

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

1. M.Tech in Aerospace Engineering

1. (a) Department Vision Statement

Stmnt - 1	<i>Inspire and nurture the next generation of Aerospace Engineers and Scientists, inculcate knowledge in ethics and humanity.</i>
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1. (b) Department Mission Statement

Stmnt - 1	<i>Impart student's essential knowledge and skills required for a successful career as in aerospace engineering</i>
Stmnt - 2	<i>Instill confidence in the students to take up new challenges by grooming them appropriately</i>
Stmnt - 3	<i>Inculcate in the students a sense of commitment to professional ethics, moral values with emphasis on teamwork and leadership qualities</i>
Stmnt - 4	<i>Ingrain the students with a clear awareness of environmental issues and their relevance to engineering profession</i>
Stmnt - 5	<i>Impress upon the students the impact of their work on the nation's economic and social progress</i>

1. (c) Program Education Objectives (PEO)

<i>Graduates of the programme will</i>	
PEO - 1	<i>Acquire in-depth knowledge and skills in various domains of aerospace engineering to solve current aerospace engineering problems</i>
PEO - 2	<i>Offer innovative solutions to challenging problems, contribute to new product developments and research in aerospace and allied fields</i>
PEO - 3	<i>Advance professional career with contemporary professional and lifelong learning skills, compete for technical engineering positions in the local, national, and global engineering market or pursue doctoral studies.</i>

1. (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	3	3	1	2	2
PEO - 2	3	2	1	2	2
PEO - 3	3	2	3	2	3

1. (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>

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

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

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

1. (g) Programme Structure: M.Tech Aerospace Engineering

Professional Core Courses (C)						
Course Code	Course Title	Hours/Week				
		L	T	P		
21MAC501T	Computational Methods	3	1	0	4	
21ASC511J	Aerodynamics and Aircraft Performance	3	0	2	4	
21ASC512J	Aerospace Structural Mechanics	3	0	2	4	
21ASC513J	Gas Dynamics and Propulsion	3	0	2	4	
21ASC514T	Atmospheric and Space Flight Mechanics	3	0	0	3	
21IPC501J ²	Research Methodology	2	1	2	4	
21ASC601T ¹	Case Studies	3	0	0	3	
Total Credits					26	

Professional Elective Courses (E) (Any 7 Courses)						
Course Code	Course Title	Hours/Week				
		L	T	P		
21ASE511J ²	Applied Computational Fluid Dynamics	2	0	2	3	
21ASE512T	Aerodynamics for Practical Applications	3	0	0	3	
21ASE516T	Experimental Structural Mechanics	3	0	0		
21ASE513T	Instrumentation, Measurements and Experiments in Fluids	3	0	0		
21ASE517T ²	Analysis and Design of Composite Structures	3	0	0	3	
21ASE514T	Rocket Propulsion Elements	3	0	0		
21ASE611T	Applied Flight Mechanics	3	0	0		
21ASE515T	Advanced Propulsion Systems	3	0	0		
21ASE612T	Hypersonic Aerothermodynamics for Space Vehicles	3	0	0	3	
21ASE615T	Applied Finite Element Method	3	0	0		
21ASE600T ¹	Journal Publication	0	0	0	3	
21ASE613T	Cryogenic Systems	3	0	0		
21ASE614T	Structural Dynamics and Aeroelasticity	3	0	0	3	
Total Credits					21	

Project Work, Internship In Industry / Higher Technical Institutions (P)						
Course Code	Course Title	Hours/Week				
		L	T	P		
21ASP501L	Specialization Project	0	0	40	20	
(OR)						
21ASP502L	Specialization Project	0	0	30	15	
21ASP503L	Domain Internship	0	0	10	5	
Total Credits					20	

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

Assessment by Open Book Examination (²)						
Course Code	Course Title	Hours/Week				
		L	T	P		
21ASE511J ²	Applied Computational Fluid Dynamics	2	0	2	3	
21ASE517T ²	Analysis and Design of Composite Structures	3	0	0	3	
21IPC501J ²	Research Methodology	2	1	2	4	

100% assessment by the Department (¹)						
Course Code	Course Title	Hours/Week				
		L	T	P		
21ASC601T ¹	Case Studies	3	0	0	3	
21ASE600T ¹	Journal Publication	0	0	0	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

1. (h) Implementation Plan: M.Tech Aerospace Engineering

Semester - I							
Code	Course Title	Hours/Week					
		L	T	P	C		
21MAC501T	Computational Methods	3	1	0	4		
21ASC511J	Aerodynamics and Aircraft Performance	3	0	2	4		
21ASC512J	Aerospace Structural Mechanics	3	0	2	4		
21IPC501J ²	Research Methodology	2	1	2	4		
21ASE511J ²	Applied Computational Fluid Dynamics	2	0	2	3		
Total Credits						19	
Semester - III							
Code	Course Title	Hours/Week					
		L	T	P	C		
	Open Elective	3	0	0	3		
21ASE515T	Advanced Propulsion Systems	3	0	0			
21ASE612T	Hypersonic Aerothermodynamics for Space Vehicles	3	0	0			
21ASE615T	Applied Finite Element Method	3	0	0			
21ASE600T ¹	Journal Publication	0	0	0			
21ASE613T	Cryogenic Systems	3	0	0			
21ASE614T	Structural Dynamics and Aeroelasticity	3	0	0			
21ASC601T ¹	Case Studies	3	0	0	3		
Total Credits						15	
Semester - II							
Code	Course Title	Hours/Week					
		L	T	P	C		
21ASC513J	Gas Dynamics and Propulsion	3	0	2	4		
21ASC514T	Atmospheric and Space Flight Mechanics	3	0	0	3		
21ASE512T	Aerodynamics for Practical Applications	3	0	0			
21ASE516T	Experimental Structural Mechanics	3	0	0			
21ASE513T	Instrumentation, Measurements and Experiments in Fluids	3	0	0			
21ASE517T ²	Analysis and Design of Composite Structures	3	0	0			
21ASE514T	Rocket Propulsion Elements	3	0	0			
21ASE611T	Applied Flight Mechanics	3	0	0			
Total Credits						16	
Semester - IV							
Code	Course Title	Hours/Week					
		L	T	P	C		
21ASP501L	Specialization Project (OR)	0	0	40	20		
21ASP502L	Specialization Project	0	0	30	15		
21ASP503L	Domain Internship	0	0	10	5		
Total Credits						20	

Students must register either 21ASP501L or 21ASP502L and 21ASP503L both in fourth semester

1. (i) Program Articulation Matrix: M.Tech Aerospace Engineering

Course Code	Course Name	Programme Outcomes		
		1	2	3
21MAC501T	Computational Methods	3	3	
21ASC511J	Aerodynamics and Aircraft Performance	3	2	3
21ASC512J	Aerospace Structural Mechanics	3	2	3
21ASC513J	Gas Dynamics and Propulsion	2	2	3
21ASC514T	Atmospheric and Space Flight Mechanics	2	2	3
21IPC501J	Research Methodology	3	2.6	
21ASC601T	Case Studies			
21ASE511J	Applied Computational Fluid Dynamics	2	2	3
21ASE512T	Aerodynamics for Practical Applications	2	2	3
21ASE513T	Instrumentation, Measurements and Experiments in Fluids	2	2	3
21ASE514T	Rocket Propulsion Elements	2	2	3
21ASE515T	Advanced Propulsion Systems	2	2	3
21ASE516T	Experimental Structural Mechanics	2	2	3
21ASE517T	Analysis and Design of Composite Structures	2	2	3
21ASE611T	Applied Flight Mechanics	2	2	3
21ASE612T	Hypersonic Aerothermodynamics for Space Vehicles	2	2	3
21ASE613T	Cryogenic Systems	3	3	3
21ASE614T	Structural Dynamics and Aeroelasticity	3	3	3
21ASE615T	Applied Finite Element Method	3	3	3
21ASE600T	Journal Publication			
	Open Elective	2	2	3
21ASP501L	Specialization Project			
21ASP502L	Specialization Project			
21ASP503L	Domain Internship			
Program Average				

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



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