

ACADEMIC CURRICULA

UNDERGRADUATE/ INTEGRATED POST GRADUATE DEGREE PROGRAMMES

(With Multiple Exit Options)

(Choice Based Flexible Credit System)

Regulations 2026

Volume – 1



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

B.Tech. - Electronics Engineering (VLSI Design and Technology)
1. (a) Mission of the Department / School

Mission Stmt – 1	To consistently uphold the highest standards of educational process aimed at imparting knowledge and skills related to electronic design and communication engineering fostering successful practicing engineers nationally and globally.
Mission Stmt – 2	To stay at the forefront of technological advancements and adapt our programs to provide cutting-edge learning experiences through collaborative research and innovation in electronics and communication and interdisciplinary fields through interaction with research institutes and industry to align with the evolving demand of society
Mission Stmt – 3	To attract qualified professionals in a rewarding way and enable them to foster the growth of individuals as good leaders, technocrats and entrepreneurs who are technically skilled and committed to ethical principles in their professional endeavours

1. (b) Program Educational Objectives (PEO)

PEO – 1	Apply the acquired knowledge and skills in solving real-world engineering problems, considering national/global and societal issues such as health, environment, and safety
PEO – 2	Design VLSI systems, which are economically feasible and socially relevant for promoting sustainable semiconductor and electronics ecosystem.
PEO – 3	Develop an attitude toward pursuing knowledge and advanced education for sustained career advancement to adapt to emerging fields.
PEO – 4	Demonstrate leadership qualities and effective communication skills to work in a team of enterprising people in a multidisciplinary and multicultural environment with strong adherence to professional ethics.
PEO – 5	

1. (c) Mission of the Department / School to Program Educational Objectives (PEO) Mapping

	Mission Stmt – 1	Mission Stmt – 2	Mission Stmt – 3
PEO – 1	3	3	3
PEO – 2	1	3	2
PEO – 3	2	2	2
PEO – 4	1	2	3
PEO – 5	-	-	-

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

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

	Program Outcomes (PO)											PSO		
	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PSO-1	PSO-2	PSO-3
PEO – 1	3	3	2	3	2	2	2	2	2	1	2	3	2	-
PEO – 2	2	2	3	2	3	2	1	1	1	2	1	3	3	-
PEO – 3	2	2	2	2	2	1	1	1	1	1	3	-	-	3
PEO – 4	1	-	1	1	1	3	3	3	3	3	2	-	-	3
PEO – 5	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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

Program Outcomes (PO)

PO-1	Engineering Knowledge	PO-7	Ethics
PO-2	Problem Analysis	PO-8	Individual & Collaborative Teamwork
PO-3	Design / Development of Solutions	PO-9	Communication
PO-4	Conduct Investigations of Complex Problems	PO-10	Project Mgt. & Finance
PO-5	Engineering Tool Usage	PO-11	Lifelong Learning
PO-6	The Engineer and the World		

Program Specific Outcomes (PSO)

PSO-1	Problem Solving Skills: Contribute to the Indian/global semiconductor and electronics ecosystem with innovative approaches to design, manufacture, and test integrated systems
PSO-2	Professional Skills: Apply knowledge of complete design flow from specification to silicon in areas of both digital and analog VLSI Design
PSO-3	Successful Career and Entrepreneurship: Promote inter-disciplinary work in semiconductor physics, computer science, and electrical engineering to create exciting new systems with greatly increased functionalities

1. (e) Program Structure : B.Tech. - Electronics Engineering (VLSI Design and Technology) (Credits-160)

Discipline Courses (B/E/C)						Discipline Skill Elective Courses (D)					
Code	Course Title	Hours / Week			C	Code	Course Title	Hours / Week			C
		L	T	P				L	T	P	
Basic Sciences Courses						26ECD2001J	Python and Scientific Python	3	0	2	4
26PYB1002J	Electromagnetism, Quantum Physics and Optics for Engineers	3	0	2	4	26ECD2002J	PCB Design, Fabrication and Manufacturing	3	0	2	4
26CYB1001J	Chemistry	2	1	2	4	26ECD2003J	Semiconductor Device Modeling	3	0	2	4
26BTB1002T	Biology	2	0	0	2	26ECD3001J	Micro- and Nano-Fabrication Technologies	3	0	2	4
Mathematics Courses						26ECD3004J	Scripting Languages for Electronic Design Automation	3	0	2	4
26MAB1001T	Calculus and Linear Algebra	3	1	0	4	26ECD3015J	RISC -V Processor Design and SoC Integration	3	0	2	4
26MAB1002T	Advanced Calculus and Complex Analysis	3	1	0	4	26ECD3201J	FPGA Based System Design	3	0	2	4
26MAB2001T	Transforms and Boundary Value Problems	3	1	0	4	26ECD3202T	Statistical Analysis and Optimization for VLSI	3	1	0	4
26MAB2009J	Graph Theory and Optimization Techniques	3	0	2	4	26ECD3203J	Embedded Hardware–Software Co-Design	3	0	2	4
Engineering Sciences Courses						26ECD3204J	Semiconductor Memory Design	3	0	2	4
26CSE1001T	Data Science and Artificial Intelligence	2	1	0	3	26ECD3205T	VLSI Technology and Fabrication	3	1	0	4
26EEE1001T	Electrical and Electronics Engineering	3	0	0	3	26ECD3206T	Quantum Programming and Applications	3	1	0	4
26MEE1002L	Engineering Graphics	0	0	4	2	26ECD3207T	Multicore Processor Design	3	1	0	4
26CSE1002J	Programming for Problem Solving	2	0	2	3	26ECD3208J	IoT Hardware Design	3	0	2	4
26MEE1001L	Workshop Practice	0	0	4	2	26ECD3209J	VLSI Digital Signal Processing	3	0	2	4
26DCE1001T	Design Thinking and Methodology	2	0	0	2	26ECD3210T	VLSI Design for Reliability	3	1	0	4
Professional Core Courses						26ECD3211T	Communication and Coding Techniques for VLSI	3	1	0	4
26ECC1001J	Solid State Devices	3	0	2	4	26ECD4001J	Design Verification Using System Verilog	3	0	2	4
26ECC2001J	Engineering Electromagnetics and Its Application	3	0	2	4	26ECD4002T	System and Network on Chip	3	1	0	4
26ECC2002J	Digital Logic Design	3	0	2	4	26ECD4201T	High Speed IC Design	3	1	0	4
26ECC2003J	Analog Electronic Circuit Design	3	0	2	4	26ECD4202J	Power Management IC Engineering	3	0	2	4
26ECC2004J	Signal Processing	3	0	2	4	26ECD4203J	VLSI Security and Cryptographic Hardware	3	0	2	4
26ECC2201J	Semiconductor Process Integration	3	0	2	4	26ECD4204J	Integrated Circuits for Wireless Systems	3	0	2	4
26ECC2006J	Processor Architecture and Interfaces	3	0	2	4	26ECD4205T	Chiplet and Heterogeneous Integration	3	1	0	4
26ECC3201J	Digital Integrated Circuits Design	3	0	2	4	26ECD4003J	Machine Learning for VLSI Design and Automation	3	0	2	4
26ECC3202J	Mixed Signal Circuits and System Design	3	0	2	4	26ECD4207J	Low Power VLSI Design	3	0	2	4
26ECC3203J	Electronic Packaging and Testing	3	0	2	4	26ECD4208T	System on Chip Testing	3	1	0	4
26ECC3204J	Physical Design Automation	3	0	2	4	26ECD4209T	Artificial Intelligence for Neuromorphic Systems	3	1	0	4
26ECC3205J	ASIC Design and Synthesis	3	0	2	4	Total Learning Credits					32
					89						
Skill Enhancement Courses (S)						Ability Enhancement Courses (A)					
Code	Course Title	Hours / Week			C	Code	Course Title	Hours / Week			C
		L	T	P				L	T	P	
(Any 4 Courses)						(2 Courses)					
26LCS1001L	Communicative and Analytical Competence in English	1	0	2	2	26LCA1001J	Professional English for Engineers	2	0	2	3
26LCS2001L	Engineering Careers and Professional Skills	1	0	2	2	26LCA1002J	Chinese	2	0	2	3
26LCS2002L	Social Responsibility and Innovation	1	0	2	2	26LCA1003J	French				
26LCS2002T	Public Speaking and Leadership	1	1	0	2	26LCA1004J	German				
26LCS2004T	Gender and Society	1	1	0	2	26LCA1005J	Japanese				
26MAS2001T	Analytical and Logical Thinking Skills	1	1	0	2	26LCA1006J	Korean				
						26LCA1007J	Spanish				
						26LCA1008J	Russian				
						Total Learning Credits					
Internship / Project (P)						Multidisciplinary Skill Courses (M) – Open Electives					
Code	Course Title	Hours / Week			C	Code	Course Title	Hours / Week			C
		L	T	P				L	T	P	
26ECP4001L	Major Project	0	0	24	12	26ECM2001T	Short Range Wireless Communication	3	0	0	3
OR						26ECM2002T	Electronic Circuits and Systems	3	0	0	3
26ECP4002L	Major Project	0	0	16	8	26ECM2003T	PCB Design and Manufacturing	3	0	0	3
26ECP4003L	Professional Internship	0	0	8	4	26ECM3001T	Fiber Optics and Optoelectronics	3	0	0	3
						26ECM3002T	Embedded System Design Using Arduino	3	0	0	3
26ECP3001L	Summer Internship	0	0	8	4	26ECM3003T	Embedded System Design Using Raspberry PI	3	0	0	3
					16	26ECM3004T	3D Printing Hardware and Software	3	0	0	3
						Total Learning Credits					9

Non-Graded Courses (N)						
Code	Course Title	Hours / Week			C	
		L	T	P		
(Not to be Counted for Total Credits)						
26CEN1001T	Disaster Mitigation and Management	2	0	0	2	
26CSN1001J	Cyber Hygiene	1	0	2	2	
26CYN1001J	Environmental Science with AI	1	0	2	2	
26GNN1001T	Universal Human Values – Understanding Harmony and Ethical Human Conduct	2	1	0	3	
26GNN1002L	Community Connect	0	0	4	2	
26GNN1003J	Behavioural Psychology	1	0	2	2	
26GNN1004L	National Service Scheme	0	0	4	2	
26GNN1005L	National Cadet Corps	0	0	4		
26GNN1006L	National Sports Organization	0	0	4		
26GNN1007J	Physical and Mental Health using Yoga	1	0	2		
26LCN1001T	Indian Art, Culture and Constitution	2	0	0	2	
26LCN1002T	Indian Traditional Knowledge	2	0	0	2	
26LCN1003T	Professional Ethics and Values	2	0	0	2	

1. (f) Implementation Plan : B.Tech. - Electronics Engineering (VLSI Design and Technology)

Semester 1					
Code	Course Title	Hours / Week			C
		L	T	P	
26PYB1002J	Electromagnetism, Quantum Physics and Optics for Engineers	3	0	2	4
26MAB1001T	Calculus and Linear Algebra	3	1	0	4
26CSE1001T	Data Science and Artificial Intelligence	2	1	0	3
26EEE1001T	Electrical and Electronics Engineering	3	0	0	3
26MEE1002L	Engineering Graphics	0	0	4	2
26LCA1001J	Professional English for Engineers	2	0	2	3
26GNN1001T*	Universal Human Values – Understanding Harmony and Ethical Human Conduct	2	1	0	3
Total Learning Credits					19

Semester 2					
Code	Course Title	Hours / Week			C
		L	T	P	
26CYB1001J	Chemistry	2	1	2	4
26BTB1002T	Biology	2	0	0	2
26MAB1002T	Advanced Calculus and Complex Analysis	3	1	0	4
26CSE1002J	Programming for Problem Solving	2	0	2	3
26MEE1001L	Workshop Practice	0	0	4	2
26ECC1001J	Solid State Devices	3	0	2	4
26LCA1002J	Chinese	2	0	2	3
26LCA1003J	French				
26LCA1004J	German				
26LCA1005J	Japanese				
26LCA1006J	Korean				
26LCA1007J	Spanish				
26LCA1008J	Russian				
26GNN1004L*	National Service Scheme	0	0	4	2
26GNN1005L*	National Cadet Corps	0	0	4	
26GNN1006L*	National Sports Organization	0	0	4	
26GNN1007J*	Physical and Mental Health using Yoga	1	0	2	
Total Learning Credits					22

Semester 3					
Code	Course Title	Hours / Week			C
		L	T	P	
26MAB2001T	Transforms and Boundary Value Problems	3	1	0	4
26DCE1001T	Design Thinking and Methodology	2	0	0	2
26ECC2001J	Engineering Electromagnetics and Its Application	3	0	2	4
26ECC2002J	Digital Logic Design	3	0	2	4
26ECC2003J	Analog Electronic Circuit Design	3	0	2	4
	Skill Enhancement Course 1				2
26LCN1001T*	Indian Art, Culture and Constitution	2	0	0	2
26LCN1002T*	Indian Traditional Knowledge	2	0	0	2
Total Learning Credits					20

Semester 4					
Code	Course Title	Hours / Week			C
		L	T	P	
26MAB2009J	Graph Theory and Optimization Techniques	3	0	2	4
26ECC2004J	Signal Processing	3	0	2	4
26ECC2201J	Semiconductor Process Integration	3	0	2	4
26ECC2006J	Processor Architecture and Interfaces	3	0	2	4
	Skill Enhancement Course 2				2
	Discipline Skill Elective Course 1				4
	Multidisciplinary Skill Course 1				3
26GNN1003J*	Behavioural Psychology	1	0	2	2
26LCN1003T*	Professional Ethics and Values	2	0	0	2
Total Learning Credits					25

Semester 5					
Code	Course Title	Hours / Week			C
		L	T	P	
26ECC3201J	Digital Integrated Circuits Design	3	0	2	4
26ECC3202J	Mixed Signal Circuits and System Design	3	0	2	4
26ECC3203J	Electronic Packaging and Testing	3	0	2	4
	Skill Enhancement Course 3				2
	Discipline Skill Elective Course 2				4
	Multidisciplinary Skill Course 2				3
26CYN1001J*	Environmental Science with AI	1	0	2	2
26GNN1002L*	Community Connect	0	0	4	2
Total Learning Credits					21

Semester 6					
Code	Course Title	Hours / Week			C
		L	T	P	
26ECC3204J	Physical Design Automation	3	0	2	4
26ECC3205J	ASIC Design and Synthesis	3	0	2	4
	Skill Enhancement Course 4				2
	Discipline Skill Elective Course 3				4
	Discipline Skill Elective Course 4				4
	Multidisciplinary Skill Course 3				3
26CEN1001T*	Disaster Mitigation and Management	2	0	0	2
26CSN1001J*	Cyber Hygiene	1	0	2	2
Total Learning Credits					21

Semester 7					
Code	Course Title	Hours / Week			C
		L	T	P	
	Discipline Skill Elective Course 5				4
	Discipline Skill Elective Course 6				4
	Discipline Skill Elective Course 7				4
	Discipline Skill Elective Course 8				4
26ECP3001L	Summer Internship	0	0	8	4
Total Learning Credits					20

Semester 8					
Code	Course Title	Hours / Week			C
		L	T	P	
26ECP4001L	Major Project	0	0	24	12
OR					
26ECP4002L	Major Project	0	0	16	8
26ECP4003L	Professional Internship	0	0	8	4
Total Learning Credits					12

(Total Credits - 160)

* The credits for Non-graded courses are not to be counted for total credits for the award of the degree