ACADEMIC CURRICULA

UNDERGRADUATE DEGREE PROGRAMMES

**Bachelor of Technology
In
Information Technology**

(B.Tech. - Four Years)

(Choice Based Flexible Credit System)

Regulations 2021

CURRICULUM

SCHOOL OF COMPUTING

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. Information Technology

(a) Mission of the Department

Mission Stmt - 1	*To impart knowledge in cutting edge Computer Science and Engineering technologies in par with industrial standards.*
Mission Stmt - 2	*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*
Mission Stmt - 3	*To demonstrate strong communication skills and possess the ability to design computing systems individually as well as part of a multidisciplinary teams.*
Mission Stmt - 4	*To instill societal , safety, cultural, environmental, and ethical responsibilities in all professional activities*
Mission Stmt - 5	*To produce successful Computer Science and Engineering graduates with personal and professional responsibilities and commitment to lifelong learning*

(b) Program Educational Objectives (PEO)

PEO - 1	*Graduates will be able to perform in technical/managerial roles ranging from design, development, problem solving to production support in software industries and R&D sectors.*
PEO - 2	*Graduates will be able to successfully pursue higher education in reputed institutions.*
PEO - 3	*Graduates will have the ability to adapt, contribute and innovate new technologies and systems in the key domains of Computer Science and Engineering.*
PEO - 4	*Graduates will be ethically and socially responsible solution providers and entrepreneurs in Computer Science and other engineering disciplines.*
PEO - 5	*Graduates will possess the additional skills in core computer science discipline with knowledge of Hardware, Software , Programming , Logic & Reasoning.*

(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*	*3*	*3*	*3*	*3*
PEO - 2	*1*	*3*	*3*	*3*	*3*
PEO - 3	*3*	*3*	*2*	*1*	*3*
PEO - 4	*2*	*3*	*2*	*3*	*3*
PEO - 5	*3*	*3*	*2*	*2*	*3*

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

(d) Mapping Program Educational Objectives (PEO) to Program Learning Outcomes (PLO)

	Program Learning Outcomes (PLO)												Program Specific Outcomes (PSO)		
	Graduate Attributes (GA)												Program Specific Outcomes (PSO)		
	Engineering Knowledge	Problem Analysis	Design & Development	Analysis, Design, Research	Modern Tool Usage	Society & Culture	Environment & Sustainability	Ethics	Individual & Team Work	Communication	Project Mgt. & Finance	Life Long Learning	PSO - 1	PSO - 2	PSO - 3
PEO - 1	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*
PEO - 2	*3*	*3*	*3*	*3*	*3*	*1*	*1*	*3*	*1*	*3*	*1*	*3*	*3*	*3*	*3*
PEO - 3	*3*	*3*	*3*	*3*	*3*	*1*	*1*	*1*	*1*	*1*	*3*	*3*	*3*	*3*	*3*
PEO - 4	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*
PEO - 5	*3*	*3*	*3*	*3*	*3*	*2*	*2*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*

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

PSO – Program Specific Outcomes (PSO)

PSO - 1	*Ability to demonstrate the knowledge of computer applications in both hardware and software systems.*
PSO - 2	*Ability to create Software for automation of functions in the respective field of application*
PSO - 3	*Ability to utilize Logic & Reasoning Skills in building systems*

(a) Program Articulation: B.Tech. in Information Technology

Course Code	Course Name	Engineering Knowledge	Problem Analysis	Design & Development	Analysis, Design, Research	Modern Tool Usage	Society & Culture	Environment & Sustainability	Ethics	Individual & Team Work	Communication	Project Mgt. & Finance	Life Long Learning	PSO - 1	PSO - 2	PSO - 3
21CSS101J	Programming for Problem Solving	3														
21CSC201J	Data Structures and Algorithms			3												
21CSC101T	Object Oriented Design and Programming		3	2												
21CSS201T	Computer Organization and Architecture	3														
21CSC204J	Design and Analysis of Algorithms			3	2											
21CSC202J	Operating Systems		2	3												
21CSC303J	Software Engineering and Project Management											3				
21CSC203P	Advanced Programming Practice		3													
21CSC301T	Formal Language and Automata	2		3												
21CSC302J	Computer Networks				2	3										
21CSC205P	Database Management Systems					2						3				
21CSC206T	Artificial Intelligence							2			3					
21CSC317J	Information Retrieval Techniques	3														
21CSC314P	Big Data Essentials	3				2										
21CSE251T	Digital Image Processing	3														
21ITE201T	Machine Learning	3	2													
21CSE268T	Bio Inspired Computing															
21CSE351T	Computational Logic	2		3												
21CSE352T	Neuro Fuzzy and Genetic Programming	3			2											
21CSE358T	Cryptography and Network Security	3														
21CSE355T	Data Mining and Analytics	3				2										
21CSE356T	Natural Language Processing	3														
21CSE359T	Information Storage and Management	3														
21CSE361T	Database Security and Privacy	2														
21CSE354T	Full Stack Web Development	3														
21CSE362T	Cloud Computing	3														
21CSE310J	Quantum Computation	3	2													
21ITE302T	Internet of Things	3		2		2	2									
21ITE303T	Block chain Technology	3			2	2										
21CSE451T	Pattern Recognition Techniques	3														
21CSE454T	Computer Vision	3														
21CSE456T	Software Defined Networks	2	2													
21CSE457T	Service Oriented Architecture	3														
21CSE460T	Network Protocols and Algorithms	3														
21CSE475T	Applied Graph theory	3														
21CSE477T	Cloud Native Architecture for Modern Platforms	3				3										
21CSE479T	Fault Tolerant Systems	3														
21CSE480T	Image and Video Processing	3														
21CSP339L	Community Connect (To be completed in 4th sem vacation)									3			3			
21CSP340L / 21CSP341T	Project (Compulsory for exit option at 6th sem) / MOOC															
21CSP433L	Major Project									3			3			
21CSP434L	Semester Internship									3			3			
21CSP339L	Community Connect (To be completed in 4th sem vacation)															

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

Program Structure: B.Tech. in Computer Science and Engineering w/s Information Technology

1. Humanities & Social Sciences including Management Courses (H)

Course Code	Course Title	L	T	P	C
21LEH101T	Communicative English	2	1	0	3
21LEH102T	Chinese Language				
21LEH103T	French Language				
21LEH104T	German Language	2	1	0	3
21LEH105T	Japanese Language				
21LEH106T	Korean Language				
21LEH107T	Spanish Language				
21GNH101J	Philosophy of Engineering	1	0	1	2
21PDH201T	Social Engineering	2	0	0	2
21GNH401T	Behavioral Psychology	2	1	0	3
Total Learning Credits					**13**

3. Engineering Science Courses (S)

Course Code	Course Title	L	T	P	C
21MES101L	Basic Civil and Mechanical Workshop	0	0	4	2
21MES102L	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
21CSS201T	Computer Organization and Architecture	3	1	0	4
21DCS201P	Design Thinking and Methodology	1	2	0	3
21CSS303T	Data Science	2	0	0	2
Total Learning Credits					**21**

5. Professional Elective Courses (E)
(Any 8 Elective Courses)

Course Code	Course Title	L	T	P	C
21CSE251T	Digital Image Processing	2	1	0	3
21ITE201T	Machine Learning				3
21CSE268T	Bio Inspired Computing				3
21CSE351T	Computational Logic				3
21CSE352T	Neuro Fuzzy and Genetic Programming				3
21CSE358T	Cryptography and Network Security				3
21CSE355T	Data Mining and Analytics				3
21CSE356T	Natural Language Processing				3
21CSE359T	Information Storage and Management				3
21CSE361T	Database Security and Privacy				3
21CSE354T	Full Stack Web Development				3
21CSE362T	Cloud Computing				3
21CSE310J	Quantum Computation	2	0	2	3
21ITE302T	Internet of Things				3
21ITE303T	Blockchain Technology				3
21CSE451T	Pattern Recognition Techniques				3
21CSE454T	Computer Vision				3
21CSE456T	Software Defined Networks				3
21CSE457T	Service Oriented Architecture				3
21CSE460T	Network Protocols and Algorithms				3
21CSE475T	Applied Graph theory				3
21CSE477T	Cloud Native Architecture for Modern Platforms				3
21CSE479T	Fault Tolerant Systems				3
21CSE480T	Image and Video Processing				3
Total Learning Credits					**24**

8. Mandatory Courses (M)

Code	Course Title	L	T	P	C
21PDM101L	Professional Skills and Practices	0	0	2	0
21CYM101T	Environmental Science	1	0	0	0
21PDM102L	General Aptitude	0	0	2	0
21LEM201T	Professional Ethics*	1	0	0	0
21PDM201L	Verbal Reasoning*	0	0	2	0
21PDM202L	Critical and Creative Thinking Skills*	0	0	2	0
21PDM301L	Analytical and Logical Thinking Skills*	0	0	2	0
21PDM302L	Employability Skills and Practices*	0	0	2	0

2. Basic Science Courses (B)

Course Code	Course Title	L	T	P	C
21PYB102J	Semiconductor Physics and Computational Methods	3	1	2	5
21CYB101J	Chemistry	3	1	2	5
21MAB101T	Calculus and Linear Algebra	3	1	0	4
21MAB102T	Advanced Calculus and Complex Analysis	3	1	0	4
21MAB206T	Numerical Methods and Analysis	3	1	0	4
21MAB204T	Probability and Queueing Theory	3	1	0	4
21MAB302T	Discrete Mathematics	3	1	0	4
21BTB102T	Introduction to Computational Biology	2	0	0	2
Total Learning Credits					**32**

4. Professional Core Courses (C)

Course Code	Course Title	L	T	P	C
21CSC101T	Object Oriented Design and Programming	2	1	0	3
21CSC201J	Data Structures and Algorithms	3	0	2	4
21CSC202J	Operating Systems	3	0	2	4
21CSC203P	Advanced Programming Practice	3	1	0	4
21CSC204J	Design and Analysis of Algorithms	3	0	2	4
21CSC205P	Database Management Systems	3	1	0	4
21CSC206T	Artificial Intelligence	2	1	0	3
21CSC301T	Formal Language and Automata	3	0	0	3
21CSC302J	Computer Networks	3	0	2	4
21CSC303J	Software Engineering and Project Management	2	0	2	3
21CSC317J	Information Retrieval Techniques	2	0	2	3
21CSC314P	Big Data Essentials	2	1	0	3
Total Learning Credits					**42**

6. Open Elective Courses (O)
(Any 3 courses) offered by School of Computing

Course Code	Course Title	L	T	P	C
21CSO351T	Web Programming				3
21CSO352T	Python Programming				3
21CSO353T	Mobile Application Development				3
21CSO354T	Data Analytics				3
Total Learning Credits					**9**

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

Course Code	Course Title	L	T	P	C
21CSP345L	Community Connect (To be completed in 4th sem vacation)	0	0	2	1
21CSP346L 21CSP347T	Project (Compulsory for exit option at 6th sem) / MOOC	0 / 3	0	6 / 0	3
21CSP437L	Major Project	0	0	3	15
21CSP438L	Semester Internship	0	0	0	
Total Learning Credits					**19**

Implementation Plan: B.Tech. in Computer Science and Engineering w/s Information Technology

Semester – I

Code	Course Title	L	T	P	C
21LEH102T/ 21LEH103T/ 21LEH104T/ 21LEH105T/ 21LEH106T/ 21LEH107T	Chinese Language/ French Language / German Language / Japanese Language / Korean Language / Spanish Language	2	1	0	3
21GNH101J	Philosophy of Engineering	1	0	2	2
21MAB101T	Calculus and Linear Algebra	3	1	0	4
21CYB101J	Chemistry	3	1	2	5
21BTB102T	Introduction to Computational Biology	2	0	0	2
21MES101L/ 21MES102L	Basic Civil and Mechanical Workshop / Engineering Graphics and Design	0	0	4	2
21CSS101J	Programming for Problem Solving	3	0	2	4
21PDM101L	Professional Skills and Practices	0	0	2	0
	Total Learning Credits				22

Semester - II

Code	Course Title	L	T	P	C
21LEH101T	Communicative English	2	1	0	3
21MAB102T	Advanced Calculus and Complex Analysis	3	1	0	4
21PYB102J	Semiconductor Physics and Computational Methods	3	1	2	5
21MES102L/ 21MES101L	Engineering Graphics and Design / Basic Civil and Mechanical Workshop	0	0	4	2
21EES101T	Electrical and Electronics Engineering	3	1	0	4
21CSC101T	Object Oriented Design and Programming	2	1	0	3
21CYM101T	Environmental Science*	1	0	0	0
21PDM102L	General Aptitude*	0	0	2	0
	Total Learning Credits				21

Semester – III

Code	Course Title	L	T	P	C
21MAB206T	Numerical Methods and Analysis	3	1	0	4
21DCS201J	Design Thinking and Methodology	1	2	0	3
21CSS201T	Computer Organization and Architecture	3	1	0	4
21CSC201J	Data Structures and Algorithms	3	0	2	4
21CSC202J	Operating Systems	3	0	2	4
21CSC203P	Advanced Programming Practice	3	1	0	4
21LEM201T	Professional Ethics	1	0	0	0
21PDM201L	Verbal Reasoning	0	0	2	0
	Total Learning Credits				23

Semester – IV

Code	Course Title	L	T	P	C
21MAB204T	Probability and Queueing Theory	3	1	0	4
21CSC204J	Design and Analysis of Algorithms	3	0	2	4
21CSC205P	Database Management Systems	3	1	0	4
21CSC206T	Artificial Intelligence	2	1	0	3
E	Professional Elective-I				3
21PDH201T	Social Engineering	2	0	0	2
21PDM202L	Critical and Creative Thinking Skills	0	0	2	0
	Total Learning Credits				20

Semester – V

Code	Course Title	L	T	P	C
21MAB302T	Discrete Mathematics	3	1	0	4
21CSC301T	Formal Language and Automata	3	0	0	3
21CSC302J	Computer Networks	3	0	2	4
21CSC314P	Big Data Essentials	2	1	0	3
E	Professional Elective – II				3
O	Open Elective – I				3
21CSP345L	Community Connect (To be completed in 4th sem vacation)	0	0	2	1
21PDM301L	Analytical and Logical Thinking Skills	0	0	2	0
	Total Learning Credits				21

Semester – VI

Code	Course Title	L	T	P	C
21CSS303T	Data Science	2	0	0	2
21CSC303J	Software Engineering and Project Management	2	0	2	3
21CSC317J	Information Retrieval Techniques	2	0	2	3
E	Professional Elective – III				3
E	Professional Elective – IV				3
O	Open Elective – II				3
21CSP346L/ 21CSP347T	Project (compulsory for exit option at 6th semester) / MOOC	0 / 3	0	6 / 0	3
21PDM302L	Employability Skills and Practices	0	0	2	0
	Total Learning Credits				20

Semester - VII

Code	Course Title	L	T	P	C
21GNH401T	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 Learning Credits				18

Semester - VIII

Code	Course Title	L	T	P	C
21CSP437L	Major Project	0	0	30	15
21CSP438L	Semester Internship				
	Total Learning Credits				15