ACADEMIC CURRICULA

POST GRADUATE DEGREE PROGRAMMES

Master of Technology

(Choice Based Flexible Credit System)

Regulations 2021

Volume - 21 Curriculum



SRM INSTITUTE OF SCIENCE AND TECHNOLOGY

(Deemed to be University u/s 3 of UGC Act, 1956)
Kattankulathur, Chengalpattu District 603203,
Tamil Nadu, India



SRM INSTITUTE OF SCIENCE AND TECHNOLOGY Kattankulathur, Chengalpattu District 603203, Tamil Nadu, India

40 M.Tech in Solar Energy

40. (a) Department Vision Statement

Stmt - 1 To enhance learning and research skills in mechanical engineering and allied fields to accomplish crest positions in world-renowned organizations.

40. (b) Department Mission Statement

Stmt - 1	To impart quality education to produce eminent mechanical engineers.
Stmt - 2	To establish Centers of Research Excellence to inculcate research acumen to faculty and students on the emerging thrust areas of mechanical engineering.
Stmt - 3	To inculcate progressive education and intricate facts through cognitive training programs to the faculty and students using state-of-art facilities.

40. (c) Program Education Objectives (PEO)

PEO - 1	Acquire knowledge to attain significant position of leadership in solar energy sector
PEO - 2	Focusing on lifelong learning through advanced research to enhance the performance of Solar energy systems
PEO - 3	Become a consultant for providing solutions for energy problems in energy and environmental sector
PEO - 4	Become a successful entrepreneur in manufacturing or marketing solar energy products for sustainable development
PEO - 5	Lead an ethical life for developing environmentally benign and economically affordable energy products

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

	Mission Stmt 1	Mission Stmt 2	Mission Stmt 3
PEO - 1	3	2	3
PEO - 2	2	3	2
PEO - 3	2	产品。为为于 2 m 是 数据要求	1
PEO - 4	1	1.	2
PEO - 5	-3	3	3

40. (e) PO – Program Outcomes

PO - 1	An ability to independently carry out research /investigation and development work to solve practical problems.
PO - 2	An ability to write and present a substantial technical report/document.
PO - 3	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.

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

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

^{3 –} High Correlation, 2 – Medium Correlation, 1 – Low Correlation

40. (g) Programme Structure: M.Tech Solar Energy

Course	Professional Core Courses (C)					Professional Elective Courses						
Course	Hours/						(E)					
21MEC531J Solar Radialion and Methods 3 0 0 4 21MEC531J Solar Radialion and Energy Conversion 3 0 2 4 21MEC531J Solar Radialion and Energy Conversion 3 0 2 4 21MEC533J Solar Packallation and Energy Conversion 3 0 2 4 21MEC533J Solar Photovoltaic Systems 3 0 2 4 21MEC534J Solar Photovoltaic Systems 3 0 2 4 21MEC534J Solar Photovoltaic Systems 3 0 2 4 21MEC534J Solar Photovoltaic Systems 3 0 0 3 2 4 21MEC534J Solar Photovoltaic Systems 3 0 0 3 2 4 21MEC534J Solar Photovoltaic Systems 3 0 0 3 2 4 21MEC534J Solar Photovoltaic Systems 3 0 0 3 2 4 21MEC534J Solar Photovoltaic Systems 3 0 0 3 2 4 21MEC534J Solar Systems for Buildings 3 0 0 3 2 2 2 2 2 2 2 2 2				Wee	k	С	Course	e Course				
21MEC5312 Solar Radiation and Energy Conversion 3 0 2 4 21MEC5321 Solar Photoval Mean M			3	_		-	Code	Title		-		С
2 Mac	21MEC531J	Solar Radiation and Energy Conversion	3	0	2	4	21MEE531T		3	0		
Applications				U								3
2 1 2 2 2 3 2 4 3 4 3 4 4 4 5 5 5 5 5 5 5		Applications		Ļ			21MEE532T ³	System	3	0	0	
Total Credits				+ -			21MEE533T		3	0	0	3
Project Work, Internship In Industry Higher Technical Institutions (P) 21MEE6051 21MEE6031									3	0	0	
Project Work, Internship In Industry / Higher Technical Institutions (P)		Total Credits	3			26	21MFE505T		3	n	0	
Project Work, Internship In Industry / Higher Technical Institutions (P)			- 1	I						Ť		3
Project Work, Internship In Industry / Higher Technical Institutions (P)					141					-	-	
Course										U	2	2
Course	In		(P)				ZTMEE030J ²	Systems		0	2	3
Code Title Core Course Course Code Title Code Title Code Title Course Code Title Code Title Course Code Title Code Title Code Title Course Code Title Code Total Credits To	Course	Course							3	0	0	2
21MEP501L Specialization Project (OR) 21MEP503L Specialization Project O 0 30 15 5 10 0 10 5 5 10 0 10 5 5 10 0 10 5 5 10 0 10 5 5 10 0 10 5 5 10 0 10 5 5 10 0 10 5 10 10			L	Veek T		С	21MEE528T	Solar Energy for Industrial	3	0	0	3
21MEP503L Specialization Project 21MEP503L Domain Internship Total Credits 21MEE632T3 Specialization Project 21MEP503L Domain Internship 20 10 10 5 21MEE633T3 21MEE633T 21MEE632T	21MEP501L		0	0	40	20	21MEE631T	Installation and Maintenance of	3	0	0	
Total Credits 20 20 21 21 21 21 21 21		Specialization Project	-				24MEE622T 3	Fuzzy logic and Neural Network		0	0	3
21MEE633J	ZINEPOUSL		U	U	10	-				٥	0	
21MEE634T 30 30 0 3 3 0 0 3 3	3	SO LINE	1	JF)		1	21MEE633 I	Measurement Techniques in				
Total Credits Total Credit			ger Per		Ŧ,					-		3
Course Course Course Code Title Course Title Course Code Title Course Code Title Course Code Cod	9		a i	1	2		21MEE6341		3	0	0	
Course C	- 6	100	4	44		ŊĬ		Total Credits				21
Course Course Course Code Title Code Title Code Title Code					ñ.			Open Elective Course (O)				
Course Course Course Code Title Code Title Code Title Code		100% assessment by the Department							ш	ourc	.1	
Course Course Hours/ Week Code Title L T P C 21MEC601T Industrial Safety 3 0 0 3 0 0 3 21MEC601T Industrial Safety 3 0<		(¹)									(
Code Title L T P C			H	lours	s/				L	T		
Code Ittle L I P C	Course	Course	١	Weel	k						_	
21MEE632T 3 21ME6632T 3			L	Τ	Р							
Course C			_	-	_						-	3
Course Delivery by online mode (3) Course Code Title L T P C 21MEE532T 3 Electrical Drives and Smart Grid System 21MEE53TT 3 Energy Forecasting, Modeling and Project Management Energy Forecasting, Modeling and Project Management Energy Systems 21MEE632T 3 Fuzzy logic and Neural Network for Solar Energy Systems Total Credits 3 Assessment by Open Book Examination (2) Course Course Course Code Title L T P C 21MEC532J 2 Fluid Mechanics and Heat Transfer Modelling and Analysis of Energy Systems 21MEE536J 2 Modelling and Analysis of Energy Systems 21MEE605J 2 Computational Fluid Dynamics 21MEE605J 2 Computational Fluid Dynamics	21MEE600T ¹	Journal Publication	0	0	0	3					_	
Course Code Title Co	7	0 5 1 1 1 (2)										3
Course Course Course Week Code Title Course Code Title			Hour	e/			Asses	sment by Open Book Examination	on (²)		
Code Ittle Code Code Title Code T		Course		k						ours		
21MEE532T 3 System 21MEE535T 3 Advanced Energy Storage 21MEE537T 3 Energy Forecasting, Modeling and Project Management 21MEE632T 3 Fuzzy logic and Neural Network for Solar Energy Systems 21MEE632T 3 System 21MEC532J 2 Fluid Mechanics and Heat Transfer Modelling and Analysis of Energy Systems 21MEE536J 2 Computational Fluid Dynamics 21MEE605J 2 Computational Fluid Dynamics			Т	Р		;			- 1			_
21MEE535T³ Advanced Energy Storage 3 0 0 3 21MEE537T³ Energy Forecasting, Modeling and Project Management 21MEE632T³ Fuzzy logic and Neural Network for Solar Energy Systems 3 0 0 3 21MEE632T³ Energy Systems 3 0 0 3 21MEE632T³ Computational Fluid Dynamics 2 0 2 3	ZIIVIEE33ZI °	System	0	0				Fluid Mechanics and Heat				
21MEE5371 and Project Management and Project			0	0	ć	}	2 11112 00020	i ranster		_	-	_
21MEE632T 3 Fuzzy logic and Neural Network for Solar Energy Systems 3 0 0 3 21MEE605J 2 Computational Fluid Dynamics 2 0 2 3			0	0	3	}	21MEE536J			0	0	3
	21MEE622T 3	Fuzzy logic and Neural Network	0	0	3	}	21MEE605 12 Computational Fluid		2	0	2	3
				2	4							

All elective courses may be studied under MOOC platform

1 100% assessment by the Department

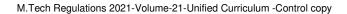
2 Assessment by Open Book Examination

3 Course Delivery through online mode

40. (h) Implementation Plan: M.Tech Solar Energy

	Semester - I	Semester - II										
Code Course Title		1 -	Hours/ Week			Code	Course Title		Hours/ Week			
		L	T	Р	С			L	Т	Р	С	
21MEC531J	Solar Radiation and Energy	3	0	2	4	21MEC534J	Solar Photovoltaic Systems	3	0	2	4	
	Conversion Fluid Mechanics and Heat Transfer	3	0	2	4	21MEE533T	21MEE533T Solar Refrigeration and Air Conditioning		0	0	3	
	Solar Thermal Collectors and	2	_	2	2	21MEE534T	Solar Systems for Buildings	3	0	0		
21MEC533J	Applications	2	0	2	3	21MEE505T	Mechanical Behavior of Engineering	3	0	0	_	
	Computational Methods	3	1	0	4		Materials		Ľ		3	
211PC501J ²	Research Methodology	2	1	2	4		3, 111	3	0	0		
21MEE531T	Energy Conservation and	3	0	0		21MEE605J ²	Computational Fluid Dynamics	2	0	2		
21MEE532T ³	Management Electrical Drives and Smart Grid	3	0	0	3	21MEE536J ²	Modelling and Analysis of Energy Systems		0	2	3	
System Total Credits			21MEE537T ³ Energy Forecasting, M		Energy Forecasting, Modeling and Project Management	3	0	0	,			
	Compostor III					0414555007	Solar Energy for Industrial Processes	3	_	_	3	
	Semester - III	- 1		. /		and Agriculture 3 3 0 0			0			
Code	Course Title	Hours/ Week				Total Credits				16		
Code	Course Tille	I	L T P C		_	77.						
	Open Elective	3	0	0	3							
	Installation and Maintenance of	J	U	U	J	5148. Tr						
21MEE631T	Solar Systems	3	0	0		Semester - IV					$\overline{\Box}$	
21MEE632T ³	Fuzzy logic and Neural Network for	3	0	0	3			Н	ours	:/		
ZTIVILLUSZT	Solar Energy Systems		U	U		Code	Course Title		Veel	(
21MEE600T1	Journal Publication	0	0	0				L	Τ	Р	С	
21MEE633J	Measurement Techniques in Energy Systems	2	0	2	•	21MEP501L Specialization Project 0 0 0		0	40	20		
0414550045	Solar Power Generation Techniques		^	٠	3	21MEP502L	Specialization Project	0	0	30	15	
21MEE634T	and Policies	3	0	0			Domain Internship	0	0	10	5	
21MEC601T 1	21MEC601T ¹ Case Studies 3 0 0 3		Z TWILT GOOL	Total Credits	U	U		20				
	Total Credits				12		Total Orcalis					
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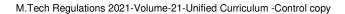
[#] Students must register either 21MEP501L or 21MEP502L and 21MEP503L both in fourth semester



40. (i) Program Articulation Matrix: M.Tech Solar Energy

Course	Course Name	Programme Outcomes					
Code	Course Name	1	2	3			
21MEC531J	Solar Radiation and Energy Conversion	2.8	3				
21MEC532J	Fluid Mechanics and Heat Transfer	2.8	2.8				
21MEC533J	Solar Thermal Collectors and Applications	3	2				
21MAC501T	Computational Methods	3	3				
21MEC534J	Solar Photovoltaic Systems	2		2.8			
21MEE531T	Energy Conservation and Management	3		3			
21MEE532T	Electrical Drives and Smart Grid system	2	2.8				
21MEE533T	Solar Refrigeration and Air conditioning	3	2				
21MEE534T	Solar Systems for Buildings	2.8	2				
	Mechanical Behavior of Engineering Materials	1.6	2				
	Advanced Energy Storage	2.4	2				
	Modelling and Analysis of Energy Systems	2.8	2.8				
	Energy Forecasting, Modeling and Project Management	3	h.				
21MEE538T	Solar Energy for Industrial Processes and Agriculture	2.4	2				
	Installation and Maintenance of Solar Systems	3	2	3			
21MEE632T	Fuzzy logic and Neural Network for Solar Energy Systems	2.8	2				
	Journal Publication			L.			
	Measurement Techniques in Energy Systems	3	2	1			
21MEE634T	Solar Power Generation Techniques and Policies	2.8	2	2			
21MEE <mark>605</mark> J	Computational Fluid Dynamics	2.8	2.8	3			
21IPC501J	Research Methodology	3	2.6	-			
	Open Elective						
21MEC601T	Case Studies		V 2				
21 <mark>MEP501</mark> L	Specialization Project						
	Specialization Project						
2 <mark>1MEP50</mark> 3L	Domain Internship	- T					
	Program Average	75,57	4-1				

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





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