



**CHRIST COLLEGE OF ENGINEERING
(AUTONOMOUS)
(A CMI Institution)**

**DEPARTMENT OF CIVIL
ENGINEERING**

B. Tech. CURRICULUM – 2025

Date: 30-06-2026

Irinjalakuda, Thrissur – 680125

B. Tech. Civil Engineering

2025 Curriculum - Programme Structure

Semester (Credits)	S1	S2	S3	S4	S5	S6	S7	S8	Total	%	KTU	AICTE Model
Humanities and Social Science Course including Management Course (HM)	1	1	5	1	3	2			13	7.78	5.98	7.5
Basic Science Course (BS)	7	7	3	3					20	11.98	11.98	18.1
Engineering Science Course (ES)	12	11	4		1				28	16.77	16.16	16.87
Programme Core Courses (PC)	-	4	11	15	15	18			63	37.72	40.71	36.25
Programme Elective Course (PE)	-			3	3	3	6	3	18	10.78	10.78	5.6
Open Elective Course (OE)	-					3	3	3	9	5.39	5.39	5.6
Skill Enhancement Course (SE)	-	2	1	1	1	1			6	3.59	0	0
Project/ Internship/Seminar (PR/IP/SR)	-						6	4	10	5.99	5.99	10
Mandatory Course (MC) (Environmental Science, Induction program, Indian Constitution, Essence of Indian Knowledge Tradition)										0	0	
Total	20	25	24	23	23	27	15	10	167			0
Minor	0	0	4	4	4	4	0	0	16			
Honour	0	0	0	4	4	4	4	0	16			

Additional 3 Credits from Activity points

Course Distribution by Semester and Type

Sl. No.	Course Type	Number of Courses								Total
		S1	S2	S3	S4	S5	S6	S7	S8	
1	Humanities and Social Science Course including Management Course (HM)	1	1	3	1	1	1			8
2	Basic Science Course (BS)	2	2	1	1					6
3	Engineering Science Course (ES)	4	4	1		1				10
4	Programme Core Courses (PC)		1	4	5	5	6			21
5	Programme Elective Course (PE)				1	1	1	2	1	6
6	Open Elective Course (OE)						1	1	1	3
7	Skill Enhancement Course (SE)		1	1	1	1	1			5
8	Project/ Internship/Seminar (PR/IP/SR)							2	1	3
9	Mandatory Course (MC)				2	1				3
	Total	7	9	10	11	10	10	5	3	65

Course Code Format Guidelines

Each course in the curriculum shall be identified by a unique nine-character alphanumeric code structured as follows:

1. First Letter - Department Code

Indicates the parent department:

- C - Civil Engineering
- M - Mechanical Engineering
- E - Electrical and Electronics Engineering
- L - Electronics and Communication Engineering
- V - VLSI
- R - Computer Science and Engineering
- B - Computer Science and Business Systems
- D - Computer Science and Engineering (Data Science)

2. Second and Third Letters - Curriculum Scheme Year

Represents the year in which the curriculum scheme was introduced (e.g., 25 for 2025).

3. Fourth and Fifth Letters - Abbreviation of Course Title

Two-letter short form of the course title (e.g., MA for Mathematics, DS for Data Structures).

4. Sixth Letter - Course Type Indicator

Denotes the nature of the course:

- T - Theory
- P - Practical
- E - Lab Embedded
- R - Project

5. Seventh Character - Semester Number

Indicates the semester in which the course is offered (e.g., 1 for Semester I).

6. Eighth and Ninth Characters - Course Sequence Number

Represents the order of the course in that semester (e.g., 21 for the 21st course).

Example:

M25TDT403

- M - Mechanical Engineering
- 25 - Curriculum Revision 2025
- TD - Thermodynamics
- T - Theory Based Course
- 4 - Offered in Semester IV
- 03 – 3rd Course in that semester

FIRST SEMESTER: Civil Engineering														
10 Days Compulsory Induction Program and Universal Human Values														
Sl. No:	Slot	Course Code	Course Type	Course Category	Course Title (Course Name)	Credit				SS	Total		Credits	Hrs./Week
						L	T	P	R		CIE	ESE		
THEORY														
1	A	G25MAT121	BS	GC	Mathematics for Physical Science-1	3	0	0	0	4.5	40	60	3	3
2	B	G25PYE122	BS	GC	Physics for Physical Science	3	0	2	0	5.5	40	60	4	5
3	C	G25EGE104	ES	GC	Engineering Mechanics	3	0	0	0	4.5	40	60	3	3
4	D	G25MCT105	ES	GC	Introduction to Mechanical Engineering & Civil Engineering (Part 1: Mechanical Engineering)	2	0	0	0	3	20	30	2+2 = 4	4
					(Part 2: Civil Engineering)	2	0	0	0		20	30		
PRACTICALS														
5	F	A25ATE106	ES	CC	Algorithmic Thinking with Python	3	0	2	0	5.5	40	60	4	5
6	L	G25EWP107	ES	GC	Basic Civil and Mechanical Engineering Workshop	0	0	2	0	1	50	50	1	2
7	I S1/ S2	A25HWE108	HM	CC	Health and Wellness	1	0	1	0	0	50	0	1	2/3
		A25LSE109			Life Skills and Professional Communication	2	0	1	0	3.5	100	0		
MANDATORY COURSES														
8	-	-	MC	MC	Activity Point Programme ^s								0	-
Total										27.5			20	24/ 25

- L-T-P-R = Lecture – Tutorial – Practical - Project
- SS (Self Study) Hours = $1.5*L+0.5*T+0.5*P+R$
- CIE = Continuous Internal Evaluation, and ESE = End Semester Examination

[§] **Activity Points:** Students are required to acquire a minimum of 120 activity points, with at least 40 points per group, to fulfil the curriculum requirement of 3 activity credits. At the end of 6th semester, the students are required to earn the minimum number of activity points from the AICTE mandated activity point programme to qualify for the award of B. Tech degree.

SECOND SEMESTER: Civil Engineering														
Sl. No:	Slot	Course Code	Course Type	Course Category	Course Title (Course Name)	Credit				SS	Total		Credits	Hrs./Week
						L	T	P	R		CIE	ESE		
THEORY														
1	A	G25MAT221	BS	GC	Mathematics for Physical Science-2	3	0	0	0	4.5	40	60	3	3
2	B	G25PYE122	BS	GC	Chemistry for Physical Science	3	0	2	0	5.5	40	60	4	5
3	C	G25EGE204	ES	GC	Engineering Graphics & Computer Aided Drawing	2	0	2	0	4	40	60	3	4
4	D	G25EET205	ES	GC	Basics of Electrical and Electronics Engineering (Part 1: Electrical Engineering)	2	0	0	0	3	20	30	2+2=4	4
					(Part 2: Electronics Engineering)	2	0	0	0	3	20	30		
5	E	C25MCT206	PC	PC	Mechanics of Solids	3	1	0	0	5	40	60	4	4
6	F	A25IPT207	ES	CC	Engineering Entrepreneurship & IPR	3	0	0	0	4.5	40	60	3	3
PRACTICALS														
7	I* S1/ S2	A25HWE108	HM	CC	Health and wellness	1	0	1	0	0	50	0	1[pass/fail]	2/3
		A25LSE109			Life Skills and Professional Communication	2	0	1	0	3.5	100	0		
8	L	C25CDP210	PC	PC	Civil Engineering Drafting Lab	0	0	2	0	1	50	50	1	2
MANDATORY COURSES														
9	M	A25ILE211	SE	CC	Introduction to Idea Lab and Digital Twin Technology	1	0	2	0	2.5	40	60	2	3
10	-	-	MC	MC	Activity Point Programme \$								-	-
Total										36.5			25	30/31

THIRD SEMESTER:Civil Engineering															
Sl. No:	Slot	Course Code	Course Type	Course Category	Course Title (Course Name)	Credit				SS	Total		Credits	Hrs./Week	
						L	T	P	R		CIE	ESE			
THEORY															
1	A	G25MAT321	BS	GC	Partial Differential Equations and Complex Analysis	2	1	0	0	3.5	40	60	3	3	
2	B	C25SGR302	PC-PBL	PC	Surveying and Geomatics #	2	1	0	1	4.5	60	40	4	4	
3	C	C25SAT303	PC	PC	Structural Analysis I	2	1	0	0	3.5	40	60	3	3	
4	D	A25AIT304	ES	GC	Introduction to Artificial Intelligence and Data Science	3	1	0	0	5	40	60	4	4	
5	E	A25ECT305	HM	CC	Engineering Economics	2	0	0	0	3	40	60	2	2	
6	F	A25AEP306	HM	CC	Applied English for Communication	2	0	0	0	3	50	-	2	2	
7	G	G25EST307	HM	CC	Environmental Science	1	0	0	0	1.5	40	60	1	1	
PRACTICALS															
8	H	C25SGP308	PC	PC	Surveying Lab	0	0	3	0	1.5	50	50	2	3	
9	I	A25EDR309	SE	CC	Engineering Design and Innovation Studio (EDIS-I)	0	0	0	2	1	50	-	1	2	
10	J	C25MSP310	PC	PC	Material Testing Lab I	0	0	3	0	1.5	50	50	2	3	
MANDATORY COURSES															
11		A25APP311	MC	CC	Activity Point Programme					0			-		
VALUE ADDED COURSES															
12	R/M	-	VA	CC	Remedial/Minor course	3	1	0	0	5	40	60	4	4	
Total										28/33*			24/28*	27/31*	

* Project-Based Learning (PBL) Courses Integrated in Semesters 3 to 6

Assessment method: Cambridge English language assessment Lingual skill General – B1 Preliminary/British council (General - B1) Aptis test assessment Range (43-58)

FOURTH SEMESTER: Civil Engineering														
Sl. No:	Slot	Course Code	Course Type	Course Category	Course Title (Course Name)	Credit Structure				SS	Total Marks		Credits	Hrs./Week
						L	T	P	R		CIE	ESE		
THEORY														
1	A	G25MAT421	BS	GC	Probability, Statistics, and Numerical Methods	2	1	0	0	3.5	40	60	3	3
2	B	C25FMT402	PC	PC	Geotechnical Engineering	2	1	0	0	3.5	40	60	3	3
3	C	C25SAT403	PC	PC	Structural Analysis II	3	1	0	0	5	40	60	4	4
4	D	C25DCR404	PC-PBL	PC	Design of Concrete Structures	2	1	0	1	4.5	60	40	4	4
5	E	C25PE14XX	PE	PE	Professional Elective - 1	3	0	0	0	4.5	40	60	3	3
6	F	G25CIT406	HM	CC	Indian Constitution	1	0	0	0	1.5	50	-	1	1
PRACTICALS														
7	G	C25GTP407	PC	PC	Geotechnical Lab	0	0	3	0	1.5	50	50	2	3
8	H	C25CLP408	PC	PC	Material Testing Lab -2	0	0	3	0	1.5	50	50	2	3
9	I	A26EDR409	SE	CC	Engineering Design and Innovation Studio (EDIS-II)	0	0	0	2	2	50	-	1	2
MANDATORY COURSES														
10	K	A25BCT410	MC	CC	Business and Managerial Communications	1	0	0	0	1.5	50	-	Pass / Fail	1
11	E	A25UHT411	MC	CC	Universal Human Values and Professional Ethics	1	0	0	0	1.5	50	50	Pass/Fail	1
ACTIVITY POINT PROGRAMME														
12			MC	CC	Activity Point Programme					0				
VALUE ADDED COURSES														
13	M	-	VA	CC	Minor/Honours Course	3	1	0	0	5	40	60	4	4
Total										30.5/ 35.5*			23/ 27*	28/ 32*

FIFTH SEMESTER: Civil Engineering														
Sl. No:	Slot	Course Code	Course Type	Course Category	Course Title (Course Name)	Credit				SS	Total		Credits	Hrs./Week
						L	T	P	R		CIE	ESE		
THEORY														
1	A	C25CCT501	PC	PC	Mechanics of Fluids	3	0	0	0	4.5	40	60	3	3
2	B	C25FER502	PC-PBL	PC	Foundation Engineering	2	1	0	1	4.5	60	40	4	4
3	C	C25TET503	PC	PC	Transportation Engineering	3	1	0	0	5	40	60	4	4
4	D	M25MGT504	HM	CC	Management for Engineers	3	0	0	0	4.5	40	60	3	3
5	E	C25PE25XX	PE	PE	Professional Elective – II	3	0	0	0	4.5	40	60	3	3
6	F	A25INT506	ES	CC	Introduction to Industry 4.0	1	0	0	0	1.5	40	60	1	1
PRACTICALS														
7	G	C25FMP507	PC	PC	Fluid Mechanics Lab	0	0	3	0	1.5	50	50	2	3
8	H	C25TEP508	PC	PC	Transportation Engineering ab	0	0	3	0	1.5	50	50	2	3
9	I	A25EDR509	SE	CC	Engineering Design and Innovation Studio (EDIS-III)	0	0	0	2	2	50	-	1	2
MANDATORY COURSES														
10	J	A25QRT510	MC	CC	Quantitative and Reasoning Skills	1	0	0	0	1.5	50	-	Pass/fail	1
ACTIVITY POINT PROGRAMME														
11	-	A25APP511	MC	CC	Activity Point Programme					-	-			
VALUE ADDED COURSES														
12	M/H	-	VA	CC	Minor/Honours Course	3	1	0	0	5	40	60	4	4
	S5/S6	Industrial Visit (Maximum 12 Days are permitted, not exceeding 6 working days)												
Total										31/36*			23/27*	28/31*

Students can undertake the summer internship during the vacation after the 4th and 6th semester. The internship should be carried out in reputed industries, companies, or R&D organizations. The evaluation of the internship will consist of a presentation, report, and viva-voce. The credits will be added to the 5th and 7th semesters. Students can also opt for prescribed MOOC Courses instead of summer internship.

\$ In place of the summer internship, a MOOC course such as Project Management, Entrepreneurship, IPR, or any other engineering-related course may be offered, as decided by the Board of Studies from time to time.

SIXTH SEMESTER: Civil Engineering														
Sl. No:	Slot	Course Code	Course Type	Course Category	Course Title (Course Name)	Credit				SS	Total		Credits	Hrs./Week
						L	T	P	R		CIE	ESE		
THEORY														
1	A	C25HIT601	PC	PC	Hydraulics and Irrigation Engineering	3	1	0	0	5	40	60	4	4
2	B	C25EET602	PC	PC	Environmental Engineering	2	1	0	0	3.5	40	60	3	3
3	C	C25DST603	PC	PC	Design of Steel Structures	2	1	0	0	3.5	40	60	3	3
4	D	C25QVR604	PC-PBL	PC	Quantity Surveying and Evaluation#	2	1	0	1	4.5	60	40	4	4
5	E	C25PE36XX	PE	PE	Professional Elective – III*	3	0	0	0	4.5	40	60	3	3
6	C	C25OE16XX	OE	OE	Open Elective – I#	3	0	0	0	4.5	40	60	3	3
7	G	A25FLT607	HM	CC	Foreign Language Elective #	2	0	0	0	3	50	-	2	2
PRACTICALS														
8	H	C25EEP608	PC	PC	Environmental Engineering Lab	0	0	3	0	1.5	50	50	2	3
9	I	A25EDR609	SE	CC	Engineering Design and Innovation Studio (EDIS-IV)	0	0	0	2	2	50	-	1	2
10	J	C25CEP610	PC	PC	Civil Engineering Software Lab	0	0	3	0	1.5	50	50	2	3
ACTIVITY POINT PROGRAMME														
11	-	-	MC	CC	Activity Point Programme \$									
VALUE ADDED COURSES														
12	M	-	VA	CC	Minor/Honours Course	3	1	0	0	5	40	60	4	4
		Industrial Visit (Maximum 12 Days are permitted, not exceeding 6 working days)												
Total										33.5/ 37.5*			27/ 31*	30/ 34*

* Students are encouraged to choose professional electives from a single stream, preferably.

Open Electives are such courses which will be offered for other departments. Like ME department students have to opt open electives from CE/EEE/CS/CSDS/CSBS/ECE/VLSI/ME/EEE departments.

SEVENTH SEMESTER: Civil Engineering														
Sl. No:	Slot	Course Code	Course Type	Course Category	Course Title (Course Name)	Credit				SS	Total		Credits	Hrs./Week
						L	T	P	R		CIE	ESE		
THEORY														
1	A	C25PE47XX	PE	PE	Professional Elective – IV (Internship Students: Self Study/MOOC Approved by the College/Online Classes)	3	0	0	0	4.5	40	60	3	3
2	B	C25PE57XX	PE	PE	Professional Elective – V (Internship Students: Self Study/MOOC Approved by the College/Online Classes)	3	0	0	0	4.5	40	60	3	3
3	C	C25OE27XX	OE	OE	Open Elective – II (Internship Students: Self Study/MOOC Approved by the College/Online Classes)	3	0	0	0	4.5	40	60	3	3
4	D	C25SMP704	SR	SR	Seminar (Symposium)	0	0	3	0	1.5	40	60	2	3
PRACTICALS														
5	I	C25CP1705	PR/IP	PR/IP	Option 1: Capstone Project	0	0	0	12	12	100	0	4	10
6		C25INI706	PR/IP	PR/IP	Option 2: Industry Internship [#]					-	100	0		
VALUE ADDED COURSES														
7	R/H	-	VA	CC	Honours Course	3	0	0	0	4.5			4	4
Total										27/ 31.5*			15/ 19*	22/ 26*

* The students can take the internship option either in 7th or in 8th semester.

* **Option 1:** Work on a Project in the institute/department under the mentorship of faculty members.

Option 2: Full semester Internship in Industry/organization (7th or 8th semester)

Note: Open Electives are such courses which will be offered by other departments.

* Students are encouraged to choose professional electives from a single stream, preferably.

#Assessment method: Cambridge English language assessment Lingua skill General – B1

Preliminary/British council (General - B1) Aptis test assessment Range (43-58)

EIGHTH SEMESTER: Civil Engineering														
Sl. No:	Slot	Course Code	Course Type	Course Category	Course Title (Course Name)	Credit				SS	Total		Credits	Hrs./Week
						L	T	P	R		CIE	ESE		
THEORY														
1	A	C25PE68XX	PE	PE	Professional Elective - VI (Internship Students: Self Study/MOOC Approved by the College/Online)	3	0	0	0	4.5	40	60	3	3
2	B	C25OE38XX	OE	OE	Open Elective - III (Internship Students: Self Study/MOOC Approved by the College/Online Classes)	3	0	0	0	4.5	40	60	3	3
PRACTICALS														
3	I	C25CPR803	PR/ IP	PR/IP	Option 1: Capstone Project Phase – II Option 2: Industry Internship	0	0	0	12	12	100	0	4	12
										100				
		C25INR804			Option 3: Capstone Project Phase - II									
Total										21/ 25*			10/ 14*	18/ 22*

Professional Electives

Professional Electives

1. Environmental Scheme

1. Air Quality Management
2. Environmental Remote Sensing
3. Climate Change and Sustainability
4. Environmental Impact Assessment
5. Municipal Solid Waste Management
6. Industrial Waste Water Management
7. Soil and Hazardous Waste Management
8. Physico-Chemical Processes in Waste Water Treatment

2. Geotechnical Engineering Scheme

1. Soil Structure Interaction
2. Environmental Geotechniques
3. Ground Improvement Techniques
4. Unsaturated Soil Mechanics
5. Geotechnical Investigation
6. Geosynthetics and Reinforced Soil Structures
7. Engineering Geology
8. Rock Mechanics

3. Water Resources Engineering

1. Surface Water Hydrology
2. Open Channel Hydraulics
3. Water Conservation and Management
4. Watershed Management and Soil Conservation
5. Design of Hydraulic Structures
6. Hydro Power Engineering
7. Hydraulic Structures and River Engineering
8. GIS and Hydro informatics
9. GIS and Cartography

4. Structural Engineering

1. Functional Design of Buildings
2. Repair and Rehabilitation of Buildings
3. Prestressed Concrete Design
4. Advanced Structural Design
5. Concrete Technology
6. Finite Element Methods
7. High Rise Structures
8. Structural Dynamics and Earthquake Resistant Design

5. Transportation Engineering

1. Railways, Airports, Docks and Harbour Engineering
2. Traffic Engineering and Management
3. Highway Pavement Design
4. Alternative Materials and Methods for Road Construction
5. Transportation Planning
6. Sustainable Transportation
7. Intelligent Transportation Systems
8. Road Transport Management and Economics

Language Electives

- German Language–Level A1.1
- French Language–Level 1
- Japanese Language

Open Electives

Open Elective 1

1. Environmental Health and Safety
2. Natural Disasters and Mitigation
- Environmental Impact Assessment
4. Project Planning and Management

Open Elective 2

1. Municipal solid Waste Management
2. Sustainable Engineering
3. Air Quality and Pollution Control
4. Sustainable Construction Materials

Open Elective 3

1. Remote Sensing -principles and applications
2. Industrial safety Engineering
3. Renewable Energy Systems

Open Elective 4

1. Green Building Design and Energy Efficiency
2. Sustainable Urban Development and Smart Cities
3. Disaster Risk Reduction and Climate Resilient Infrastructure
4. Water and Wastewater Management for Sustainable Development

Open Elective5

1. Introduction to Indian Knowledge Systems
2. Indian Knowledge Systems–Kerala Architectural Style and Engineering Wisdom
3. Indian Knowledge Systems–Indian Agro-Machinery and Sustainable Mechanisation

