

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

4. M.Tech in Electric Vehicle Technology

4. (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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4. (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>

4. (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>

4. (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

4. (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>

4. (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

4. (g) Programme Structure: M.Tech Electric Vehicle Technology

Professional Core Courses (C)						
Course Code	Course Title	Hours/ Week			C	
		L	T	P		
21MAC501T	Computational Methods	3	1	0	4	
21AUC511T	Automotive Engineering	3	0	0	3	
21AUC512T	Electric Vehicle System Architecture	3	1	0	4	
21AUC513J ²	Energy Storage Systems for Electric Vehicle Applications	3	0	2	4	
21AUC514J	Power Electronics in Electric Vehicles	3	0	2	4	
21IPC501J ²	Research Methodology	2	1	2	4	
21AUC601T 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		
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 (!)						
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	
Assessment by Open Book Examination (²)						
Course Code	Course Title	Hours/ Week			C	
		L	T	P		
21AUC513J ²	Energy Storage Systems for Electric Vehicle Applications	3	0	2	4	
21IPC501J ²	Research Methodology	2	1	2	4	

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	
21AUE513T	Electric Vehicle Testing, Standards and Legislation	3	0	0	3	
21AUE514J	Design and Simulation of Motors for Electric Vehicle Application	2	0	2	3	
21AUE515T	Internet of Things for Electric Vehicle Application	3	0	0	3	
21AUE516T	Alternate Powertrain Technology	3	0	0	3	
21AUE517T	Electro Hydraulic Transmission Systems	3	0	0	3	
21AUE518T	Advanced Hydraulic Systems	3	0	0	3	
21AUE519T	Automotive Air conditioning and Heating Systems	3	0	0	3	
21AUE611T	Artificial Intelligence for Electric Vehicle Application	3	0	0	3	
21AUE612T	Motor Drives and Control Systems	3	0	0	3	
21AUE613T	Electric Vehicle Modelling and Design	2	1	0	3	
21AUE614T	Charging Station System Design	2	1	0	3	
21AUE615T	Automotive Embedded Systems and Communication	3	0	0	3	
21AUE616T	Advanced Automotive Electronics	3	0	0	3	
21AUE600T ¹	Journal Publication	0	0	0	3	
Total Credits					21	
Open Elective Courses (O)						
Course Code	Course Title	Hours/ Week			C	
		L	T	P		
		3	0	0	3	
Total Credits					3	

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

4. (h) Implementation Plan: M.Tech Electric Vehicle 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	21AUC513 J ²	Energy Storage Systems for Electric Vehicle Applications	3	0	2	4
21AUC511T	Automotive Engineering	3	0	0	3	21AUC514J	Power Electronics in Electric Vehicles	3	0	2	4
21AUC512T	Electric Vehicle System Architecture	3	1	0	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

4. (i) Program Articulation Matrix: M.Tech Electric Vehicle Technology

Course Code	Course Name	Programme Outcomes		
		1	2	3
21MAC501T	Computational Methods	3	3	
21AUC511T	Automotive Engineering			
21AUC512T	Electric Vehicle System Architecture			
21AUC513J	Energy Storage Systems for Electric Vehicle Applications			
21AUC514J	Power Electronics in Electric Vehicles			
21AUC601T	Case Studies			
21AUE511T	Thermal Management for Electric Vehicle Systems			
21AUE512T	Instrumentation and Control Systems			
21AUE513T	Electric Vehicle Testing, Standards and Legislation			
21AUE514J	Design and Simulation of Motors for Electric Vehicle Application			
21AUE515T	Internet of Things for Electric Vehicle Application			
21AUE516T	Alternate Powertrain Technology			
21AUE517T	Electro Hydraulic Transmission Systems			
21AUE518T	Advanced Hydraulic Systems			
21AUE519T	Automotive Air conditioning and Heating Systems			
21AUE611T	Artificial Intelligence for Electric Vehicle Application			
21AUE612T	Motor Drives and Control Systems			
21AUE613T	Electric Vehicle Modelling and Design			
21AUE614T	Charging Station System Design			
21AUE615T	Automotive Embedded Systems and Communication			
21AUE616T	Advanced Automotive Electronics			
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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