

2024 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.

Course Category Code:

S. No.	Category	Code	AICTE Recommended Breakup of Credits for CSE	Revised Credit Breakup (2024 onwards)
1	Humanities and Social Sciences including Management Courses	HSC	16	12
2	Basic Science Courses	BSC	23	25
3	Engineering Science courses including workshop, drawing, basics of electronics/electrical/mechanical/computer etc.	ESC	29	18
4	Professional Core Courses	PCC	59	54
5	Professional Elective courses relevant to chosen specialization/branch	PEC	12	21
6	Open subjects–Electives from other technical and/or emerging subjects	OEC	9	08
7	Project work, seminar and internship in industry or elsewhere	PRC	15	22
8	Mandatory Courses [Environmental Sciences, Induction Program, Indian Constitution, Essence of Indian Knowledge Tradition]	OMC	(non-credit)	(non-credit)
TOTAL			163	160

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FIRST SEMESTER

S. No.	Course			Contact Hours				Credits
	Category	Course Code	Course Title	L	T	P	Total	
1	BSC	15B11MA111	Mathematics-1	3	1	0	4	4
2	BSC	15B11PH111	Physics-1	3	1	0	4	4
3	ESC	15B11CI111	Software Development Fundamentals-I	3	1	0	4	4
4	HSC	15B11HS112	English	1	0	2	3	2
5	BSC	15B17PH171	Physics Lab-1	0	0	2	2	1
6	ESC	24B15CS111	Software Development Fundamentals Lab-I	0	0	2	2	1
7	ESC	18B15GE112	Workshop	0	0	3	3	1.5
8	ESC	24B11EC111	Basic Electronics	3	1	0	4	4
9	ESC	24B15EC111	Basic Electronics Lab	0	0	2	2	1
Total							28	22.5

SECOND SEMESTER

S. No.	Course			Contact Hours				Credits
	Category	Course Code	Course Title	L	T	P	Total	
1	BSC	15B11MA211	Mathematics-2	3	1	0	4	4
2	BSC	15B11PH211	Physics-2	3	1	0	4	4
3	ESC	15B11CI121	Software Development Fundamentals-II	3	1	0	4	4
4	BSC	15B17PH271	Physics Lab-2	0	0	2	2	1
5	ESC	24B15CS121	Software Development Fundamentals Lab-II	0	0	2	2	1
6	HSC	24B16HS111	Life Skills & Professional Communication Lab	0	0	2	2	Qualifying
7	ESC	18B15GE111	Engineering Drawing & Design	0	0	3	3	1.5
8	HSC	24B11HS111	Universal Human Values (UHV)	2	1	0	3	3
Total							24	18.5

THIRD SEMESTER

S. No.	Course			Contact Hours				Credits
	Category	Course Code	Course Title	L	T	P	Total	
1	BSC	24XXXXXX	Mathematical Foundations for Artificial Intelligence and Data Science	3	1	0	4	4
2	PCC	15B11CI212	Theoretical Foundations of Computer Science	3	1	0	4	4
3	PCC	15B11CI311	Data Structures	3	1	0	4	4
4	PCC	24XXXXXX	Database Management Systems	3	1	0	4	4
5	PCC	24XXXXXX	Generative AI Workshop	0	0	2	2	1
6	PCC	24XXXXXX	Data Structures and Programming Lab	0	0	2	2	1
7	PCC	24XXXXXX	Database Management Systems Lab	0	0	2	2	1
8	HSC	15B11HS211	Economics	2	1	0	3	3
9	PRC	XXXXXXX	Summer Training-I (4 weeks)	0	0	0	0	2
Total							25	24

FOURTH SEMESTER

S. No.	Course			Contact Hours				Credits
	Category	Course Code	Course Title	L	T	P	Total	
1	HSC	XXXXXXX	HSS Elective – 1	2	1	0	3	3
2	PCC	15B11CI411	Algorithms and Problem Solving	3	1	0	4	4
3	PCC	18B11EC213	Digital Systems	3	1	0	4	4
4	PCC	24XXXXXX	Advanced Data Structures using Object Oriented Programming	3	1	0	4	4
5	PCC	15B11CI313	Computer Organisation and Architecture	3	0	0	3	3
6	PCC	15B17CI471	Algorithms and Problem Solving Lab	0	0	2	2	1
7	PCC	18B15EC213	Digital Systems Lab	0	0	2	2	1
8	PCC	24XXXXXX	Object Oriented Programming Lab	0	0	2	2	1
9	PEC	XXXXXXX	Discipline Elective – 1	2	0	0	2	2
10	PEC	XXXXXXX	Discipline Elective – 1 Lab	0	0	2	2	1
11	OMC	19B13BT211	Environmental Studies	3	0	0	3	Qualifying
Total							31	24

FIFTH SEMESTER

S. No.	Course			Contact Hours				Credits
	Category	Course Code	Course Title	L	T	P	Total	
1	PCC	15B11CI412	Operating Systems and Systems Programming	3	1	0	4	4
2	PCC	XXXXXXXX	Web Technology	3	1	0	4	4
3	PCC	15B17CI472	Operating Systems and Systems Programming Lab	0	0	2	2	1
4	PCC	XXXXXXXX	Web Technology Lab	0	0	2	2	1
5	PEC	XXXXXXXX	Discipline Elective – 2	2	0	0	2	2
6	PEC	XXXXXXXX	Discipline Elective – 2 Lab	0	0	2	2	1
7	PEC	XXXXXXXX	Discipline Elective – 3	2	0	0	2	2
8	PEC	XXXXXXXX	Discipline Elective – 3 Lab	0	0	2	2	1
9	BSC	XXXXXXXX	Science Elective	3	0	0	3	3
10	OMC	18B12HS311	Indian Constitution & Traditional Knowledge	3	0	0	3	Qualifying
11	PRC	XXXXXXXX	Summer Training-II (6 weeks)	0	0	0	0	2
Total							26	21

SIXTH SEMESTER

S. No.	Course			Contact Hours				Credits
	Category	Course Code	Course Title	L	T	P	Total	
1	PCC	18B11CS311	Computer Networks and Internet of Things	3	0	0	3	3
2	PCC	15B11CI513	Software Engineering	3	0	0	3	3
3	PCC	XXXXXXXX	Theory of Computation and Compiler Design	3	0	0	3	3
4	PCC	18B15CS311	Computer Networks and Internet of Things Lab	0	0	2	2	1
5	PCC	15B17CI573	Software Engineering Lab	0	0	2	2	1
6	PEC	XXXXXXXX	Discipline Elective – 4	3	0	0	3	3
7	PEC	XXXXXXXX	Discipline Elective – 5	3	0	0	3	3
8	OEC	XXXXXXXX	Open Elective – 1	2	0	0	2	2
9	Value Added	XXXXXXXX	Selected Value-Added Course	2	0	0	2	Audit
10	HSC	24B15HS311	Soft Skill For Employability	0	0	2	2	1
11	PRC	24XXXXXXXX	Minor Project	0	0	4	4	2
Total							29	22

SEVENTH SEMESTER

S. No.	Course			Contact Hours				Credits
	Category	Course Code	Course Title	L	T	P	Total	
1	PEC	XXXXXXXX	Discipline Elective – 6	3	0	0	3	3
2	OEC	XXXXXXXX	Open Elective – 2	3	0	0	3	3
3	PRC	15B19CI791	Major Project Part – 1	0	0	0	8	4
4	PRC	XXXXXXXX	Summer Training - III (6 weeks)	0	0	0	0	4
Total							14	14

EIGHTH SEMESTER

S. No.	Course			Contact Hours				Credits
	Category	Course Code	Course Title	L	T	P	Total	
1	PEC	XXXXXXXX	Discipline Elective – 7	3	0	0	3	3
2	OEC	XXXXXXXX	Open Elective – 3	3	0	0	3	3
3	PRC	XXXXXXXX	Major Project Part – 2	0	0	0	16	8
Total							22	14

Total Program Credits: $22.5 + 18.5 + 24 + 24 + 21 + 12 + 14 + 14 = 160$

List of Electives

Discipline Elective –1

S. No.	Course Code	Course Title
1		
2		
3		

Discipline Elective –2

S. No.	Course Code	Course Title
1		
2		
3		

Discipline Elective –3

S. No.	Course Code	Course Title
1		
2		
3		

Discipline Elective –4

S. No.	Course Code	Course Title
1		
2		
3		

Discipline Elective –5

S. No.	Course Code	Course Title
1		
2		
3		

Discipline Elective –6

S. No.	Course Code	Course Title
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1		
2		
3		

Discipline Elective –7

S. No.	Course Code	Course Title
1		
2		
3		

Mandatory Internships/Summer Trainings

Summer Training -I (4 weeks) (In summer vacation after second semester)

Sr. No.	Course		Course Category	Contact Hours			Credits	
	No.	Title		L	T	P Total		
1.	xxxxxx	Inter/Intra institutional activities (Training with higher Institutions; Soft skill training organized by Training and Placement Cell of the respective institutions; contribution at incubation/innovation /entrepreneurship cell of the institute; participation in conferences/ workshops/ competitions etc.; Learning at Departmental Lab/Tinkering Lab/ Institutional workshop; Working for consultancy/ research project within the institutes and Participation in all the activities of Institute's Innovation Council for eg.: IPR workshop/Leadership Talks/ Idea/Design/ Innovation/ Business Completion/ Technical Expos etc.)	PRC1	0		6	6	2
		TOTAL					6	2

Summer Training -II (6 weeks) (In summer vacation after fourth semester)

Sr.	Course	Course	Contact Hours	Credi
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No.			Category					ts
	No.	Title		L	T	P	Total	
1.	xxxxxx	Industrial/Govt./ NGO/MSME/ Rural Internship/ Innovation /Entrepreneurship (Students may choose either to work on innovation or entrepreneurial activities resulting in start-up or undergo internship with industry/ NGO's/ Government organizations/ Micro/ Small/ Medium enterprises to make themselves ready for the industry. In case student want to pursue their family business and don't want to undergo internship, a declaration by a parent may be submitted directly to the TPO.)	PRC1	0		6	6	2
		TOTAL					6	2

Summer Training -III (6 weeks) (In summer vacation after sixth semester)

Sr. No.	Course		Course Category	Contact Hours				Credits
	No.	Title		L	T	P	Total	
1.	xxxxxx	Industrial/Govt./ NGO/MSME/ Rural Internship/ Innovation / Entrepreneurship (Students may choose either to work on innovation or entrepreneurial activities resulting in start-up or undergo internship with industry/ NGO's/ Government organizations/ Micro/ Small/ Medium enterprises to make themselves ready for the industry. In case student want to pursue their family business and don't want to undergo internship, a declaration by a parent may be submitted directly to the TPO.)	PRC1	0		8	8	4
		TOTAL					8	4