

2025 onwards Curriculum for B. Tech. in Computer Science & Engineering

General Course Structure and Theme

Definition of Credit:

1 Hr. Lecture (L) per week 1 credit

1 Hr. Tutorial (T) per week 1 credit

1 Hr. Practical (P) per week 0.5 credit

2 Hours Practical (P) per week 1 credit

The total number of credits proposed for the Four-Year B. Tech. program in Computer Science & Engineering is 160.

S. No.	AICTE Category	AICTE Recommended Breakup of Credits for CSE	JUA Breakup of Credits for CSE	UGC Category	UGC Recommended Credit Breakup	JUA Credit Breakup
1	Humanities and Social Sciences including Management Courses (HSC)	16	17	Ability Enhancement courses (AEC)	8	11
2	Basic Science Courses (BSC)	23	16	Multidisciplinary Courses (MDC)	9	30
3	Engineering Science courses including workshop, drawing, basics of electronics/ electrical/ mechanical/computer etc. (ESC)	29	11	Value Added Courses (VAC)	8	7
4	Professional Core Courses (PCC)	59	54	MAJOR	80	54
5	Professional Elective courses relevant to chosen specialization/branch (PEC)	12	23	MINOR	32	32

6	Open subjects–Electives from other technical and/or emerging subjects (OEC)	9	9	Skill Enhancement Courses (SEC)	9	6
7	Project work, seminar and internship in industry or elsewhere (PRC)	15	20	PROJECT	12	14
8	Mandatory Courses [Environmental Sciences, Induction Program, Indian Constitution, Essence of Indian Knowledge Tradition] (OMC)	(non credit)	10	TRAINING	4	6
TOTAL			160			160

Course Category Code:

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FIRST SEMESTER

S.No.	Sub Code	Sub Name	L	T	P	Total Hrs	Credits	UGC/NEP Category	AICTE Category	University Category	Department offered	Remarks
1	25B11MA111	Mathematics-1	3	1	0	4	4	MDC	BSC	CORE	Mathematics	
2	25B11PH111	Physics-1	3	0	0	3	3	MDC	BSC	CORE	Physics	
3	25B11CI111	Software Development Fundamentals-I	3	0	0	3	3	MAJOR	PCC	CORE	CSE	
4	25B17PH171	Physics Lab-1	0	0	2	2	1	MDC	BSC	CORE	Physics	
5	25B17CI171	Software Development Fundamentals Lab-I	0	0	2	2	1	MAJOR	PCC	CORE	CSE	
6	25B17ME171	Engineering Drawing & Design	0	1	2	3	2	MDC	ESC	CORE	Mechanical	
7	25B11EE111	Basic Electronics	3	0	0	3	3	MDC	ESC	CORE	Electronics	
8	25B17EE171	Basic Electronics Lab	0	0	2	2	1	MDC	ESC	CORE	Electronics	
9.	25B17CI172	Programming Practices Lab-I	0	0	2	2	1	MAJOR	PCC	CORE	CSE	

Total 19

SECOND SEMESTER

S.No.	Sub Code	Sub Name	L	T	P	Total Hrs	Credits	UGC/NEP Category	AICTE Category	University Category	Department offered	Remarks
1	25B11MA211	Mathematics-2	3	1	0	4	4	MDC	BSC	CORE	Mathematics	
2	25B11PH211	Physics-2	3	0	0	3	3	MDC	BSC	CORE	Physics	
3	25B11CI211	Software Development Fundamentals-II	3	0	0	3	3	MAJOR	PCC	CORE	CSE	
4	25B17PH271	Physics Lab-2	0	0	2	2	1	MDC	BSC	CORE	Physics	
5	25B17CI271	Software Development Fundamentals Lab- II	0	0	2	2	1	MAJOR	PCC	CORE	CSE	
6	25B11HS216	Professional Communication	3	1	0	4	4	AEC-1	HSC	CORE	Arts	
7	25B17ME272	Workshop	0	0	2	2	1	MDC	ESC	CORE	Mechanical	
8	25B11CO211	Finance for everyone	3	0	0	3	3	SEC-3	HSC	CORE	Commerce	
9	25B11LS211	Environmental Science	3	0	0	3	3	VAC-3	OMC	CORE	Life Science	
10	25B17CI272	Programming Practices Lab-II (Python)	0	0	2	2	0(Qualifying)	MAJOR	PCC	CORE	CSE	

Total 23

THIRD SEMESTER

S.No.	Sub Code	Sub Name	L	T	P	Total Hrs	Credits	UGC/NEP Category	AICTE Category	University Category	Department offered	Remarks
1	25B11CI311	Mathematical Foundations for Data Science	3	1	0	4	4	MAJOR	PCC	CORE	CSE	
2	25B11CI312	Theoretical Foundations of Computer Science	3	1	0	4	4	MAJOR	PCC	CORE	CSE	
3	25B11CI313	Data Structures	3	0	0	3	3	MAJOR	PCC	CORE	CSE	
4	25B11CI314	Database Management Systems	3	0	0	3	3	MAJOR	PCC	CORE	CSE	
5	25B17CI371	UNIX Programming Lab	0	0	2	2	1	MAJOR	PCC	CORE	CSE	
6	25B17CI373	Data Structures and Programming Lab	0	0	2	2	1	MAJOR	PCC	CORE	CSE	
7	25B17CI374	Database Management Systems Lab	0	0	2	2	1	MAJOR	PCC	CORE	CSE	
8	25B11MT416	Digital Marketing	3	0	0	3	3	SEC-2	HSC	CORE	Management	
9	25B11SS114	Constitution and Development	3	1	0	4	4	VAC-1	OMC	CORE	Social Science	
10	25B17CI375	Object Oriented Programming using JAVA	0	0	2	2	0(Qualifying)	MAJOR	PCC	CORE	CSE	

Total 24

FOURTH SEMESTER

S.No.	Sub Code	Sub Name	L	T	P	Total Hrs	Credits	UGC/NEP Category	AICTE Category	University Category	Department offered	Remarks
1	25B11SS4XX	HSS Elective – 1 (Universal Human Values)	3	0	0	3	3	AEC -2	HSC	CORE	Social Science	
2	25B11CI411	Algorithms and Problem Solving	3	0	0	3	3	MAJOR	PCC	CORE	CSE	
3	25B11EE314	Digital Systems	3	0	0	3	3	MDC	ESC	CORE	Electronics	
4	25B11CI412	Computer Organization and Architecture	3	1	0	4	4	MAJOR	PCC	CORE	CSE	
5	25B17CI471	Algorithms and Problem Solving Lab	0	0	2	2	1	MAJOR	PCC	CORE	CSE	
6	25B11EE374	Digital Systems Lab	0	0	2	2	1	MDC	ESC	CORE	Electronics	
7	25B11CI4XX	Minor Elective – 1	3	1	0	4	4	MINOR	PEC	ELECTIV E	CSE	
8	25B11SS214	Indian Knowledge System *	3	0	0	3	3	MDC – 1	OMC	CORE	Social Science	

Total 22

FIFTH SEMESTER

S.No.	Sub Code	Sub Name	L	T	P	Total Hrs	Credits	UGC/NEP Category	AICTE Category	University Category	Department offered	Remarks
1	25B11CI511	Operating Systems	3	0	0	3	3	MAJOR	PCC	CORE	CSE	
2	25B11CI512	Web Technology	3	0	0	3	3	MAJOR	PCC	CORE	CSE	
3	25B17CI571	Operating Systems Lab	0	0	2	2	1	MAJOR	PCC	CORE	CSE	
4	25B17CI572	Web Technology Lab	0	0	2	2	1	MAJOR	PCC	CORE	CSE	
5	25B11CI513	Artificial Intelligence and Machine Learning	3	0	0	3	3	MAJOR	PCC	CORE	CSE	
6	25B11CI5XX	Minor Elective – 2	3	0	0	3	3	MINOR	PEC	ELECTIV E	CSE	
7	25B11CI5XX	Minor Elective – 3	3	0	0	3	3	MINOR	PEC	ELECTIV E	CSE	
8	25B11MT417	Skill For Employability	3	1	0	4	4	AEC - 4	HSC	CORE	Management	
9	25B17CI573	Artificial Intelligence and Machine Learning Lab	0	0	2	2	1	MAJOR	PCC	CORE	CSE	
10	25B19CI591	Summer Training-I (4 weeks)	0	0	0	0	2	TRAININ G	PRC	CORE	CSE	

Total 24

SIXTH SEMESTER

S.No.	Sub Code	Sub Name	L	T	P	Total Hrs	Credits	UGC/NEP Category	AICTE Category	University Category	Department offered	Remarks
1	25B11CI611	Computer Networks	3	0	0	3	3	MAJOR	PCC	CORE	CSE	
2	25B11CI612	Software Engineering	3	0	0	3	3	MAJOR	PCC	CORE	CSE	
3	25B11CI6XX	Minor Elective – 4 (Ad Data Structure)	3	0	0	3	3	MINOR	PEC	ELECTIV E	CSE	
4	25B17CI671	Computer Networks Lab	0	0	2	2	1	MAJOR	PCC	CORE	CSE	
5	25B17CI672	Software Engineering Lab	0	0	2	2	1	MAJOR	PCC	CORE	CSE	
6	25B11XXXX	Open Elective – 1	3	0	0	3	3	MINOR	OEC	ELECTIV E		
7	25B11CI6XX	Minor Elective – 5	3	1	0	4	4	MINOR	PEC	ELECTIV E	CSE	
8	25B17CI673	Competitive Programming Lab	0	0	2	2	0(Qual ifying)	MAJOR	PCC	CORE	CSE	
9	25B19CI691	Minor Project	0	0	4	4	2	PROJECT	PRC	CORE	CSE	

Total 20

SEVENTH SEMESTER

S.No.	Sub Code	Sub Name	L	T	P	Total Hrs	Credits	UGC/NEP Category	AICTE Category	University Category	Department offered	Remarks
1	25B11CI7XX	Minor Elective – 6 (Information Security and Cryptography)	3	0	0	3	3	MINOR	PEC	ELECTIVE	CSE	
2	25B11XXXX	Open Elective – 2	3	0	0	3	3	MINOR	OEC	ELECTIVE		
3	25B17CI771	Mobile Application Development Lab	0	0	2	2	0(Qualifying)	MAJOR	PCC	CORE	CSE	
4	25B19CI791	Major Project Part – 1	0	0	0	8	4	PROJECT	PRC	CORE	CSE	
5	25B19CI792	Summer Training - II (6 weeks)	0	0	0	0	4	TRAINING	PRC	CORE	CSE	

Total 14

EIGHTH SEMESTER

S.No.	Sub Code	Sub Name	L	T	P	Total Hrs	Credits	UGC/NEP Category	AICTE Category	University Category	Department offered	Remarks
1	25B11CI8XX	Minor Elective – 7	3	0	0	3	3	MINOR	PEC	ELECTIVE	CSE	
2	25B11XXXX	Open Elective – 3	3	0	0	3	3	MINOR	OEC	ELECTIVE		
3	25B19CI891	Major Project Part – 2	0	0	0	16	8	PROJECT	PRC	CORE	CSE	

Total 14

Total Program Credits: 19 + 23 + 24 + 22 + 24 + 20 + 14 + 14 = 160

Tentative List of Electives (To be updated time to time)

Course Code	Course Name	Course Code	Course Name
25B11CI413	Deep Learning	25B11CI614	Reinforcement Learning
25B11CI414	Introduction to Big data and Data Analytics	25B11CI616	Secure Design of Software Systems
25B11CI415	Automata Theory and its applications	25B11CI617	Computing for Data Science
25B11CI416	Fundamentals of Computer security	25B11CI618	Introduction to DevOps
25B11CI514	Computer Vision	25B11CI619	Machine Learning and Natural Language Processing
25B11CI515	Fundamentals of Soft Computing	25B11CI811	Social Network Analysis
25B11CI516	IoT Analytics	25B11CI812	Ethical Hacking and Prevention
25B11CI517	Machine Learning and Big Data	25B11CI813	Advanced Blockchain
25B11CI518	Big Data with Hadoop and Spark	25B11CI814	Fog and Edge Computing
25B11CI519	Sensor Technology & Android Programming	25B11CI815	Information Retrieval and Semantic Web