	Case Studies	3	0	0	3								
Total Credits						15							

Students must register either 21AUP501L or 21AUP502L and 21AUP503L both in fourth semester

3. (i) Program Articulation Matrix: M.Tech Automotive Technology

Course Code	Course Name	Programme Outcomes		
		1	2	3
21MAC501T	Computational Methods	3	3	
21AUC521J	Automotive Mechanical Systems			
21AUC522J	Automotive Electrical and Power Electronics			
21AUC523J	Energy Storage and Management			
21AUC524J	Embedded Systems and Communication for Automotive Applications			
21AUC601T	Case Studies			
21AUE511T	Thermal Management for Electric Vehicle Systems			
21AUE512T	Instrumentation and Control Systems			
21AUE514J	Design and Simulation of Motors for Electric Vehicle Application			
21AUE521J	Automotive Transducers and Signal Conditioners			
21AUE522J	Intelligent Algorithms and Control			
21AUE523J	Control Systems Algorithm			
21AUE524J	Advanced Communication Protocols			
21AUE621J	Vehicle Design and Dynamics			
21AUE622J	Automotive Testing and Certification			
21AUE623T	Autonomous and Connected Vehicles			
21AUE600T	Journal Publication			
21IPC501J	Research Methodology	3	2.6	
	Open Elective			
21AUP501L	Specialization Project			
21AUP502L	Specialization Project			
21AUP503L	Domain Internship			
Program Average				

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



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