



SCHOOL OF COMPUTING SCIENCE AND ENGINEERING (SCSE)

B.Tech. Computer Science and Engineering

CURRICULUM

[Curriculum for Applied Learning (CAL)]

S.No.	Category	Total No. of Credits (2015 and 2016 batch)	Total No. of Credits (2017 batch onwards)
1	University Core (UC)	72	70
2	Programme Core (PC)	58	58
3	University Elective (UE)	12	12
4	Programme Elective (PE)	38	40
	Total	180	180

University Core

L – Lecture T- Tutorial P- Practical J- Project C- Credits E – Engineering
S – Science H – Humanities M - Management

S.No	Course code	Course Title	L	T	P	J	C	Category	Pre-requisite
1	CSE1001	Problem Solving and Programming	0	0	6	0	3	E	None
2	CSE1002	Problem Solving and Object Oriented Programming	0	0	6	0	3	E	None
3	CSE3999	Technical Answers for Real World Problems (TARP)	1	0	0	8	3	E	PHY1999
4	CSE4098	Comprehensive Exam	0	0	0	0	2	E	None
5	MAT1011	Calculus for Engineers	3	0	2	0	4	S	None
6	MAT2001	Statistics for Engineers	2	1	2	0	4	S	MAT1011
7	*PHY1001	Engineering Physics	3	0	2	4	5	S	None
	⁺ PHY1701	Engineering Physics	3	0	2	0	4	S	None
8	*CHY1001	Engineering Chemistry	3	0	2	4	5	S	None

	⁺ CHY1701	Engineering Chemistry	3	0	2	0	4	S	None
9	PHY1999	Introduction to Innovative Projects	1	0	0	4	2	S	None
10	CHY1002	Environmental Sciences	3	0	0	0	3	S	None
11	ENG1011	English for Engineers	0	0	4	0	2	H	None
12	FLC	Foreign Language	2	0	0	0	2	H	None
13	HUM1021	Ethics and Values	2	0	0	0	2	H	None
14	EXC	Co / Extra Curricular	0	0	0	0	2	H	None
15	MGT1022	Lean Start-up Management	1	0	0	4	2	M	None
16	STS	Soft Skills (6 Courses)	0	0	2	0	6	H	None
17	CSE4099	Project Work	0	0	0	0	20	E	None
18	CSE3099	Industrial Internship	0	0	0	0	2	E	None

* - Applicable only for batch 2015 and batch 2016

⁺ - Applicable from batch 2017 onwards

University Elective

University Electives are meant to develop interdisciplinary skills among the students. So the students can take any courses other than their University and Program core courses as their University elective courses. Student should have completed minimum of 12 credits under university electives to fulfil their requirements to complete their B.Tech Degree.

Programme Core

L – Lecture T- Tutorial P- Practical J- Project C- Credits E – Engineering
S – Science H – Humanities M – Management

S.No.	Course Code	Course Title	L	T	P	J	C	Category	Pre-requisite
1	MAT2002	Applications of Differential and Difference Equations	3	0	2	0	4	S	MAT1011
2	MAT1014	Discrete Mathematics and Graph Theory	3	1	0	0	4	S	None
3	MAT3004	Applied Linear Algebra	3	1	0	0	4	S	MAT2002
4	EEE1001	Basic Electrical and Electronics Engineering	2	0	2	0	3	E	None
5	CSE1003	Digital Logic and Design	3	0	2	0	4	E	None
6	CSE2001	Computer Architecture and Organization	3	0	0	0	3	E	None
7	CSE2002	Theory of Computation & Compiler Design	4	0	0	0	4	E	None
8	CSE2003	Data Structures and Algorithms	2	0	2	4	4	E	None
9	CSE1004	Network and Communication	3	0	2	0	4	E	None
10	CSE2004	Database Management System	2	0	2	4	4	E	None
11	CSE3001	Software Engineering	2	0	2	4	4	E	None
12	CSE2005	Operating Systems	2	0	2	4	4	E	None
13	CSE4001	Parallel and Distributed Computing	2	0	2	4	4	E	Indicative Pre-requisite
14	CSE3002	Internet and Web Programming	2	0	2	4	4	E	Indicative Pre-requisite
15	CSE2006	Microprocessor and Interfacing	2	0	2	4	4	E	Indicative Pre-requisite

Programme Elective

L – Lecture T- Tutorial P- Practical J- Project C- Credits E – Engineering
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S. No.	Course code	Course Title	L	T	P	J	C	Category	Pre-requisite
1	CSE4003	Cybersecurity	3	0	0	4	4	E	None
2	CSE4004	Digital forensics	3	0	2	0	4	E	None
3	CSE4011	Virtualization	3	0	0	4	4	E	None
4	CSE3006	Embedded System Design	3	0	2	0	4	E	Indicative Pre-requisite
5	CSE4014	High Performance Computing	3	0	0	4	4	E	None
6	CSE4015	Human Computer Interaction	3	0	0	4	4	E	None
7	CSE3009	Internet of Things	3	0	0	4	4	E	None
8	CSE3011	Robotics and its Applications	3	0	0	4	4	E	None
9	CSE3013	Artificial Intelligence	3	0	0	4	4	E	None
10	CSE3018	Content Based Image and Video retrieval	2	0	2	4	4	E	None
11	CSE3020	Data Visualization	2	0	2	4	4	E	None
12	CSE4019	Image Processing	3	0	0	4	4	E	None
13	CSE4020	Machine Learning	2	0	2	4	4	E	Indicative Pre-requisite
14	CSE4022	Natural language processing	3	0	0	4	4	E	None
15	CSE3021	Social and Information Networks	3	0	0	4	4	E	None
16	CSE3024	Web Mining	3	0	2	0	4	E	None
17	CSE3025	Large Scale Data Processing	2	0	2	4	4	E	None
18	CSE3029	Game Programming	2	0	2	4	4	E	None
19	CSE4027	Mobile Programming	2	0	2	4	4	E	None
20	CSE4028	Object oriented software development	2	0	2	4	4	E	Indicative Pre-requisite

S. No.	Course code	Course Title	L	T	P	J	C	Category	Pre-requisite
21	+CSE3016	Computer Graphics and Multimedia	2	0	2	4	4	E	None
22	MGT1004	Resource Management	2	0	0	4	3	M	None
23	MGT1010	Total Quality Management	2	0	0	4	3	M	None
24	MGT1011	Accounting for Engineers	2	0	0	4	3	M	None

+ - Applicable only from batch 2017 onwards

Programme Migration Requirements

S.No.	Course Code	Course Title	L	T	P	J	C	Category	Pre-requisite
1	CSE1003	Digital Logic and Design	3	0	2	0	4	E	None
2	CSE2003	Data Structures and Algorithms	2	0	2	4	4	E	None

Minor in Computer Science and Engineering – 15 credits

To earn a minor in CSE, the student should successfully complete **FOUR** courses from the following list, worth a **minimum of 15 credits**. The courses chosen by the student for the purpose of “minor in CSE” should not have any course-equivalent (or same courses) in the list of Program Core of the curriculum that the student belongs to, as well as in the list of Program Electives chosen by the student for the purpose of earning credits for the B.Tech programme.

The B.Tech. Electronics and Computer Engineering students are not eligible to do Minor in CSE.

[Choose any four courses in the given list]

Course Code & Course Title	L	T	P	J	C	Category	Pre-requisite	Anti-requisite
CSE1003: Digital logic design	3	0	2	0	4	E	Nil	ECE2003
CSE1004: Network and Communication	3	0	2	0	4	E	Nil	ECE4008
CSE2001: Computer Architecture and Organization	3	0	0	0	3	E	Nil	ECE3004
CSE2002: Theory of Computation and Compiler Design	4	0	0	0	4	E	Nil	Nil
CSE2003: Data Structures and Algorithms	2	0	2	4	4	E	Nil	Nil
CSE2004: Database Management System	2	0	2	4	4	E	Nil	Nil
CSE2005: Operating Systems	2	0	2	4	4	E	Nil	ECE2012

Course Code & Course Title	L	T	P	J	C	Category	Pre-requisite	Anti-requisite
CSE2006: Microprocessor and Interfacing	2	0	2	4	4	E	Indicative Pre-requisite	EEE4001/ ECE3003
CSE3001: Software Engineering	2	0	2	4	4	E	Nil	Nil
CSE3002: Internet and Web Programming	2	0	2	4	4	E	Indicative Pre-requisite	Nil
CSE4001: Parallel and Distributed Computing	2	0	2	4	4	E	Indicative Pre-requisite	Nil

B. Tech. CSE (Honours) – 15 credits

Apart from fulfilling the criteria required for BTech CSE programme, the student should earn an additional 15 credits by completing B.Tech. CSE Programme Electives chosen from the following list.

S.No.	Course Code	Course Title	L	T	P	J	C	Category	Pre-requisite
1	CSE3006	Embedded System Design	3	0	2	0	4	E	None
2	CSE3009	Internet of Things	3	0	0	4	4	E	None
3	CSE3013	Artificial Intelligence	3	0	0	4	4	E	None
4	CSE3018	Content Based Image and Video retrieval	2	0	2	4	4	E	None
5	CSE3020	Data Visualization	2	0	2	4	4	E	None
6	CSE3021	Social and Information Networks	3	0	0	4	4	E	None
7	CSE3024	Web Mining	3	0	2	0	4	E	None
8	CSE3025	Large Scale Data Processing	2	0	2	4	4	E	None
9	CSE4003	Cybersecurity	3	0	0	4	4	E	None
10	CSE4011	Virtualization	3	0	0	4	4	E	None
11	CSE4014	High Performance Computing	3	0	0	4	4	E	None
12	CSE4015	Human Computer Interaction	3	0	0	4	4	E	None
13	CSE4019	Image Processing	3	0	0	4	4	E	None
14	CSE4020	Machine Learning	2	0	2	4	4	E	None
15	CSE4028	Object oriented software development	2	0	2	4	4	E	None