ACADEMIC CURRICULA

UNDERGRADUATE INTEGRATED POST GRADUATE DEGREE PROGRAMMES

(With exit option of Diploma)

(Choice Based Flexible Credit System)

Regulations 2021

Volume - 1

(Revised on July 2024)



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

44. B.Tech. in Mechatronics Engineering (Immersive Technologies)

44. (a) Mission of the Department

Mission Stmt – 1	To impart the principles of Mechatronics Engineering to produce engineers who are capable of competing on the global stage.
Mission Stmt – 2	To excel at solving multidisciplinary challenges through structured teaching-learning methods and by providing state-of-the-art facilities.
	To cultivate future leaders with a strong sense of integrity, communication, teamwork, and entrepreneurship

44. (b) Program Educational Objectives (PEO)

	Graduates will demonstrate a commitment to lifelong learning and career growth through participation and leadership in professional societies and organizations
	Graduates will advance professionally with a competency to solve challenges in industry, research, and academia leading to sustainable development of the society
PEO – 3	Graduates will be capable of solving ever-evolving-complex-system-integration problems through inter-disciplinary approaches.
PEO – 4	Graduates will be versatile in dealing with systems from a variety of modern engineering and technology fields with ease.

44. (c) Mission of the Department to Program Educational Objectives (PEO) Mapping

/ 6 /		Mission Stm	t 1	Mission Stmt 2	М	ission Stmt 3	
PEO - 1	1	2	of the first			_ 3	
PEO - 2	7	3	College "	STORY OF LARREST	34. V	2	
PEO - 3		2	100	3			
PEO - 4		-	NAME OF	3	25,21	4	

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

44. (d) Mapping Program Educational Objectives (PEO) to Program Outcomes (PO)

		- 0	H7	75.	Pro	gram Ou	tcomes (PO)		271	rud	,	Prog	eci <mark>fic</mark>	
	1_	2	3	4	5	- 6	7	8	9	10	11	12	Outo	comes (F	SO)
	Engineering Knowledge	Problem Analysis	Design/development of solutions	Conduct investigations of complex problems	Modern Tool Usage	The engineer and society	Environment & Sustainability	Ethics	Individual & Team Work	Communication	Project Mgt. & Finance	Life Long Learning	PS0-1	PSO-2	PSO-3
PEO - 1	-	-	7-1	1	A-D	1 -	F	n 7	2	-	-	1	> /		1
PEO - 2	2	- ,	1	3	1.17	- 3	11		,	4	(4)	-	7-	2	-
PEO - 3	2	3	- L		ı	-	-		-				3	<i>J</i>	2
PEO - 4	2		3	-	-	-	-	-	-	-	-	/-	+ - /	-	2

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

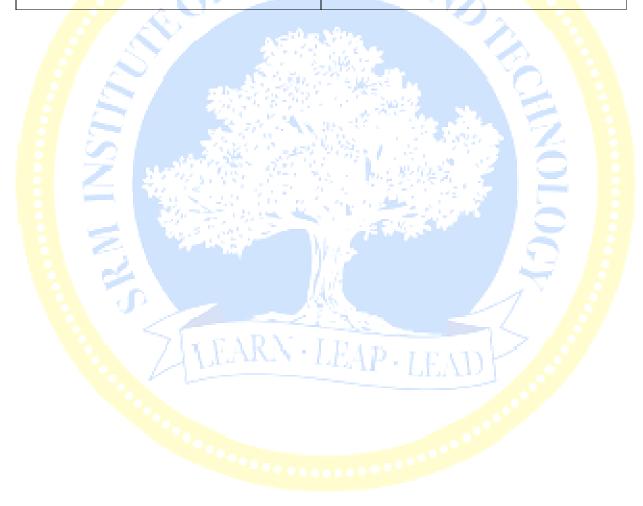
PSO – Program Specific Outcomes (PSO)

	PSO - 1	Graduates will apply scientific principles for modelling and simulation of multi-disciplinary engineering systems
	PSO - 2	Graduates will be able to interpret specifications of elements to design and develop an integrated system
•	PS() - 3	Graduates will be able to develop solutions based on immersive technologies such as virtual reality, augmented reality and haptics for a variety of applications.

44. (e) Program Structure: B.Tech. in Mechatronics Engineering (Immersive Technologies)

21GNM102L National Service Scheme 0 0 2 0 21GNM103L National Cadet Corps 21GNM104L National Sports Organization Total Credits 03 21MHP303T MOOC 3 0 0 0 2 0 0 0 0 0 0		Humanities & Social Sciences		Basic Science Courses (B)								
Course		including Management Courses (H)					Course	Course	Н	ours	/	
Course	Course	Course							٧	Veek		
21LEH1017 Communicative English 2 1 0 3 21LEH1027 Chinese 21LEH1037			V						L	Τ		С
21LEH007 Chinese			L		_							4
ZILEH103T French ZILEH103T Gamma ZILEH105T Jaganese ZILEH105T Jaganese ZILEH105T Jaganese ZILEH105T Saparish ZILEH105T Saparish ZILEH105T Saparish ZILEH105T Russian ZILEH105T Saparish ZIL			2	1	0	3				-		5
ZILEH106T Gaman			1				21BTB103T		2	0	0	2
All							21MAR102T		3	1	0	4
			1							-	•	
21LEH109T Spanish			2	1	0	3	21PYB104J		3	1	2	5
21LEH108T Invasial Invasial							21MAR201T		3	1	0	4
21CHM1011 Philosophy of Engineering 2 0 0 2 2 2 2 2 2 2									Ť		•	-
Total Credits Title Code Title L T P C Code Code Title L T P C Code Co									_	_	_	4
Engineering Science Courses (S)							21MAB301T				-	4
Engineering Science Courses (S)			_	0	_			To	tal	Cred	dits	32
Course	21GNH401T				•							
Course		Te	otal	Cre	dits	13		Professional Core Courses (C)				
Course		Engineering Science Courses (S)					Course	Course				
Course	_		Н	ours	1				٧			
Course									L			C
215S1011 Programming for Problem Solving 3 0 2 2 21MES1011 Basic Civil and Mechanical Workshop 0 0 4 2 21MES1012 Engineering Graphics and Design 0 0 4 2 21MES1021 Electrolical actuators and Lorrations 2 0 2 2 21MES1021 Electrolical and Electronics 2 0 0 2 2 21MES1021 Electrolical and Electronics 2 0 0 2 2 2 2 2 2 2	Code	Title	T			С						3
21MES1011 Basic Civil and Mechanical Workshop 0 0 4 2 21MES1021 Engineering Graphics and Design 0 0 4 2 21MES1021 Engineering Graphics and Design 0 0 4 2 2 21MES1021 Electrical Relectronics Engineering 3 0 0 4 2 2 21MES1021 Thermodynamics and Heat Transfer 3 0 0 3 2 21DCS201P Design Thinking and Methodology 1 2 0 3 2 2 0 0 2 2 2 2 2 0 0	21CSS101.I	Programming for Problem Solving	3	•						_	_	3
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21MHS201T Thermodynamics and Heat Transfer 3 0 0 3 21DCS201P Design Thinking and Methodology 1 2 0 3 21CSS303T Data Science Total Credits 20 0 2 2 21MHC208T Microcontroller and Embedded Systems 3 0 0 0 2 2 2 2 2 2 2							21MHC2041		0	0	2	1
2 DCS201P Design Thinking and Methodology				•				Laboratory	•			
Non Credit Course				-							_	3
Non Credit Courses (M)					_		21MHC206T		3	0	0	3
Non Credit Courses (M)	210000001			•	•		21MHC207I		0	0	2	1
Course			otai '	OICC	illo	20		Laboratory	Ů	Ť	_	·
Course		Non Credit Courses (M)			_		21MHC208L		0	0	2	1
Course		, ,	Н	ours	s /							
Course C							21MHC209T		2	1	0	3
21PDM101L Professional Skills and Practices 0 0 2 2 21PDM102L General Aptitude 0 0 0 2 2 21PDM201L Verbal Reasoning 0 0 0 2 2 21PDM201L Verbal Reasoning 0 0 0 2 2 21PDM301L Analytical and Creative Thinking Skills 0 0 0 2 2 21PDM302L Employability Skills and Practices 0 0 2 2 21PDM302L Employability Skills and Practices 0 0 0 2 2 21PDM302L Employability Skills and Practices 0 0 0 2 2 2 2 2 2 2	Code	Little	L	Т	Р	С	04000000		0	_	^	0
21PDM201L General Aptitude	21PDM101L 1	Professional Skills and Practices	0	0								3
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21PDM202L Critical and Creative Thinking Skills 0 0 2 21PDM301L Analytical and Logical Thinking Skills 0 0 2 21PDM301L Employability Skills and Practices 0 0 2 21CYM101T Environmental Science 1 0 0 0 0 21LEM101T Constitution of India 1 0 0 0 0 21LEM102T Universal Human Values – Introduction 1 0 0 0 0 0 0 0 0 0						1	21MHC302J	Design and Analysis of Machine	2	0	2	3
21PDM301L Analytical and Logical Thinking Skills 0 0 2 21PDM302L Employability Skills and Practices 0 0 2 21CYM101T Environmental Science 1 0 0 0 0 2 21LEM101T Constitution of India 1 0 0 0 0 2 21LEM101T Professional Ethics 1 0 0 0 0 2 21LEM201T Professional Ethics 1 0 0 0 0 2 21LEM201T Universal Human Values-II: Universal Human Values-II: Universal Human Values-II: Universal Human Values-II: Universal Human Conduct Universal Human Values-II: Universal Human Conduct Universal Human Values-II: Universal Human Values-II			0		2	0		Elements	2	^	2	1
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21CYM101T Environmental Science					2					-		1
21LEM101T Constitution of India			_			0	21MHC305J		2	U	2	3
21LEM102T Universal Human Values - Introduction 1 0 0 0 0 0 0 0 0 0			1				21MHC306T		3	0	0	3
21LEM201T Professional Ethics					_	-	2114402070		1	2	Λ	3
Universal Human Values-II: Understanding Harmony and Ethical Human Conduct 21LEM301T Indian Art Form 1 0 0 0 0 21LEM302T Indian Traditional Knowledge 1 0 0 0 0 21GNM101L Physical and Mental Health using Yoga 21GNM103L National Service Scheme 21GNM104L National Sports Organization Total Credits 03					_		ZIMITUSUIP	Table Daseu Systems Engineering		Cros		
21LEM202T Understanding Harmony and Ethical Human Conduct 2 1 0 3 Human Conduct 21LEM301T Indian Art Form 1 0 0 0 0 0 0 0 0 0												
Human Conduct	21LEM202T 1		2	1	0	3	Project Wo		er T	ech	nica	al
Course Course Course Course Course Course Course Course Course Code Title Code Title Code C												
21LEM302T Indian Traditional Knowledge	21LEM301T 1		1	0	0	0	Course	('Ourea				
21GNM101L Physical and Mental Health using Yoga 21GNM102L National Service Scheme 21GNM103L National Cadet Corps 21MHP302L Project 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0			_		_	0			We			
21GNM102L National Service Scheme 21GNM103L National Cadet Corps 21MHP302L Project 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0								L	T			С
21GNM103L National Cadet Corps 21MHP302L Project 0 0 6			^	_	_	_) 2	2	1
21GNM104L National Sports Organization			U	0	2	U			_) (6	3
Total Credits 03 21MHP401L Major Project 0 0 30 21MHP402L Major Project 0 0 0 20 21MHP403L Internship# 0 0 10 10 10 10 10 10											_	
21MHP402L Major Project 0 0 20			otal	Cred	dits	03		.,,		_	_	15
Course							21MHP402		0) 2	0	10
Course							21MHP403			_	_	5
Course Code Course Title Hours / Week L T P C 21MHO301T Smart Farming 3 0 0 3							_	Tota	al C	redi	ts	19
Code Course Week L T P 21MHO301T Smart Farming 3 0 0 3		(Any 3 Course)										
Code Title Week L T P C 21MHO301T Smart Farming 3 0 0 3	Course	Course										
21MHO301T Smart Farming 3 0 0 3			V									
			L	_		_						
Total Credits 03	21MHO301T											
		Te	otal	Cred	dits	03						
<u>'</u>							I					

	Professional Elective Courses (E) (Any 7 Courses)						Professional Elective Courses (E)				
Course Code	Course Title		ours Vee T		С	Course Code	Course Title		ours Vee T		С
Fo	oundation Courses (Minimum Two Cours	ses)				To	echnology Enablers (Minimum One Co	urse)			
21MHE422L 1	Creative Programming	0	0	6	3	21MHE429J	Computer Vision for X-Reality	2	0	2	3
21MHE423T	Foundations of Immersive Technologies	3	0	0	3	21MHE430J	Al for X-Reality	2	0	2	3
21MHE424T	System Integration in XR Technologies	3	0	0	3	21MHE431J	Computer Graphics for X-Reality	2	0	2	3
K	ey Technologies (Minimum Three Cours	es)				Applications and XR Enterprise					
21MHE425J	Virtual Reality and Its Applications	2	0	2	3	21MHE432T	Innovation, Entrepreneurship, and	3	Λ	٥	2
21MHE426J	Augmented and Mixed Reality	2	0	2	3	211011111111111111111111111111111111111	Enterprise	3	0	U	٥
21MHE427J	Haptics	2	0	2	3	21MHE433T	X-Reality in Industries	3	0	0	3
21MHE428L 1	Capstone Project	0	0	6	3	21MHE434T	Brain Computer Interface in Immersive	3	0	0	3
21MHE427T	Interaction Design and Prototyping for XR	2	1	0	3	211011111111111111111111111111111111111	Technologies	3	U	U	١
21MHE428T	Immersive Game Design and	2	1	0	3			Total	Cre	dits	21
21WITE4201	Development	2	1	U	J						
							. 14/Va 📉				



44. (f) Implementation Plan: B.Tech. in Mechatronics Engineering (Immersive Technologies)

	Semester - I		Semester - II								
0						Course	Course	Н	ours	<i>i</i> /	
Course Code	Course Title	V	Vee			Codise	Title			Κ	
		L	Т	Р	С			L	Т	Р	С
21LEH101T		2	1	0	3	21LEH102T Chinese					
21MAB101T		3	1	0	4	21LEH103T	French				
21PYB104J		3	1	2	5	21LEH104T	German				
21MES102L		0	0	4	2	21LEH105T	Japanese	2	1	0	3
21EES101T		3	1	0	4	21LEH106T	Korean				
21CYM101T		1	0	0	0	21LEH107T	Spanish				
21PDM101L1		0	0	2	0	21LEH108T	Russian				
21LEM101T 1		1	0	0	0	21GNH101J	Philosophy of Engineering	1	0	2	2
	I	otal	Cre	dits	18	21MAB102T	Advanced Calculus and Complex	3	1	0	4
	Semester - III					21CVP101 I	Analysis	2	1	2	-
		Н	ours	s /		21CYB101J 21MHC101P 1	Chemistry	3	1	0	5 3
Course	Course		Nee			21CSS101J	Elements of Mechatronics systems		0		4
Code	Title	L	Т	Р	С	21C3S1013 21BTB103T	Programming for Problem Solving Biology	3	0	0	2
0444450047	Transforms and Boundary Value	_								_	2
21MAB201T	Problems	3	1	0	4	21MES101L 1	Basic Civil and Mechanical Workshop	0	0	2	0
21MHC201T		3	0	0	3	21PDM102L ¹ 21GNM101L ¹	General Aptitude* Physical and Mental Health using Yoga	U	U	2	U
21MHC202J		2	0	2	3		National Service Scheme				
21MHC203J		2	0	2	3	21GNM103L ¹	National Cadet Corps	0	0	2	0
21PDH209T	Social Engineering	2	0	0	2		National Sports Organization				
21MHS201T		3	0	0	3	ZTONNITO4L		tal	Cred	lite	25
21MHC204L	Electrical Actuators and Drives	0	0	2	1	- E 137		wi	J16(aito	20
Z TWITICZU4L	Laboratory	U	U	2	1		Semester - IV				
21LEM201T ¹		1	0	0	0	Course	Course		ours		
21PDM201L	Ü	0	0	2	0	Code	Title	\	Veel		
	Universal Human Values-II:							L	Τ	Р	С
21LEM202T ¹	J ,	2	1	0	3	21MAB202T	Numerical methods	3	1	0	4
	Human Conduct					21CSC206T	Artificial Intelligence	2	1	0	3
		otal	Cre	dits	22	21MHC205T	Microcontroller and Embedded Systems	3	0	0	3
	Semester - V					21MHC206T	Mechanics of Solids and Fluids	3	0	0	3
0		Н	ours	s /		21MHC207L 1	Microcontroller and Embedded Systems	0	0	2	1
Course Code	Course Title	١	Nee	k			Laboratory Mechanics of Solids and Fluids				
Code	Title	L	Τ	Р	С	21MHC208L 1	Laboratory	0	0	2	1
21MAB301T		3	1	0	4		Project Management and Industrial				
21MHC301T		3	0	0	3	21MHC209T	Practices	2	1	0	3
21MHC303J		2	0	2	3	21DCS201P 1	Design Thinking and Methodology	1	2	0	3
21MHC302J	Design and Analysis of Machine	2	0	2	3	ZIBOOZOII	Professional Elective – I	3	0	0	3
2 11011 103023	Elements		Ť			21PDM202L ¹	Critical and Creative Thinking Skills*	0	0	2	0
	Professional Elective – II	3	0	0	3			١	Cred		
0/4000000000000000000000000000000000000	Open Elective – I	3	0	0	3						
	Modelling and Control Laboratory	0	0	2	1		Semester - VI			,	1
21PDM301L		0	0	2	0	Course	Course		ours		1
21LEM301T		1	0	0	0	Code	Title	١ ١	Veel T		_
21GNP301L		0	0	2	1		Data Sajanga	L 2	T	Р	C
	1	otal	cre	aits	21	21CSS303T	Data Science	2	0	0	2
						21MHC305J	Manufacturing Processes Kinematic Analysis and Dynamics of	2	0	2	3
	Semester - VII					21MHC306T	Mechanisms	3	0	0	3
		Н	ours	s /		21MHC307P ¹	Model Based Systems Engineering	1	2	0	3
Course	Course		Nee			LIMITOOUT	Professional Elective – III	3	0	0	3
Code	Title	T	Т	Р	С	21MHP302L ¹	Project	0	0	6	
21GNH401T	Behavioural Psychology	2	1	0	3	21MHP303T ¹	MOOC	3	0	0	3
	Professional Elective – IV	3	0	0	3	O	Open Elective – II	3	0	0	3
	Professional Elective – V	3	0	0	3	21PDM302L ¹	Employability Skills and Practices*	0	0	2	0
	Professional Elective – VI				3	21LEM302T ¹	Indian Traditional Knowledge	1	0	0	0
	Professional Elective – VII				3		·	otal	-	_	20
0	Open Elective – III	3	0	0	3						Ě
	Т	otal	Cre	dits	18		Semester - VIII				
			_			ı					

Students have to register either 21MHP401L or 21MHP402L and 1MHP403L both in eighth semester	Course Code	Course Title		Hours Wee	-	С
	21MHP401L	Major Project	0	0	30	15
	21MHP402L	Major Project	0	0	20	10
	21MHP403L	Internship#	0	0	10	5
			Tota	l Cre	dits	15





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