

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

9. M.Tech in Environmental Engineering

9. (a) Department Vision Statement

Stmnt - 1	<i>To become a frontier in various fields of Civil Engineering education and research to meet national and global challenges in accordance with the societal needs.</i>
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9. (b) Department Mission Statement

Stmnt - 1	<i>To move up through international alliances and collaborative initiatives in civil engineering to achieve global excellence</i>
Stmnt - 2	<i>To accomplish a process to advance knowledge in a rigorous research environment related to civil engineering and allied disciplines</i>
Stmnt - 3	<i>To attract and build people in a rewarding and inspiring environment by fostering freedom, empowerment, creativity and innovation.</i>

9. (c) Program Education Objectives (PEO)

PEO - 1	<i>Graduates will become effectively as environmental engineers in public and private sectors in implementing design, operation and maintenance that is sustainable.</i>
PEO - 2	<i>Graduates will provide a solution for any environmental issues and plays a vital role to the society.</i>
PEO - 3	<i>Graduates will perform well environmental engineering field and gradually move into teamwork and leadership positions.</i>
PEO - 4	<i>Graduates will play a key role as an expert supporting the authorities while framing standards towards the quality.</i>
PEO - 5	<i>Graduates will continue their lifelong learning to sustain in their profession and enhance the growth.</i>

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

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

9. (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>

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

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

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

9. (g) Programme Structure: M.Tech in Environmental Engineering

Professional Core Courses (C)						Professional Elective Courses (E)					
Course Code	Course Title	Hours/Week			C	Course Code	Course Title	Hours/Week			C
		L	T	P				L	T	P	
21CEC561T ³	Environmental Chemistry and Microbiology	3	0	0	3	21CEE561T	Occupational Health and Safety	3	0	0	3
21CEC562J ²	Solid and Hazardous Waste Management	3	0	2	4	21CEE562T	Instrumental Monitoring of Environment	3	0	0	
21CEC563J ³	Transport of Water and Wastewater	3	0	2	4	21MAE501T	Advanced Mathematical Techniques	3	0	0	
21CEC564J	Unit Operation and Processes in Water and Wastewater Treatment	3	0	2	4	21CEE563T	Industrial Wastewater Treatment	3	0	0	3
21CEC565J ²	Design and Operation of Water and Wastewater Treatment Units	3	0	2	4	21CEE564T	Resource Energy and Recovery	3	0	0	
21IPC501J ²	Research Methodology	2	1	2	4	21CEE565T	Environmental Sanitation	3	0	0	
21CEC601T ¹	Case Studies	3	0	0	3	21CEE566T	Marine Pollution Monitoring	3	0	0	3
Total Credits					26	21CEE567T	Environmental Impact Assessment	3	0	0	
						21CEE568T	Ground water Contamination and Transport Modeling	3	0	0	
						21CEE569T	Geoinformatics for Environmental Engineering	3	0	0	3
						21CEE570T	Air and Noise Pollution Control	3	0	0	
						21CEE571T	Environmental Policies and Legislation	3	0	0	
						21CEE572T	Cleaner Production	3	0	0	3
						21CEE573T	Environmental Management System	3	0	0	
						21CEE574T	Industrial Pollution Prevention	3	0	0	
						21CEE575T	Remote Sensing and GIS Application in Environmental Engineering	3	0	0	3
						21CEE576T	Research Methods in Civil Engineering	3	0	0	
						21CEE577T	Bioremediation – Principles and Application	3	0	0	
						21CEE600T ¹	Journal Publication	0	0	0	3
						21CEE578T	Environmental Change and Sustainable Development	3	0	0	
						21CEE579T	Environmental Biotechnology	3	0	0	
						21CEE580T	Watershed Management	3	0	0	21
Total Credits					20	Total Credits					21
Open Elective Courses (O)											
Course Code	Course Title	Hours/Week			C	Course Code	Course Title	Hours/Week			C
		L	T	P				L	T	P	
21CEO561T	Waste to Energy	3	0	0	3	21CEC561T ³	Environmental Chemistry and Microbiology	3	0	0	3
21CEO562T	Principles of Sustainable Development	3	0	0	3	21CEC563J ³	Transport of Water and Wastewater	3	0	2	4
21CEO563T	Environment and Ecology	3	0	0	3	Total Credits					3
Total Credits					3						
Course Delivery by online mode (³)						Assessment by Open Book Examination (²)					
Course Code	Course Title	Hours/Week			C	Course Code	Course Title	Hours/Week			C
		L	T	P				L	T	P	
21CEC561T ³	Environmental Chemistry and Microbiology	3	0	0	3	21CEC562J ²	Solid and Hazardous Waste Management	3	0	2	4
21CEC563J ³	Transport of Water and Wastewater	3	0	2	4	21CEC565J ²	Design and Operation of Water and Wastewater Treatment Units	3	0	2	4
						21IPC501J ²	Research Methodology	2	1	2	4
100% assessment by the Department (¹)											
Course Code	Course Title	Hours/Week			C						
		L	T	P							
21CEC601T ¹	Case Studies	3	0	0	3						
21CEE600T 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

9. (h) Implementation Plan: M.Tech in Environmental Engineering

Semester - I							Semester - II						
Code	Course Title	Hours/Week				C	Code	Course Title	Hours/Week				C
		L	T	P					L	T	P		
21CEC561T ³	Environmental Chemistry and Microbiology	3	0	0		3	21CEC564J	Unit Operation and Processes in Water and Wastewater Treatment	3	0	2		4
21CEC562J ²	Solid and Hazardous Waste Management	3	0	2		4	21CEC565J ²	Design and Operation of Water and Wastewater Treatment Units	3	0	2		4
21CEC563J ³	Transport of Water and Wastewater	3	0	2		4	21CEE563T	Industrial Wastewater Treatment	3	0	0		3
21IPC501J ²	Research Methodology	2	1	2		4	21CEE564T	Resource Energy and Recovery	3	0	0		
21CEE561T	Occupational Health and Safety	3	0	0			21CEE565T	Environmental Sanitation	3	0	0		
21CEE562T	Instrumental Monitoring of Environment	3	0	0		3	21CEE566T	Marine Pollution Monitoring	3	0	0		3
21MAE501T	Advanced Mathematical Techniques	3	0	0			21CEE567T	Environmental Impact Assessment	3	0	0		
Total Credits						18	21CEE568T	Ground water Contamination and Transport Modeling	3	0	0		
							21CEE569T	Geoinformatics for Environmental Engineering	3	0	0		3
							21CEE570T	Air and Noise Pollution Control	3	0	0		
							21CEE571T	Environmental Policies and Legislation	3	0	0		
							Total Credits						17
Semester - III							Semester - IV						
Code	Course Title	Hours/Week				C	Code	Course Title	Hours/Week				C
		L	T	P					L	T	P		
	Open Elective	3	0	0		3	21CEP501L	Specialization Project (OR)	0	0	40		20
21CEE572T	Cleaner Production	3	0	0			21CEP502L	Specialization Project	0	0	30		15
21CEE573T	Environmental Management System	3	0	0		3	21CEP503L	Domain Internship	0	0	10		5
21CEE574T	Industrial Pollution Prevention	3	0	0			Total Credits						20
21CEE575T	Remote Sensing and GIS Application in Environmental Engineering	3	0	0									
21CEE576T	Research Methods in Civil Engineering	3	0	0		3							
21CEE577T	Bioremediation – Principles and Application	3	0	0									
21CEE600T ¹	Journal Publication	0	0	0									
21CEE578T	Environmental Change and Sustainable Development	3	0	0									
21CEE579T	Environmental Biotechnology	3	0	0		3							
21CEE580T	Watershed Management	3	0	0									
21CEC601T ¹	Case Studies	3	0	0		3							
Total Credits						15							

Students must register either 21CEP501L or 21CEP502L and 21CEP503L both in fourth semester

9. (i) Program Articulation Matrix: M.Tech in Environmental Engineering

Course Code	Course Name	Programme Outcomes		
		1	2	3
21CEC561T	Environmental Chemistry and Microbiology	2	2	2
21CEC562J	Solid and Hazardous Waste Management	2	2	3
21CEC563J	Transport of Water and Wastewater	3	3	3
21CEE564J	Unit Operation and Processes in Water and Wastewater Treatment	3	2	3
21CEC565J	Design and Operation of Water and Wastewater Treatment Units	2	2	3
21CEC601T	Case Studies	3	3	3
21CEE561T	Occupational Health and Safety	2	2	3
21CEE562T	Instrumental Monitoring of Environment	2	2	3
21MAE501T	Advanced Mathematical Techniques	3	3	-
21CEE563T	Industrial Wastewater Treatment	3	2	3
21CEE564T	Resource Energy and Recovery	2	2	3
21CEE565T	Environmental Sanitation	2	2	3
21CEE566T	Marine Pollution Monitoring	2	2	3
21CEE567T	Environmental Impact Assessment	2	2	3
21CEE568T	Ground water Contamination and Transport Modeling	2	2	3
21CEE569T	Geoinformatics for Environmental Engineering	3	2	2
21CEE570T	Air and Noise Pollution Control	2	2	3
21CEE571T	Environmental Policies and Legislation	2	2	2
21CEE572T	Cleaner Production	3	2	3
21CEE573T	Environmental Management System	3	2	2
21CEE574T	Industrial Pollution Prevention	3	2	3
21CEE575T	Remote Sensing and GIS Application in Environmental Engineering	3	2	2
21CEE576T	Research Methods in Civil Engineering	3	3	3
21CEE577T	Bioremediation – Principles and Application	2	2	3
21CEE600T	Journal Publication			
21CEE578T	Environmental Change and Sustainable Development	2	2	3
21CEE579T	Environmental Biotechnology	2	2	2
21CEE580T	Watershed Management	2	2	3
21IPC501J	Research Methodology	3	2.6	
	Open Elective			
21CEP501L	Specialization Project			
21CEP502L	Specialization Project			
21CEP503L	Domain Internship			
Program Average				

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



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