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)

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Kattankulathur, Chengalpattu District 603203,

Tamil Nadu, India

34 M.Tech in Electronics and Control Engineering

34. (a) Department Vision Statement

Stmt - 1	*The department is committed to enable the students to experience an uncompromised educational journey that facilitates them to build successful careers and excel in the field of Electronics and Instrumentation Engineering with social and ethical standards*

34. (b) Department Mission Statement

Stmt - 1	*To have a scholarly and professional environment to make long lasting contributions for the advancement of knowledge.*
Stmt - 2	*To have a world class teaching resources and laboratory facilities.*
Stmt - 3	*To have an innovative, dynamic, flexible devising academic program and structure.*
Stmt - 4	*To foster research and development, for the benefit of global community.*

34. (c) Program Education Objectives (PEO)

PEO - 1	*Graduates will be able to take up career in optimization and automation of industrial process control with environment protection and safety concern.*
PEO - 2	*Graduates will be able to solve technical problems to serve the society in a responsible and ethical manner.*
PEO - 3	*Graduates will be able to serve the end users with cutting edge technologies to meet industry standards*
PEO - 4	*Graduates will be able to achieve broad and in depth knowledge of Instrumentation to practice and pursue higher studies*
PEO - 5	*Graduates will be able to work as a team on multidisciplinary projects and excel in their career.*

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

	Mission Stmt. - 1	Mission Stmt. - 2	Mission Stmt. - 3	Mission Stmt. - 4
PEO - 1	*2*	*2*	*3*	*2*
PEO - 2	*2*	*2*	*3*	*2*
PEO - 3	*2*	*3*	*2*	*2*
PEO - 4	*2*	*3*	*3*	*2*
PEO - 5	*2*	*2*	*2*	*2*

34. (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.*

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

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

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

34. (g) Programme Structure: M.Tech Electronics and Control Engineering

Professional Core Courses (C)

Course Code	Course Title	Hours/ Week L	T	P	C
21EIC501J	Advanced Control Systems	3	0	2	4
21EIC502J	Advanced Digital Signal Processing	3	0	2	4
21EIC503J	Advanced Industrial Automation	3	0	2	4
21EIC504J	Real Time Embedded Systems	3	0	2	4
21EIC505T [2]	Artificial Intelligence in Automation	3	0	0	3
21IPC501J [2]	Research Methodology	2	1	2	4
21EIC601T [1]	Case Studies	3	0	0	3
Total Credits					**26**

Project Work, Internship In Industry / Higher Technical Institutions (P)

Course Code	Course Title	Hours/ Week L	T	P	C
21EIP501L	Specialization Project	0	0	40	20
	(OR)				
21EIP502L	Specialization Project	0	0	30	15
21EIP503L	Domain Internship	0	0	10	5
Total Credits					**20**

100% assessment by the Department ([1])

Course Code	Course Title	Hours/ Week L	T	P	C
21EIC601T [1]	Case Studies	3	0	0	3
21EIE600T [1]	Journal Publication	0	0	0	3

Assessment by Open Book Examination ([2])

Course Code	Course Title	Hours/ Week L	T	P	C
21EIC505T [2]	Artificial Intelligence in Automation	3	0	0	3
21IPC501J [2]	Research Methodology	2	1	2	4

Professional Elective Courses (E) Course Delivery by online mode ([3]) (Any 7 Courses)

Course Code	Course Title	Hours/ Week L	T	P	C
21EIE501T [3]	Advanced Power Electronics and Control	3	0	0	3
21EIE502T [3]	Computer Vision System	3	0	0	
21EIE506T [3]	Model Based Development of Cyber - Physical Systems	3	0	0	
21EIE503T [3]	Model based Predictive Control	3	0	0	
21EIE504T [3]	Networked Control Systems	3	0	0	3
21EIE505T [3]	Design of MEMS and Applications	3	0	0	
21EIE507T [3]	Advanced Machine Learning	3	0	0	3
21EIE508T [3]	VFD and HMI programming	3	0	0	
21EIE601T [3]	System Identification	3	0	0	3
21EIE602T [3]	Embedded Control Systems	3	0	0	
21EIE603T [3]	E-Vehicle Technology	3	0	0	3
21EIE604T [3]	Deep Learning Technique	3	0	0	
21EIE606T [3]	Process Data Analytics	3	0	0	3
21EIE607T [3]	Wireless Sensor Networks	3	0	0	
21EIE600T [1]	Journal Publication	0	0	0	
21EIE605T [3]	Virtual and Augmented Reality	3	0	0	3
21EIE608T [3]	Industrial Internet of Things	3	0	0	
Total Credits					**21**

Open Elective Courses (O)

Course Code	Course Title	Hours/ Week L	T	P	C
		3	0	0	3
	Total Credits				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

34. (h) Implementation Plan: M.Tech Electronics and Control Engineering

Semester - I					
Code	Course Title	Hours/ Week			
		L	T	P	C
21EIC501J	Advanced Control Systems	3	0	2	4
21EIC502J	Advanced Digital Signal Processing	3	0	2	4
21EIC505T [2]	Artificial Intelligence in Automation	3	0	0	3
21IPC501J [2]	Research Methodology	2	1	2	4
21EIE501T [3]	Advanced Power Electronics and Control	3	0	0	3
21EIE502T [3]	Computer Vision System	3	0	0	
21EIE506T [3]	Model Based Development of Cyber - Physical Systems	3	0	0	
Total Credits					**18**

Semester - II					
Code	Course Title	Hours/ Week			
		L	T	P	C
21EIC503J	Advanced Industrial Automation	3	0	2	4
21EIC504J	Real Time Embedded Systems	3	0	2	4
21EIE503T [3]	Model based Predictive Control	3	0	0	3
21EIE504T [3]	Networked Control Systems	3	0	0	
21EIE505T [3]	Design of MEMS and Applications	3	0	0	
21EIE507T [3]	Advanced Machine Learning	3	0	0	3
21EIE508T [3]	VFD and HMI programming	3	0	0	
21EIE601T [3]	System Identification	3	0	0	3
21EIE602T [3]	Embedded Control Systems	3	0	0	
Total Credits					**17**

Semester - III					
Code	Course Title	Hours/ Week			
		L	T	P	C
	Open Elective	3	0	0	3
21EIE603T [3]	E-Vehicle Technology	3	0	0	3
21EIE604T [3]	Deep Learning Technique	3	0	0	
21EIE606T [3]	Process Data Analytics	3	0	0	3
21EIE607T [3]	Wireless Sensor Networks	3	0	0	
21EIE600T [1]	Journal Publication	0	0	0	
21EIE605T [3]	Virtual and Augmented Reality	3	0	0	3
21EIE608T [3]	Industrial Internet of Things	3	0	0	
21EIC601T [1]	Case Studies	3	0	0	3
Total Credits					**15**

Semester - IV					
Code	Course Title	Hours/ Week			
		L	T	P	C
21EIP501L	Specialization Project	0	0	40	20
	(OR)				
21EIP502L	Specialization Project	0	0	30	15
21EIP503L	Domain Internship	0	0	10	5
Total Credits					**20**

 # Students must register either 21EIP501L or 21EIP502L and 21EIP503L both in fourth semester

34. (i) Program Articulation Matrix: M.Tech Electronics and Control Engineering

Course Code	Course Name	Programme Outcomes		
		1	2	3
21EIC501J	Advanced Control Systems	2		0.25
21EIC502J	Advanced Digital Signal Processing		0.25	1.75
21EIC503J	Advanced Industrial Automation	0.67	0.67	2
21EIC504J	Real Time Embedded Systems	1	0.25	1.75
21EIC505T	Artificial Intelligence in Automation	2	1	0.67
21EIC601T	Case Studies			
21EIE501T	Advanced Power Electronics and Control	2		1
21EIE502T	Computer Vision System	2.67	0.67	1.33
21EIE503T	Model based Predictive Control	0.67		2.33
21EIE504T	Networked Control Systems	3		0.67
21EIE505T	Design of MEMS and Applications	3		
21EIE506T	Model Based Development of Cyber - Physical Systems	3		2
21EIE507T	Advanced Machine Learning	2	1.33	0.67
21EIE508T	VFD and HMI programming	1.67		1.33
21EIE601T	System Identification	3		2
21EIE602T	Embedded Control Systems	1	0.67	2
21EIE603T	E-Vehicle Technology	3		
21EIE604T	Deep Learning Technique	2.67	0.67	1.33
21EIE605T	Virtual and Augmented Reality	1	0.67	2
21EIE606T	Process Data Analytics	0.67		2.33
21EIE607T	Wireless Sensor Networks	2.33	0.33	
21EIE608T	Industrial Internet of Things	3	0.67	0.67
21EIE600T	Journal Publication			
21IPC501J	Research Methodology	3	2.6	
	Open Elective			
21EIP501L	Specialization Project			
21EIP502L	Specialization Project			
21EIP503L	Domain Internship			
	Program Average			

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

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