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

7. M.Tech in Chemical Engineering

7.	(a)	Department	Vision	Statement
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	To utilize Chemical Engineering and Technology and ensure overall socio-economic growth, welfare, and progress of
Stmt - 1	Indian society and the World-at-large by supporting Academia, Industries through Research and Development,
	Consultancy and graduating high-quality Chemicals Engineers

7. (b) Department Mission Statement

Stmt - 1	To facilitate high-quality education, well grounded in the fundamental and applied areas of engineering necessary for learners to contribute effectively to chemical and allied industries
Stmt - 2	To educate, prepare, inspire and mentor learners with the technical and professional skill-set necessary to excel as professionals, grow in their careers and contribute to chemical engineering science and technology
Stmt - 3	To inculcate social responsibility in learners and train them to contribute effectively to science and society

7. (c) Program Education Objectives (PEO)

PEO - 1	
PEO - 2	To impart a significantly higher level of technical knowledge than in undergraduate so that they appreciate the technological aspects of Chemical Engineering and create opportunities in advanced topics of the field of study.
PEO - 3	To prepare students with skill sets and values that meets the varied needs of industries, research and academic organizations.
PEO - 4	To enhance their capabilities in experimental research works, analytical skills, interpretation of scientific data and converting these into technical reports.
PEO - 5	To enable the graduates to create and work in an atmosphere where learning, research and technical competence co-exists.

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

	Mission Stmt 1	Mission Stmt 2	Mission Stmt 3
PEO - 1			
PEO - 2		No.	
PEO-3	~	10.7	
PEO-4	8	11.65	
PEO - 5	0'	ANA	

7. (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
PO-3	mastery should be at a level higher than the requirements in the appropriate bachelor program.

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

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

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

7. (g) Programme Structure: M.Tech in Chemical Engineering

Professional Core Courses (C)							Professional Elective Courses	es					
. Hours/								(E) Any 7 Courses					
Course	Course Week						Н	OUL	s/				
Code	Title	ī	L T P C		Course	Course	Hours/ Week						
21CHC501J	Computational Transport Phenomen	a 3		0	2	4	Code	Title	L	T	P	С	
21CHC502J ²	Computer-Aided Process Plant				2	4	21CHE551T	³ Green Technology	3	0	0	3	
ZTCHC30ZJ ^z	Simulation					•	21CHE556T		3	0	0	J	
21CHC503J	Advanced Chemical Reaction	3	3	0	2	4	21CHE553T		3	0	0	3	
	Engineering		\downarrow	_	_		21CHE5571	Modern Separation Processes		0	0	Ü	
	Process Automation and Control				2	4	21CHE552T	Data Science in Chemical	3	0	0		
	Process Integration and Intensification Research Methodology	on 3			2	3		Engineering		^		3	
21CHC601T ¹	Case Studies				0	3	21CHE554T	Autificial Intelligence in Droces	3	0	0		
2101100011	Total Credi		,	U	•	26	21CHE555T	Engineering	3	0	0		
	/ 3° / 20 S	Ä	7	H		Ī	21CHE559T	Diamaga Camuaraian and	3	0	0	3	
							21CHE558T	,	3	0	0		
		-						Piomotorials and Drug Polivery				3	
	Duning at Wards Instrumenting In						21CHE565T	Systems	3	0	0		
Inc	Project Work, Internship In dustry / Higher Technical Institution	ns (P)				21CHE561T	3 Cleaner Technologies and Sustainability	3	0	0		
Cauraa	C	- Hours/			21CHE562T		3	0	0	2			
Course	Course	Week			21CHE600T		0	0	0	3			
Code	Title	L	L T P C		21CHE564T	Interfacial Science and	3	0	0				
21CHP501L	Specialization Project	0 0 40 20		2101120041	Engineering	J	U	U					
(OR)			201		21CHE560T	Advanced Biochemical	3	0	0				
21CHP502L	Specialization Project	0	_		30 10	15 5	0401155005	Engineering Colloids and Surfaces	3	0	0	3	
21CHP503L	Domain Internship Total Credit	<u> </u>	(UII	-	20	21CHE563T	Total Credits	3	3 0		21	
	F 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1					20	1111 pt						
	Course Delivery by online mode (4. Open Elective Courses (O)					
Course	Course	Но					0		Н	our	s/		
Codo	Title		eek T	P		_	Course Code	Course Title	Week				
Code 21CHE551T ³ (Title Green Technology		0	0		<u>C</u> 3			L	Τ	Р	C	
i,	Biomass Conversion and							Smart Waste Management	3	0	0	3	
	Bio-Refinery	3	0	0		3		Desalination and Water Treatment	3	0	0	3	
1	Cleaner Technologies and	_	_			^		Process Safety	3	0	0	3	
	Sustainability	3	0	0		3		Analytical Techniques in Process	3	0	0	3	
21CHE563T ³	Colloids and Surfaces	3 (0	0		3		Engineering Total Credits	<u> </u>			3	
	71.64	D.	ð,			1							
As	sessment by Open Book Examinat	ion (2)					100% assessment by the					
				urs/				Department (¹)					
Code Title L		$\overline{}$	eek T I	P	С	Course	Course		ours				
21CHC502J ²	Computer-Aided Process Plant	3	+		2	4	Code	Title	L	/eel T	P	С	
21CHC504J ²	Simulation Process Automation and Control	3		0	2	4			3	0	0	3	
	Artificial Intelligence in Process		-	,	_		21CHE600T	¹ Journal Publication	0	0	0	3	
Engineering		3	(0	3							
21/PC501J ² Research Methodology 2 1 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

7. (h) Implei	mentation Plan: M.Tech in Chemical	Eng	gine	erir	ng								
	Semester - I						S	emester - II					
30.1130131				s/				Jennostel II				s/	
Code	Course Title		Wee	k		Code		Course Title			Week		
		L	Т	Р	С	0.4.04.1.5.5.4.5		,,		L	T	Р	C
21CHC501J	Computational Transport	3	0	2	4		Process Autor			3	0	2	4
	Phenomena					21CHC505T	Process Integ			3	0	0	3
21CHC502J 2	Computer-Aided Process Plant Simulation	3	0	2	4	21CHE553T				3	0	0	3
	Advanced Chemical Reaction					21CHE557T	Modern Separ Data Science		ses	3	0	U	
21CHC503J	Engineering	3	0	2	4	21CHE552T	Engineering	III GHEHIIGAI		3	0	0	3
21IPC501J ²		2	1	2	4	21CHE554T					0	0	0
21CHE551T ³		3	0	0			Artificial Intolli			3			
21CHE556T	Strategies for CO ₂ Utilization	3	0	0	3	21CHE555T 2	Engineering	901100 1111 100	000	3	0	0	_
	Total Credits	_			19	04011555073	Diamaga Can	ersion and		^	^	^	3
	.0"					21CHE559T 3	Bio-Refinery			3	0	0	
	Semester - III			-		1		Tot	tal Credits				16
	Gemester - III	Н	lours	3/		7 2 2		emester - IV					
Code	Course Title		Veel				3	eillestei - IV		Н	lour	c/	
		L	Т	Р	С	Code		Course Title			Vee		
	Open Elective	3	0	0	3	Codo	`	Jourso Titlo		L	T	Р	С
21CHE558T	Fluidization Engineering	3	0	0		21CHP501L	Specialization	Project		0		40	
21CHE565T	Biomaterials and Drug Delivery	3	0	0	3		1-1	(OR)	L				, .
	Systems	J	U	U		21CHP502L	Specialization	٠ ,		0	0	30	15
21CHF561T ³	Cleaner Technologies and	3	0	0		21CHP503L				0	0	10	5
	Sustainability							Tot	tal Credits				20
	Nanoscience and Nanotechnology	3	0	0	3	3.00	12.72						
	Journal Publication	0	0	0			ist register eithe		or 21CHP	502	L a	nd	
	Interfacial Science and Engineering	3	0	0		21CHP503L b	oth in fourth sei	nester					
	Advanced Biochemical Engineering Colloids and surfaces	3	0	0	3	97 May 1	. 44 m 27						
	Case Studies	3	0	0	3		No Wast	13					
2101100011	Total Credits	J	U	U	15	7 L 1019							
7. (i) Program	Articulation Matrix: M.Tech in Chen	nica	ıl Er	nain		ing							
Course					4		4	Progr	ramme Outo	com	nes	Ī	
Code	Cou	ırse	Nar	ne	ĸ.			1	2			3	
2 <mark>1CHC50</mark> 1J C	Computational Transport Phenomena				l h	111>						į.	
	Computer-Aided Process Plant Simulati				П								
	Advanced Chemical Reaction Engineer	ing			И	111			7				
	Process Automation and Control				4					4			
	Process Integration and Intensification			7	19			F /		H			
21CHC601T C	Case Studies Green Technology				-								
	Data Science in Chemical Engineering	H	N		-1	To a ry							
	Advanced Thermodynamics	1.			-								
	Chemical Process Optimization												
	Artific <mark>ial Intelligence</mark> in Process Enginee	erinc	7										
21CHE556T S	Strategi <mark>es for CO₂ utiliza</mark> tion									T			
	Modern Sep <mark>aration Processes</mark>												
21CHE558T F	Fluidization Engineering					-		9 /					
	Biomass Conversion and Bio-refinery												
	dvanced Biochemical Engineering	40											
	Cleaner technologies and Sustainability									_			
	Vanoscience and Nanotechnology									+			
	Colloids and Surfaces Interfacial Science and Engineering									+			
	nterraciai Science and Engineering Biomaterials and Drug Delivery System:	c								+			
	lournal Publication	3								+			
	Research Methodology							3	2.6	+			
	Open Elective								L. U	+			
	Specialization Project									+			
21CHP502L S	Specialization Project									\dagger			
	L Domain Internship								T				
						Pro	gram Average						
-			-								-		



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