



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

**DEPARTMENT OF ELECTRICAL &
ELECTRONICS ENGINEERING**

B. Tech. CURRICULUM – 2025

Date: 30-06-2026

Irinjalakuda, Thrissur – 680125

B. Tech. Electrical & Electronics 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: Electrical and Electronics Engineering														
10 Days Compulsory Induction Program and Universal Human Values														
Sl. No:	S l o t	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	G25MAT111	BS	GC	Mathematics for Electrical Science-1	3	0	0	0	4.5	40	60	3	3
2	B S1/ S2	G25PYE112	BS	GC	Physics for Electrical Science	3	0	2	0	5.5	40	60	4	5
		G25CYE103			Chemistry for Electrical Science									
3	C	G25EGE104	ES	GC	Engineering Graphics and Computer Aided Drawing	2	0	2	0	4	40	60	3	4
4	D	G25EET105	ES	GC	Introduction to Electrical & 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		20	30		
PRACTICALS														
5	F	A25ATE106	ES	CC	Algorithmic Thinking with Python	3	0	2	0	5.5	40	60	4	5
6	L	G25EEP107	ES	GC	Basic Electrical and Electronics Engineering Workshop 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			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: Electrical and Electronics Engineering														
Sl. No:	S l o t	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	G25MAT211	BS	GC	Mathematics for Electrical Science-2	3	0	0	0	4.5	40	60	3	3
2	B S1/ S2	G25PYE112	BS	GC	Physics for Electrical Science	3	0	2	0	5.5	40	60	4	5
		G25CYE103			Chemistry for Electrical Science									
3	C	G25MHT204	ES	GC	Engineering Mechanics	3	0	0	0	4.5	40	60	3	3
4	D	G25PCE206	ES	GC	Programming in C	3	0	2	0	5.5	40	60	4	5
5	E	E25MIT207	PC	PC	Measurements and Instrumentation	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	2/3
		A25LSE109			Life Skills and Professional Communication	2	0	1	0	3.5	100	0		
8	L	G25ITP210	ES	CC	IT Workshop	0	0	2	0	1	50	50	1	2
9	M	A25ILE211	SE	CC	Introduction to Idea Lab and Digital Twin Technology	1	0	2	0	2.5	50	50	2	3
ACTIVITY POINT PROGRAMME														
10	-	-	MC	MC	Activity Point Programme \$								-	-
Total										36.5			25	30/31

THIRD SEMESTER: Electrical and Electronics Engineering															
Sl. No:	S l o t	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	G25MAT321	BS	GC	Partial Differential Equations, Complex Analysis and Transforms	2	1	0	0	3.5	40	60	3	3	
2	B	E25ADR302	PC-PBL	PC	Analog and Digital Electronics	2	1	0	1	4.5	60	40	4	4	
3	C	E25CNT303	PC	PC	Circuits and Networks	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	E25ADP308	PC	PC	Analog and Digital Electronics 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	2	50	-	1	2	
10	J	E25CMP310	PC	PC	Circuits and Measurements Lab	0	0	3	0	1.5	50	50	2	3	
ACTIVITY POINT PROGRAMME															
11		A25APP311	MC	CC	Activity Point Programme					0			-		
VALUE ADDED COURSES															
12	M	-	VA	CC	Minor course	3	1	0	0	5	40	60	4	4	
Total										29/34*			24/28*	27/31*	

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

FOURTH SEMESTER: Electrical and Electronics 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	G25MAT401	BS	GC	Probability Distributions, Random Process and Numerical Methods	2	1	0	0	3.5	40	60	3	3
2	B	E25DTT402	PC	PC	DC Machines and Transformers	2	1	0	0	3.5	40	60	3	3
3	C	E25SST403	PC	PC	Signals and Systems	3	1	0	0	5	40	60	4	4
4	D	E25PER404	PC-PBL	PC	Power Electronics	2	1	0	1	4.5	60	40	4	4
5	E	E25PE14XX	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	E25DTP407	PC	PC	DC Machines and Transformers Lab	0	0	3	0	1.5	50	50	2	3
8	H	E25PEP408	PC	PC	Power Electronics Lab	0	0	3	0	1.5	50	50	2	3
9	I	A25EDR409	SE	CC	Engineering Design and Innovation Studio (EDIS-II)	0	0	0	2	2	50	-	1	2
MANDATORY NON CREDIT COURSES														
10	J	A25BCT410	MC	CC	Business and Managerial Communications	1	0	0	0	1.5	50	-	Pass / Fail	1
11	K	A25UHT411	MC	CC	Universal Human Values and Professional Ethics	1	0	0	0	1.5	50	50	Pass / Fail	1
ACTIVITY POINT PROGRAMME														
12	-	A25APP412	MC	CC	Activity Point Programme					0			-	
VALUE ADDED COURSES														
13	M/H	-	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: Electrical and Electronics Engineering														
Sl. No:	S l o t	Course Code	Co urs e Ty pe	Cou rse Cate gory	Course Title (Course Name)	Credit Structure				SS	Total Marks		Credit s	Hr s./ We ek
						L	T	P	R		CIE	ESE		
THEORY														
1	A	E25SIT501	PC	PC	Synchronous and Induction Machines	3	0	0	0	4.5	40	60	3	3
2	B	E25MER502	PC-PBL	PC	Microprocessor and Embedded Systems	2	1	0	1	4.5	60	40	4	4
3	C	E25PGT503	PC	PC	Power Generation, Transmission and Protection	3	1	0	0	5	40	60	4	4
4	D	E25MGT504	HM	CC	Management for Engineers	3	0	0	0	4.5	40	60	3	3
5	E	E25PE25XX	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	E25SIP507	PC	PC	Synchronous and Induction Machines Lab	0	0	3	0	1.5	50	50	2	3
8	H	E25MEP508	PC	PC	Microprocessor and Embedded Systems Lab	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*	27/ 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.

SIXTH SEMESTER: Electrical and Electronics Engineering															
Sl. No:	S l o t	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	E25CST601	PC	PC	Control Systems	3	1	0	0	5	40	60	4	4	
2	B	E26EVT602	PC	PC	Electric Vehicle Technology	2	1	0	0	3.5	40	60	3	3	
3	C	E25EMT603	PC	PC	Electromagnetic Theory	2	1	0	0	3.5	40	60	3	3	
4	D	E25PSR604	PC-PBL	PC	Power System Analysis	2	1	0	1	4.5	60	40	4	4	
5	E	E25PE36XX	PE	PE	Professional Elective – III*	3	0	0	0	4.5	40	60	3	3	
6	F	E25OE16XX	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	E25PSP608	PC	PC	Power Systems 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	H	E25CDP610	PC	PC	Control Systems and Drives Lab	0	0	3	0	1.5	50	50	2	3	
ACTIVITY POINT PROGRAMME															
11	-	A25APP611	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	
		Industrial Visit (Maximum 12 Days are permitted, not exceeding 6 working days)													

Total					33.5/ 38.5*		27/ 31*	30/ 34*
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* 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: Electrical and Electronics Engineering														
Sl. No:	S l o t	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	E25PE47XX	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	E25PE57XX	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	E25OE27XX	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	E25SMP704	SR	SR	Seminar (Symposium)	0	0	3	0	1.5	40	60	2	3
PRACTICALS														
5	I	E25CPI705	PR/IP	PR/IP	Option 1: Capstone Project	0	0	0	12	12	100	0	4	12
		E25INI705	PR/IP	PR/IP	Option 2: Industry Internship [#]					-	100	0		
VALUE ADDED COURSES														
6	H	-	VA	CC	Honours Course	3	0	0	0	4.5			4	4
Total										27/ 31.5*			15/ 19*	24/ 28*

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)

EIGHTH SEMESTER: Electrical and Electronics Engineering															
Sl. No:	S l o t	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	E25PE68XX	PE	PE	Professional Elective - VI (Internship Students: Self Study/MOOC Approved by the College/Online Classes)	3	0	0	0	4.5	40	60	3	3	
2	B	E25OE38XX	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	E25CPR803	PR/ IP	PR/IP	Option 1: Capstone Project	0	0	0	12	12	100	0	4	12	
		Option 2: Industry Internship(4-6 Months)							100						
		Option 3: Capstone Project Phase - II													
Total										21/ 25*			10/ 14*	18/ 22*	

Professional Electives**1. POWER & ENERGY**

1. Energy Storage Systems
2. Design of PV systems
3. High Voltage Engineering
4. Battery Management Systems
5. Energy Management and Auditing
6. Deregulated power system
7. Power System Operation and Control
8. Digital Protection of Power Systems

2. POWER CONVERTERS & CONTROL

1. Switched Mode Power Converters
2. Power Quality

3. HVDC and FACTS
4. Discrete time Control Systems
5. Non-Linear Control Systems
6. Analysis of Power Electronic Circuits
7. Advanced Power Electronics and Control
8. Power Electronics System Design

3. E-MOBILITY

1. Electric Drives and Control
2. Energy Storage and Battery Management Systems
3. Hybrid and Electric Vehicles
4. Electric Machine Design
5. Autonomous Vehicles
6. Systems Engineering for Electric Vehicles
7. Drone systems and Control
8. Unmanned Aerial Vehicle

4. EMBEDDED SYSTEMS AND AUTOMATION

1. Semiconductor Devices and Circuits
2. Mechatronic Systems
3. Robotics and Automation
4. Mechanics and Control of Robotic Manipulators
5. Digital Signal Processing
6. Process Control and Instrumentation
7. Embedded System Design
8. Industrial Automation

5. GENERAL STREAM

1. Biomedical Instrumentation
2. Renewable Energy Sources
3. Electrical System Design & Estimation
4. Advanced Control Systems
5. Special Electrical Machines
6. Internet of Things
7. Soft Computing
8. Smart Grid Technologies

6. Language Electives

1. German Language – Level A1.1
2. French Language – Level 1
3. Japanese Language

Open Electives

Open Elective Group 1

1. Introduction to Power Engineering
2. Introduction to Control Systems
3. Introduction to Energy Storage Systems
4. Introduction to Power Electronics

Open Elective Group 2

1. Renewable Energy Systems
2. Principles of Instrumentation
3. Electric Drives
4. Switched Mode Power Converters

Open Elective Group 3

1. Energy Management
2. Mechatronics Systems and Control
3. Battery Management Systems
4. Electric Vehicles

Open Elective Group 4

1. Sustainable Energy Systems and Technologies
2. Introduction to Sustainable Manufacturing
3. Waste Heat Recovery and Utilization

Open Elective Group 5

1. Introduction to Indian Knowledge Systems
2. Indian Knowledge Systems – Kerala Architectural Style and Engineering Wisdom
3. Indian Knowledge Systems – Indian Metallurgical Science and Engineering Heritage