

**4-Year B. Tech in Computer Science & Engineering for in-house Course - Syllabus**

*(Applicable from the academic session 2019-2020)*

**Curriculum for B. Tech in Computer Science & Engineering for in-house Course**

**Semester I (First Year) Curriculum Branch/Course:  
Computer Science Engineering**

Sl. No	Category	Subject Code	Subject Name	Total Number of contact hours			Credits
				L	T	P	
<b>Theory</b>							
1	Basic Science course	BS-CH101	Chemistry-I	3	1	0	4
2	Basic Science course	BS-M101	Mathematics –IA	3	1	0	4
3	Engineering Science Courses	ES-EE101	Basic Electrical Engineering	3	1	0	4
<b>Total Theory</b>				<b>9</b>	<b>3</b>	<b>0</b>	<b>12</b>
<b>Practical</b>							
1	Basic Science course	BS-CH191	Chemistry-I Laboratory	0	0	3	2
2	Engineering Science Courses	ES-EE191	Basic Electrical Engineering Laboratory	0	0	2	1
3	Engineering Science Courses	ES-ME191	Engineering Graphics & Design	1	0	4	3
<b>Total Practical</b>				<b>1</b>		<b>9</b>	<b>6</b>
<b>Total of First Semester</b>				<b>10</b>	<b>3</b>	<b>9</b>	<b>18</b>

**Semester II (First Year) Curriculum**  
**Branch/Course: Computer Science Engineering**

Sl. No	Category	Subject Code	Subject Name	Total Number of contact hours			Credits
				L	T	P	
<b>Theory</b>							
1	Basic Science courses	BS-PH201	Physics-I (Gr-B)	3	1	0	4
2	Basic Science courses	BS-M201	Mathematics –IIA	3	1	0	4
3	Engineering Science Courses	ES-CS201	Programing for Problem Solving	3	0	0	3
4	Humanities and Social Sciences including Management courses	HM-HU201	English	2	0	0	2
<b>Total Theory</b>				<b>11</b>	<b>2</b>	<b>0</b>	<b>13</b>
<b>Practical</b>							
1	Basic Science courses	BS-PH291	Physics-I Laboratory	0	0	3	2
2	Engineering Science Courses	ES-CS291	Programing for Problem Solving	0	0	4	2
3	Engineering Science Courses	ES-ME292	Workshop/Manufacturing Practices	1	0	4	3
4.	Humanities and Social Sciences including Management courses	HM-HU291	Language Laboratory	0	0	2	1
<b>Total practical</b>				<b>1</b>	<b>0</b>	<b>13</b>	<b>8</b>
<b>Total of Second Semester</b>				<b>12</b>	<b>2</b>	<b>13</b>	<b>21</b>

**Undergraduate Degree in Engineering & Technology**  
**Branch / course :Computer Science and Engineering**  
[L= Lecture, T = Tutorials, P = Practicals & C = Credits]

Semester III (Second year) Curriculum

Sl. No	Category	Subject Code	Subject Name	Total Number of contact hours			Credits
				L	T	P	
1	Engineering Science Course	ESC 301	Analog Electronic Circuits	3	0	0	3
2	Professional Core Courses	PCC-CS301	Data structure & Algorithms	3	0	0	3
3	Professional Core Courses	ESC 302	Digital Electronics	3	0	0	3
4	Professional Core Courses	PCC-CS302	IT Workshop – (MATLAB/Scilab)	1	0	0	1
5	Basic Science courses	BSC 301	Mathematics-III (Differential Calculus)	2	0	0	2
6	Humanities & Social Sciences including Management Courses	HSMC 301	Humanities-I	3	0	0	3
7	Engineering Science Course	ESC 391	Analog Electronic Circuits Lab	0	0	4	2
8	Professional Core Courses	PCC-CS391	Data structure & Algorithms Lab	0	0	4	2
9	Engineering Science Courses	ESC 392	Digital Electronics Lab	0	0	4	2
10	Professional Core Courses	PCC-CS392	IT Workshop – (MATLAB/Scilab) Lab	0	0	4	2
<b>Total Credits</b>							<b>23</b>

Semester IV (Second year) Curriculum

Sl. No	Category	Subject Code	Subject Name	Total Number of contact hours			Credits
				L	T	P	
1	Professional Core Courses	PCC-CS401	Discrete Mathematics	3	1	0	4
2	Engineering Science Course	PCC-CS402	Computer Organization & Architecture	3	0	0	3
3	Professional Core Courses	PCC-CS403	Operating Systems	3	0	0	3
4	Professional Core Courses	PCC-CS404	Design & Analysis of Algorithms	3	0	0	3
5	Humanities & Social Sciences including Management Courses	HSMC-401	Management I (Organizational Behaviour/ Finance & Accounting)	3	0	0	3
6	Mandatory Courses	MC	Environmental Sciences	-	-	-	0
7	Engineering Science Course	PCC-CS492	Computer Organization & Architecture Lab	0	0	4	2
8	Professional Core Courses	PCC-CS493	Operating Systems Lab	0	0	4	2
9	Professional Core Courses	PCC-CS494	Design & Analysis of Algorithms Lab	0	0	4	2
<b>Total Credits</b>							<b>22</b>

Semester V (Third year) Curriculum  
Branch/Course: Computer Science Engineering

Sl. No	Category	Subject Code	Subject Name	Total Number of contact hours			Credits
				L	T	P	
1	Engineering Science Course	ESC-501	Signals & Systems	3	0	0	3
2	Professional Core Courses	PCC-CS501	Database Management Systems	3	0	0	3
3	Professional Core Courses	PCC-CS502	Formal Language & Automata Theory	3	0	0	3
4	Professional Core Courses	PCC-CS503	Object Oriented Programming	2	0	0	2
5	Humanities & Social Sciences including Management Courses	HSMC-501	Humanities II	3	0	0	3
6	Professional Elective courses	PEC-501	Elective-I	3	0	0	3
7	Mandatory Courses	MC-501	Constitution of India/ Essence of Indian Knowledge Tradition	-	-	-	0
8	Professional Core Courses	PCC-CS591	Database Management Systems	0	0	4	2
9	Professional Core Courses	PCC-CS593	Object Oriented Programming	0	0	4	2
<b>Total Credits</b>							<b>21</b>

Semester VI (Third year) Curriculum  
Branch/Course: Computer Science Engineering

Sl. No	Category	Subject Code	Subject Name	Total Number of contact hours			Credits
				L	T	P	
1	Professional Core Courses	PCC-CS601	Compiler Design	3	0	0	3
2	Professional Core Courses	PCC-CS602	Computer Networks	3	0	0	3
3	Professional Elective courses	PEC-601A/B/C/D/E	Advanced Algorithms/Distributed Database/Real Time Systems/Information Retrieval/Advanced Computer Architecture	3	0	0	3
4	Professional Elective Courses	PEC-602A/B/C/D/E	Computer Graphics/Optimization Techniques/Information Theory & Coding/Parallel & Distributed Algorithm/Internet of Things	3	0	0	3
5	Open Elective courses	OEC-601	Open Elective-I (Humanities)	3	0	0	3
6	Project	PROJ-CS601	Project-1	0	0	6	3
7	Professional Core Courses	PCC-CS691	Compiler Design	0	0	4	2
8	Professional Core Courses	PCC-CS692	Computer Networks	0	0	4	2
<b>Total Credits</b>							<b>22</b>

Semester VII (Fourth year) Curriculum  
Branch/Course: Computer Science Engineering

Sl. No	Category	Subject Code	Subject Name	Total Number of contact hours			Credits
				L	T	P	
1	Professional Elective Courses	PEC-701 A/B/C/D	A. Adhoc and Sensor Networks B. Machine Learning C. Neural Networks & Deep Learning D. Theory of Computation	3	0	0	3
2	Professional Elective Courses	PEC-702 A/B/C/D	A. Speech & Natural Language Processing B. Human Computer Interaction C. VLSI Design D. Data Analytics	3	0	0	3
3	Open Elective courses	OEC-701 A/B	A. Human Resource Development and Organizational Behaviour B. Indian Music System	3	0	0	3
4	Basic Science course	BSC-701	Biology	2	1	0	3
5	Project	PROJ-CS701	Project-II	0	0	12	6
<b>Total Credits</b>							<b>18</b>

Semester VIII (Fourth year) Curriculum  
Branch/Course: Computer Science Engineering

Sl. No	Category	Subject Code	Subject Name	Total Number of contact hours			Credits
				L	T	P	
1	Professional Elective Courses	PEC-801 A/B/C	A. Quantum Computing B. Cryptography & Network Security C. Cloud Computing	3	0	0	3
2	Open Elective courses	OEC-801	Cyber Law and Ethics	3	0	0	3
3	Open Elective courses	OEC-802	Economic Policies in India	3	0	0	3
4	Project	PROJ-CS801	Project-III	0	0	12	6
<b>Total Credits</b>							<b>15</b>