ACADEMIC CURRICULA

UNDERGRADUATE DEGREE PROGRAMMES

Bachelor of Technology

(B.Tech. - Four Years)

(Choice Based Flexible Credit System)

Regulations 2018

Volume - 1

(Revised in March 2019)

SRM INSTITUTE OF SCIENCE AND TECHNOLOGY

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

Kattankulathur, Kancheepuram District 603203, Tamil Nadu, India

18. B.Tech. in Computer Science and Engineering with Specialization in Internet of Things

18. (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

18. (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 skills to design computing systems based on Internet of Things
PEO - 6	Graduates will havethe ability to develop tools incorporating the skills acquired in Internet of Things domain.

18. (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	H	H	H	H	H
PEO - 2	L	H	H	H	H
PEO - 3	H	H	M	L	H
PEO - 4	M	H	M	H	H
PEO - 5	H	H	H	H	H
PEO - 6	H	H	H	H	H

H – High Correlation, M – Medium Correlation, L – Low Correlation

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

	Program Learning Outcomes (PLO)														
	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	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H
PEO - 2	H	H	H	H	H	L	L	H	L	H	L	H	H	H	H
PEO - 3	H	H	H	H	H	L	L	L	L	L	H	H	H	H	H
PEO - 4	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H
PEO - 5	H	L	L	H	H	L	L	L	L	L	H	H	H	H	H
PEO - 6	L	L	L	L	H	L	L	L	L	L	H	H	H	H	H

H – High Correlation, M – Medium Correlation, L – Low Correlation

PSO – Program Specific Outcomes (PSO)

PSO - 1	Ability to Utilize Hardware / Core CS Principles
PSO - 2	Ability to Create Software & Programming
PSO - 3	Ability to Develop Internet of Things based systems

18. (e) Program Structure: B.Tech. in Computer Science and Engineering with Specialization in Internet of Things

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

Course Code	Course Title	L	T	P	C
18LEH101J	English	2	0	2	3
18LEH102J	Chinese				
18LEH103J	French				
18LEH104J	German	2	0	2	3
18LEH105J	Japanese				
18LEH106J	Korean				
18PDH101T	General Aptitude	0	0	2	1
18PDH102T	Management Principles for Engineers	2	0	0	2
18PDH103T	Social Engineering	2	0	0	2
18PDH201T	Employability Skills & Practices	0	0	2	1
Total Learning Credits					**12**

3. Engineering Science Courses (S)

Course Code	Course Title	L	T	P	C
18MES101L	Engineering Graphics and Design	1	0	4	3
18EES101J	Basic Electrical and Electronics Engineering	3	1	2	5
18MES103L	Civil and Mechanical Engineering Workshop	1	0	4	3
18CSS101J	Programming for Problem Solving	3	0	4	5
18CSS201J	Analog and Digital Electronics	3	0	2	4
18CSS202J	Computer Communications	2	0	2	3
Total Learning Credits					**23**

5. Professional Elective Courses (E)
(Any 6 Elective Courses)

Course Code	Course Title	L	T	P	C
18CSE377T	Data Centric Networks	3	0	0	3
18CSE345T	Internet of Things Architecture and Protocols	3	0	0	3
18CSE392T	Machine Learning-I	3	0	0	3
18CSE388T	Artificial Neural Networks	3	0	0	3
18CSE346T	Network Programming	3	0	0	3
18CSE451T	Wireless Sensor Networks	3	0	0	3
18CSE456T	Software Defined Networks	3	0	0	3
18CSE445T	Internet of Things Security	3	0	0	3
18CSE458T	Wireless and Mobile Communication	3	0	0	3
18CSE446T	Advanced Database Systems	3	0	0	3
18CSE447T	Edge Computing	3	0	0	3
18CSE448T	Energy Management for Internet of Things devices	3	0	0	3
18CSE490T	Big Data Visualization	3	0	0	3
Total Learning Credits					**18**

8. Mandatory Courses (M)

Code	Course Title	L	T	P	C
18PDM101L	Professional Skills and Practices	0	0	2	0
18PDM201L	Competencies in Social Skills	0	0	2	0
18PDM203L	Entrepreneurial Skill Development				
18PDM202L	Critical and Creative Thinking Skills	0	0	2	0
18PDM204L	Business Basics for Entrepreneurs				
18PDM301L	Analytical and Logical Thinking Skills	0	0	2	0
18PDM302L	Entrepreneurship Management				
18LEM101T	Constitution of India	1	0	0	0
18LEM102J	Value Education	1	0	1	0
18GNM101L	Physical and Mental Health using Yoga	0	0	2	0
18GNM102L	NSS				
18GNM103L	NCC	0	0	2	0
18GNM104L	NSO				
18LEM109T	Indian Traditional Knowledge	1	0	0	0

2. Basic Science Courses (B)

Course Code	Course Title	L	T	P	C
18PYB103J	Physics: Semiconductor Physics	3	1	2	5
18CYB101J	Chemistry	3	1	2	5
18MAB101T	Calculus and Linear Algebra	3	1	0	4
18MAB102T	Advanced Calculus and Complex Analysis	3	1	0	4
18MAB201T	Transforms and Boundary Value Problems	3	1	0	4
18MAB204T	Probability and Queueing Theory	3	1	0	4
18MAB302T	Discrete Mathematics for Engineers	3	1	0	4
18BTB101T	Biology	2	0	0	2
Total Learning Credits					**32**

4. Professional Core Courses (C)

Course Code	Course Title	L	T	P	C
18CSC201J	Data Structures and Algorithms	3	0	2	4
18CSC202J	Object Oriented Design and Programming	3	0	2	4
18CSC203J	Computer Organization and Architecture	3	0	2	4
18CSC204J	Design and Analysis of Algorithms	3	0	2	4
18CSC205J	Operating Systems	3	0	2	4
18CSC206J	Software Engineering and Project Management	3	0	2	4
18CSC207J	Advanced Programming Practice	3	0	2	4
18CSC301T	Formal Language and Automata	3	0	0	3
18CSC302J	Computer Networks	3	0	2	4
18CSC303J	Database Management Systems	3	0	2	4
18CSC304J	Compiler Design	3	0	2	4
18CSC305J	Artificial Intelligence	3	0	2	4
18CSC350T	Comprehension	0	1	0	1
18CSC208L	Competitive Professional Skills-I	0	0	2	1
18CSC306L	Competitive Professional Skills-II	0	0	2	1
18CSC307L	Competitive Professional Skills-III	0	0	2	1
Total Learning Credits					**51**

6. Open Elective Courses (O)

Course Code	Course Title	L	T	P	C
18CSO101T	IT Infrastructure Management	3	0	0	3
18CSO102T	Mobile Application Development	3	0	0	3
18CSO103T	System Modeling and Simulation	3	0	0	3
18CSO104T	Free and Open Source Softwares	3	0	0	3
18CSO105T	Android Development	3	0	0	3
18CSO106T	Data Analysis using Open Source Tool	3	0	0	3
18CSO107T	IOS Development	3	0	0	3
Total Learning Credits					**12**

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

Course Code	Course Title	L	T	P	C
18CSP101L	Massive Open Online Course - I				
18CSP102L	Industrial Training-I	0	0	2	1
18CSP103L	Seminar - I				
18CSP104L	Massive Open Online Course - II				
18CSP105L	Industrial Training-II	0	0	2	1
18CSP106L	Seminar - II				
18CSP107L	Minor Project	0	0	6	3
18CSP108L	Internship (4-6 weeks)				
18CSP109L	Project	0	0	20	10
18CSP110L	Semester Internship				
Total Learning Credits					**15**

8. Mandatory Courses (M)

Course Code	Course Title	L	T	P	C
18LEM110L	Indian Art Form	0	0	2	0
18CYM101T	Environmental Science	1	0	0	0

18. (f) Program Articulation: B.Tech. in Computer Science and Engineering with Specialization in Internet of Things

Course Code	Course Name	Program Learning Outcomes (PLO)														
		Graduate Attributes												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
18CSS101J	Programming for Problem Solving	H	H	M	M	H	L	L	M	H	M	L	H	L	H	H
18CSC201J	Data Structures and Algorithms	H	H	H	H	M	L	L	M	H	M	M	M	L	H	H
18CSC202J	Object Oriented Design and Programming	H	H	H	H	H	M	L	M	H	H	M	H	L	H	H
18CSC203J	Computer Organization and Architecture	H	M	H	M	L	L	L	M	L	L	L	M	H	M	M
18CSC204J	Design and Analysis of Algorithms	H	H	H	H	M	M	L	M	M	M	M	H	L	H	H
18CSC205J	Operating Systems	H	H	H	H	H	M	L	M	H	M	M	H	H	H	M
18CSC206J	Software Engineering and Project Management	H	H	H	H	H	H	H	H	H	H	H	H	L	H	M
18CSC207J	Advanced Programming Practice	H	H	M	M	H	L	L	M	H	M	L	H	L	H	H
18CSC301T	Formal Language and Automata	H	H	H	H	L	L	L	L	M	M	L	H	L	H	H
18CSC302J	Computer Networks	H	H	H	H	H	M	L	M	H	M	M	H	H	H	M
18CSC303J	Database Management Systems	H	H	H	H	H	M	L	M	H	M	M	H	H	H	M
18CSC304J	Compiler Design	H	H	H	H	M	L	L	L	M	M	L	H	H	H	H
18CSC305J	Artificial Intelligence	H	H	H	H	M	M	L	L	M	M	L	H	H	H	H
18CSC208L	Competitive Professional Skills-I	H	H	H	H	H	L	L	M	H	H	M	H	H	H	H
18CSC306L	Competitive Professional Skills-II	H	H	H	H	H	L	L	M	H	H	M	H	H	H	H
18CSC307L	Competitive Professional Skills-III	H	H	H	H	H	L	L	M	H	H	M	H	H	H	H
18CSE377T	Data Centric Networks	H	H	H	H	H	M	M	M	H	H	M	H	H	H	H
18CSE345T	Internet of Things Architecture and Protocols	H	H	H	H	H	M	H	H	M	H	H	M	H	H	H
18CSE392T	Machine Learning-I	H	H	H	M	H	M	L	M	H	M	L	H	L	H	H
18CSE388T	Artificial Neural Networks	H	H	H	M	H	M	L	M	H	M	L	H	L	H	H
18CSE346T	Network Programming	H	H	H	H	H	M	M	M	M	H	H	H	H	H	H
18CSE347T	Cloud Computing and Architecture	H	H	H	H	H	M	H	H	M	H	H	M	H	H	H
18CSE451T	Wireless Sensor Networks	H	H	H	H	M	M	M	M	M	H	L	H	H	H	H
18CSE456T	Software Defined Networks	H	H	H	H	H	M	M	M	M	H	H	H	H	H	H
18CSE445T	Internet of Things Security	H	H	H	H	H	M	M	H	H	H	M	H	H	H	H
18CSE458T	Wireless and Mobile Communication	H	H	H	H	M	H	H	H	M	H	M	H	H	H	H
18CSE446T	Advanced Database Systems	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H
18CSE447T	Edge Computing	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H
18CSE448T	Energy Management for Internet of Things Devices	H	H	H	H	H	H	H	H	M	H	H	H	H	H	H
18CSE449T	Data Analysis and Visualization	M	H	H	H	H	M	M	H	H	H	H	M	H	H	H
18CSP101L	Massive Open Online Course - I	H	M	M	M	M	M	M	M	H	H	H	M	H	H	H
18CSP102L	Industrial Training-I	H	M	M	M	M	M	M	M	H	H	H	M	H	H	H
18CSP103L	Seminar - I	H	M	M	M	M	M	M	M	H	H	H	M	H	H	H
18CSP104L	Massive Open Online Course - II	H	M	M	M	M	M	M	M	H	H	H	M	H	H	H
18CSP105L	Industrial Training-II	H	M	M	M	M	M	M	M	H	H	H	M	H	H	H
18CSP106L	Seminar - II	H	M	M	M	M	M	M	M	H	H	H	M	H	H	H
18CSP107L	Minor Project	H	H	H	H	H	M	M	H	H	H	H	H	H	M	M
18CSP108L	Internship (4-6 weeks)	H	H	H	H	H	M	H	M	H	H	H	H	H	M	M
18CSP109L	Project	H	H	H	H	H	M	M	H	H	H	H	H	H	M	M
18CSP110L	Semester Internship	H	H	H	H	H	M	M	H	H	H	H	H	H	M	M
	Program Average	H	H	M	H	M	L	M	L	M	M	M	H	M	M	M

18. (g) Implementation Plan: B.Tech. in Computer Science and Engineering with Specialization in Internet of Things

Semester - I

Code	Course Title	L	T	P	C
18LEH101J	English	2	0	2	3
18MAB101T	Calculus and Linear Algebra	3	1	0	4
18PYB103J	Physics: Semiconductor Physics	3	1	2	5
18MES101L	Engineering Graphics and Design	1	0	4	3
18EES101J	Basic Electrical and Electronics Engineering	3	1	2	5
18PDM101L	Professional Skills and Practices	0	0	2	0
18LEM101T	Constitution of India	1	0	0	0
18GNM101L	Physical and Mental Health using Yoga	0	0	2	0
Total Learning Credits					**20**

Semester - II

Code	Course Title	L	T	P	C
18LEH10XJ	Chinese / French / German / Japanese/ Korean	2	0	2	3
18MAB102T	Advanced Calculus and Complex Analysis	3	1	0	4
18CYB101J	Chemistry	3	1	2	5
18CSS101J	Programming for Problem Solving	3	0	4	5
18MES103L	Civil and Mechanical Engineering Workshop	1	0	4	3
18PDH101T	General Aptitude	0	0	2	1
18LEM102J	Value Education	1	0	1	0
18GNM102L	NSS				
18GNM103L	NCC	0	0	2	0
18GNM104L	NSO				
Total Learning Credits					**21**

Semester - III

Code	Course Title	L	T	P	C
18MAB201T	Transforms and Boundary Value Problems	3	1	0	4
18BTB101T	Biology	2	0	0	2
18CSS201J	Analog and Digital Electronics	3	0	2	4
18CSC201J	Data Structures and Algorithms	3	0	2	4
18CSC202J	Object Oriented Design and Programming	3	0	2	4
18CSC203J	Computer Organization and Architecture	3	0	2	4
18PDH102T	Management Principles for Engineers	2	0	0	2
18PDM201L	Competencies in Social Skills	0	0	2	0
18PDM203L	Entrepreneurial Skill Development				
Total Learning Credits					**24**

Semester - IV

Code	Course Title	L	T	P	C
18MAB204T	Probability and Queueing Theory	3	1	0	4
18CSS202J	Computer Communications	2	0	2	3
18CSC204J	Design and Analysis of Algorithms	3	0	2	4
18CSC205J	Operating Systems	3	0	2	4
18CSC206J	Software Engineering and Project Management	3	0	2	4
18CSC207J	Advanced Programming Practice	3	0	2	4
18CSC208L	Competitive Professional Skills-I	0	0	2	1
18PDH103T	Social Engineering	2	0	0	2
18PDM202L	Critical and Creative Thinking Skills	0	0	2	0
18PDM204L	Business Basics for Entrepreneurs				
18CYM101T	Environmental Science	1	0	0	0
Total Learning Credits					**26**

Semester - V

Code	Course Title	L	T	P	C
18MAB302T	Discrete Mathematics for Engineers	3	1	0	4
18CSC301T	Formal Language and Automata	3	0	0	3
18CSC302J	Computer Networks	3	0	2	4
18CSC306L	Competitive Professional Skills-II	0	0	2	1
	Professional Elective – 1	3	0	0	3
	Professional Elective – 2	3	0	0	3
	Open Elective – 1	3	0	0	3
18CSP101L	Massive Open Online Course - I	0	0	2	1
18CSP102L	Industrial Training-I				
18CSP103L	Seminar - I				
18PDM301L	Analytical and Logical Thinking Skills	0	0	2	0
18PDM302L	Entrepreneurship Management				
18LEM109T	Indian Traditional Knowledge	1	0	0	0
Total Learning Credits					**22**

Semester - VI

Code	Course Title	L	T	P	C
18CSC303J	Database Management Systems	3	0	2	4
18CSC304J	Compiler Design	3	0	2	4
18CSC305J	Artificial Intelligence	3	0	2	4
18CSC350T	Comprehension	0	1	0	1
18CSC307L	Competitive Professional Skills-III	0	0	2	1
	Professional Elective – 3	3	0	0	3
	Professional Elective – 4	3	0	0	3
	Open Elective – 2	3	0	0	3
18CSP104L	Massive Open Online Course - II	0	0	2	1
18CSP105L	Industrial Training-II				
18CSP106L	Seminar - II				
18PDH201T	Employability Skills and Practices	0	0	2	1
18LEM110L	Indian Art Form	0	0	2	0
Total Learning Credits					**25**

Semester - VII

Code	Course Title	L	T	P	C
	Professional Elective – 5	3	0	0	3
	Professional Elective – 6	3	0	0	3
	Open Elective – 3	3	0	0	3
18CSP107L	Minor Project	0	0	6	3
18CSP108L	Internship (4-6 weeks)				
Total Learning Credits					**12**

Semester - VIII

Code	Course Title	L	T	P	C
18CSP109L	Project	0	0	20	10
18CSP110L	Semester Internship				
Total Learning Credits					**10**