

ACADEMIC CURRICULA

UNDERGRADUATE/ INTEGRATED

POST GRADUATE DEGREE

PROGRAMMES

(With exit option of Diploma)

(Choice Based Flexible Credit System)

Regulations 2021

Volume – 1

(Updated on July 2025)



SRM INSTITUTE OF SCIENCE AND TECHNOLOGY

(Deemed to be University u/s 3 of UGC Act, 1956)

Kattankulathur, Chengalpattu District 603203,

Tamil Nadu, India

58. B.Tech. in Mathematics and Computing

59. (a) Mission of the Department

Mission Stmt – 1	<i>To impart knowledge in cutting edge Computer Science and Engineering technologies in par with industrial standards.</i>
Mission Stmt – 2	<i>To collaborate with renowned academic institutions to uplift innovative research and development in Computer Science and Engineering and its allied fields to serve the needs of society</i>
Mission Stmt – 3	<i>To demonstrate strong communication skills and possess the ability to design computing systems individually as well as part of a multidisciplinary teams.</i>
Mission Stmt – 4	<i>To instill societal, safety, cultural, environmental, and ethical responsibilities in all professional activities</i>
Mission Stmt – 5	<i>To produce successful Computer Science and Engineering graduates with personal and professional responsibilities and commitment to lifelong learning</i>

59. (b) Program Educational Objectives (PEO)

PEO – 1	<i>Graduates will be able to formulate and develop mathematical arguments in a logical manner, perform in technical/managerial roles ranging from design, development, problem solving to production support in R&D sectors.</i>
PEO – 2	<i>Graduates will be able to successfully pursue higher education in reputed institutions.</i>
PEO – 3	<i>Graduates will have the ability to create mathematical models so as to adapt, contribute and innovate new technologies and systems in the key domains of Computer Science and Engineering.</i>
PEO – 4	<i>Graduates will be ethically and socially responsible solution providers and entrepreneurs in Mathematics and Computing disciplines.</i>
PEO – 5	<i>Graduates will possess the additional skills in core computer science discipline with knowledge of Hardware, Software, Programming and Logic & Reasoning</i>

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

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

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

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

	Program Outcomes (PO)												Program Specific Outcomes (PSO)		
	1	2	3	4	5	6	7	8	9	10	11	12	PSO-1	PSO-2	PSO-3
	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			
PEO - 1	3	3	3	1	2	-	-	-	-	-	-	-			
PEO - 2	3	-	2	-	-	3	-	2	-	-	-	-			
PEO - 3	-	3	3	2	2	-	-	1	-	2	3	2			
PEO - 4	-	-	2	3	-	3	2	2	2	-	2	2			
PEO - 5	2	-	-	-	-	3	3	-	3	3	-	3			

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

PSO – Program Specific Outcomes (PSO)

PSO - 1	<i>To provide in-depth theoretical background and practical training in computational science and numerical computing.</i>
PSO - 2	<i>To provide rigorous training in mathematics and statistics with a strong focus on modelling, simulating and solving problems of relevance to the industry.</i>
PSO - 3	<i>To enable students pursue careers in academia and industry which involve non-trivial applications of mathematics in computer science.</i>

59. (e) Program Structure: B.Tech. in Mathematics and Computing

Humanities & Social Sciences including Management Courses (H)						
Course Code	Course Title	Hours / Week			C	
		L	T	P		
21LEH101T	Communicative English	2	1	0	3	
21LEH102T	Chinese	2	1	0	3	
21LEH103T	French					
21LEH104T	German					
21LEH105T	Japanese					
21LEH106T	Korean					
21LEH107T	Spanish					
21LEH108T	Russian					
21GNH101J	Philosophy of Engineering	1	0	2	2	
21PDH209T ¹	Social Engineering	2	0	0	2	
21GNH401TA	Behavioral Psychology	2	1	0	3	
Total Credits					13	

Basic Science Courses (B)						
Course Code	Course Title	Hours / Week			C	
		L	T	P		
21PYB102J	Semiconductor Physics and Computational Methods	3	1	2	5	
21MAB103T	Calculus-I	3	1	0	4	
21MAB104T	Calculus-II	3	1	0	4	
21MAB105T	Linear Algebra	3	1	0	4	
21MAB106T	Discrete Mathematical Structures	3	1	0	4	
21MAB203T	Probability and Stochastic Processes	3	1	0	4	
21MAB213T	Transform Techniques and Applications	3	0	0	3	
21MAB214T	Statistical Methods	3	0	0	3	
Total Credits					31	

Engineering Science Courses (S)						
Course Code	Course Title	Hours / Week			C	
		L	T	P		
21EES101T	Electrical and Electronics Engineering	3	1	0	4	
21MES102L ¹	Engineering Graphics and Design	0	0	4	2	
21CSS101J	Programming for Problem Solving	3	0	2	4	
21CSS303T	Data Science	2	0	0	2	
21DCS201P ¹	Design Thinking and Methodology	1	2	0	3	
21AIS201J	Foundation of Artificial Intelligence	2	0	2	3	
Total Credits					18	

Professional Core Courses (C)						
Course Code	Course Title	Hours / Week			C	
		L	T	P		
21CSC101T	Object Oriented Design and Programming	2	1	0	3	
21CSC201J	Data Structures and Algorithms	3	0	2	4	
21CSC211J	Computer Architecture and Operating Systems	3	0	2	4	
21CSC204J	Design and Analysis of Algorithms	3	0	2	4	
21CSC205P ¹	Database Management Systems	3	1	0	4	
21CSC305P ¹	Machine Learning	2	1	0	3	
21CSC210T	Theory of Computation	3	0	0	3	
21MAC211T	Real Analysis	3	1	0	4	
21MAC212T	Ordinary Differential Equations	3	0	0	3	
21MAC301T	Numerical Methods	3	1	0	4	
21MAC303T	Mathematical Modelling	3	0	0	3	
21MAC302T	Optimization Techniques	3	0	0	3	
21MAC301L ¹	Computational Mathematics Lab - 1	0	0	4	2	
21MAC302L ¹	Computational Mathematics Lab - 2	0	0	4	2	
Total Credits					46	

Project Work, Seminar, Internship in Industry / Higher Technical Institutions (P)						
Course Code	Course Title	Hours / Week			C	
		L	T	P		
21GNP301L ¹	Community Connect	0	0	2	1	
21CSP302L ¹	Project	0	0	6	3	
21CSP303T ¹	MOOC	3	0	0		
21CSP401L	Major Project	0	0	30	15	
21CSP402L	Major Project	0	0	20	10	
21CSP403L	Internship#	0	0	10	5	
Total Credits					19	

Open Elective Courses (O) (Any 3 courses)						
Course Code	Course Title	Hours / Week			C	
		L	T	P		
21CSO351T	Web Programming	2	1	0	3	
21CSO352T	Python Programming	2	1	0	3	
21CSO353T	Mobile Application Development	2	1	0	3	
21CSO354T	Data Analytics	2	1	0	3	
Total Credits					09	

Non Credit Courses (M)						
Course Code	Course Title	Hours / Week			C	
		L	T	P		
21PDM101L ¹	Professional Skills and Practices	0	0	2	0	
21PDM102L ¹	General Aptitude	0	0	2		
21PDM201L ¹	Verbal Reasoning	0	0	2		
21PDM202L ¹	Critical and Creative Thinking Skills	0	0	2		
21PDM301L ¹	Analytical and Logical Thinking Skills	0	0	2		
21PDM302L ¹	Employability Skills and Practices	0	0	2		
21CYM101T ¹	Environmental Science	1	0	0	0	
21LEM101T ¹	Constitution of India	1	0	0	0	
21LEM102T ¹	Universal Human Values – Introduction	1	0	0	0	
21LEM201T ¹	Professional Ethics	1	0	0	0	
21LEM202T ¹	Universal Human Values-II: Understanding Harmony and Ethical Human Conduct	2	1	0	3	
21LEM301T ¹	Indian Art Form	1	0	0	0	
21LEM302T ¹	Indian Traditional Knowledge	1	0	0	0	
21GNM101L ¹	Physical and Mental Health using Yoga	0	0	2	0	
21GNM102L ¹	National Service Scheme					
21GNM103L ¹	National Cadet Corps					
21GNM104L ¹	National Sports Organization					
Total Credits					03	

Professional Elective Courses (E) (Any 8 Elective Courses)					
Course Code	Course Title	Hours / Week			C
		L	T	P	
21CSE210T	Principles of Computer Architecture	2	1	0	3
21CSE211T	Networking Fundamentals	2	1	0	3
21CSE217T	Information and Coding Theory	2	1	0	3
21CSE218T	Generative Artificial Intelligence	2	1	0	3
21CSE251T	Digital Image Processing	3	0	0	3
21CSE252T	Biometrics	2	1	0	3
21CSE253T	Internet of Things	2	1	0	3
21CSE254T	Bio Inspired Computing	2	1	0	3
21CSE255T	Computer Graphics and Animation	2	1	0	3
21CSE306P ¹	Applied Generative AI	2	1	0	3
21CSE315P ¹	Data Orchestration and Management in Cloud Ecosystems	2	1	0	3
21CSE306J	Quantum Computation	2	1	0	3
21CSE324P ¹	NP Completeness and Beyond	2	1	0	3
21CSE351T	Computational Logic	2	1	0	3
21CSE352T	Neuro Fuzzy and Genetic Programming	2	1	0	3
21CSE355T	Data Mining and Analytics	2	1	0	3
21CSE356T	Natural Language Processing	2	1	0	3
21CSE357T	Distributed Computing	2	1	0	3
21CSE358T	Network Security and Cryptography	2	1	0	3
21CSE360TA	Parallel Computing and GPU Programming	2	1	0	3
21CSE362T	Cloud Computing	2	1	0	3
21CSE371T	Advanced Algorithms	3	0	0	3
21CSE376T	Nature Inspired Computing Techniques	3	0	0	3

Professional Elective Courses (E)					
Course Code	Course Title	Hours / Week			C
		L	T	P	
21CSE417TA	Fundamentals of Reinforcement Learning	2	1	0	3
21CSE402P ¹	Intelligent Systems for IoT Applications	2	1	0	3
21CSE451T	Pattern Recognition Techniques	2	1	0	3
21CSE454T	Computer Vision	2	1	0	3
21CSE455T	Social Network Analysis	2	1	0	3
21CSE475T	Applied Graph Theory	2	1	0	3
21CSE496T	Deep Learning	3	0	0	3
21MAE201T	Complex Analysis	2	1	0	3
21MAE202T	Logic and its Applications	2	1	0	3
21MAE203T	Partial Differential Equations	2	1	0	3
21MAE301T	Fuzzy Sets and Fuzzy Logic	2	1	0	3
21MAE302T	Timeseries Analysis and Forecasting	2	1	0	3
21MAE303T	Computational Fluid Dynamics	2	1	0	3
21MAE304T	Game Theory	2	1	0	3
21MAE305T	Topology	2	1	0	3
21MAE306T	Numerical Linear Algebra	2	1	0	3
21MAE307T	Functional Analysis	2	1	0	3
21MAE308T	Advanced Optimization	2	1	0	3
21MAE309T	Number Theory	2	1	0	3
21MAE401T	Statistical Inference	2	1	0	3
21MAE402T	Mathematical Finance	2	1	0	3
21MAE403T	Scientific Machine Learning	2	1	0	3
Total Credits					24

59. (f) Programme Articulation: B.Tech. in Mathematics and Computing

[illegible]

59. (g) Implementation Plan: B.Tech. in Mathematics and Computing

Semester - I						
Course Code	Course Title	Hours / Week			C	
		L	T	P		
21LEH101T	Communicative English	2	1	0	3	
21MAB103T	Calculus-I	3	1	0	4	
21PYB102J	Semiconductor Physics and Computational Methods	3	1	2	5	
21MES102L ¹	Engineering Graphics and Design	0	0	4	2	
21EES101T	Electrical and Electronics Engineering	3	1	0	4	
21CSS101J	Programming for Problem Solving	3	0	2	4	
21CYM101T ¹	Environmental Science*	1	0	0	0	
21PDM101L ¹	Professional Skills and Practices	0	0	2	0	
21LEM101T ¹	Constitution of India	1	0	0	0	
Total Credits					22	
Semester - II						
Course Code	Course Title	Hours / Week			C	
		L	T	P		
21LEH102T	Chinese	2	1	0	3	
21LEH103T	French					
21LEH104T	German					
21LEH105T	Japanese					
21LEH106T	Korean					
21LEH107T	Spanish					
21LEH108T	Russian					
21GNH101J	Philosophy of Engineering	1	0	2	2	
21MAB104T	Calculus-II	3	1	0	4	
21MAB105T	Linear Algebra	3	1	0	4	
21MAB106T	Discrete Mathematical Structures	3	1	0	4	
21CSC101T	Object Oriented Design and Programming	2	1	0	3	
21PDM102L ¹	General Aptitude	0	0	2	0	
21GNM101L ¹	Physical and Mental Health using Yoga	0	0	2	0	
21GNM102L ¹	National Service Scheme					
21GNM103L ¹	National Cadet Corps					
21GNM104L ¹	National Sports Organization					
Total Credits					20	
Semester - IV						
Course Code	Course Title	Hours / Week			C	
		L	T	P		
21MAB213T	Transform Techniques and Applications	3	0	0	3	
21MAB214T	Statistical Methods	3	0	0	3	
21CSC204J	Design and Analysis of Algorithms	3	0	2	4	
21CSC205P ¹	Database Management Systems	3	1	0	4	
21CSC210T	Theory of Computation	3	0	0	3	
E	Professional Elective -I				3	
21PDH209T ¹	Social Engineering	2	0	0	2	
21PDM202L ¹	Critical and Creative Thinking Skills	0	0	2	0	
21LEM202T ¹	Universal Human Values-II: Understanding Harmony and Ethical Human Conduct	2	1	0	3	
Total Credits					25	
Semester - VI						
Course Code	Course Title	Hours / Week			C	
		L	T	P		
21CSS303T	Data Science	2	0	0	2	
21MAC303T	Mathematical Modelling	3	0	0	3	
21MAC302L ¹	Computational Mathematics Lab - 2	0	0	4	2	
E	Professional Elective - III				3	
E	Professional Elective - IV				3	
O	Open Elective - II				3	
21CSP302L ¹	Project	0	0	6	3	
21CSP303T ¹	MOOC	3	0	0		
21PDM302L ¹	Employability Skills and Practices	0	0	2	0	
21LEM302T ¹	Indian Traditional Knowledge	1	0	0	0	
Total Credits					19	
Semester - VIII						
Course Code	Course Title	Hours / Week			C	
		L	T	P		
21CSP401L	Major Project	0	0	30	15	
21CSP402L	Major Project	0	0	20	10	
21CSP403L	Internship#	0	0	10	5	
Total Credits					15	

Semester - III						
Course Code	Course Title	Hours / Week			C	
		L	T	P		
21MAB203T	Probability and Stochastic Processes	3	1	0	4	
21DCS201P ¹	Design Thinking and Methodology	1	2	0	3	
21CSC211J	Computer Architecture and Operating Systems	3	0	2	4	
21CSC201J	Data Structures and Algorithms	3	0	2	4	
21MAC211T	Real Analysis	3	1	0	4	
21MAC212T	Ordinary Differential Equations	3	0	0	3	
21LEM201T ¹	Professional Ethics	1	0	0	0	
21PDM201L ¹	Verbal Reasoning	0	0	2	0	
Total Credits					22	
Semester - V						
Course Code	Course Title	Hours / Week			C	
		L	T	P		
21MAC301T	Numerical Methods	3	1	0	4	
21MAC302T	Optimization Techniques	3	0	0	3	
21MAC301L ¹	Computational Mathematics Lab - 1	0	0	4	2	
21AIS201J	Foundation of Artificial Intelligence	2	0	2	3	
21CSC305P ¹	Machine Learning	2	1	0	3	
E	Professional Elective - II				3	
O	Open Elective - I				3	
21GNP301L ¹	Community Connect	0	0	2	1	
21PDM301L ¹	Analytical and Logical Thinking Skills	0	0	2	0	
21LEM301T ¹	Indian Art Form	1	0	0	0	
Total Credits					22	
Semester - VII						
Course Code	Course Title	Hours / Week			C	
		L	T	P		
21GNH401TA	Behavioral Psychology	2	1	0	3	
E	Professional Elective - V				3	
E	Professional Elective - VI				3	
E	Professional Elective - VII				3	
E	Professional Elective - VIII				3	
O	Open Elective -III				3	
Total Credits					18	

#Students have to register either 21CSP401L or 21CSP402L and 21CSP403L both in eighth semester

#Students have to register either 21CSP401L or 21CSP402L and 21CSP403L both in eighth semester